

Date: June 8, 2016

For ACTION _____

For INFORMATION x

Board Agenda: Yes x

No _____

FROM: Erika Gulick, Facilities Planner & GIS Specialist
Richard Jackson, Director, Educational Facilities
Elijah Gross, Director, Planning, Design & Construction

THROUGH: Alvin L. Crawley, Ed.D., Superintendent of Schools
Clarence Stukes, Chief Operations Officer

TO: The Honorable Karen Graf, Chair, and Members of the Alexandria
City School Board

TOPIC: Educational Specifications for Pre-K Center and High School(s) for ACPS

BACKGROUND: An educational specification (Ed Spec) is a guiding planning document that describes the proposed outcomes of a school modernization or new construction project. As part of the second phase of the Long Range Educational Facilities Plan (LREFP), ACPS engaged Brailsford & Dunlavey, Inc. to develop the pre-k center and high school Ed Specs.

The Ed Spec is a visionary document which tells the story of the school facility and how the built environment will support the academic program and promote the goals of school leadership. These specifications are designed to be non-site specific, but rather a planning guide and a communication and benchmarking tool. The general concept embodied in the specifications is to provide adequate details for proposed spaces while leaving ample flexibility for creativity and options in design. They are meant to define expectations amongst project stakeholders but not limit creativity. The Ed Spec is meant to be a flexible document that allows for amendments to be discussed, developed and issued over time.

The development process began with a series of discussions devoted to aligning the Ed Specs with the school division's strategic objectives and vision for future schools. This was followed by several weeks of interviews with technical experts and building users. The approved Ed Specs will be incorporated into the LREFP which will involve development of a community engagement plan that will ensure the document considers all perspectives related to facility needs.

RECOMMENDATION: The Superintendent recommends the School Board reviews the educational specifications on June 16, 2016 and approves the documents on June 23, 2016.

IMPACT: The adoption of these educational specifications will be used to benchmark the existing school facilities as well as inform the focus of future resources and future building projects.

CONTACT PERSON: Erika Gulick, 703-619-8298

ATTACHMENTS: 1. Draft Pre-K Center Educational Specifications
2. Draft High School Educational Specifications

Pre-K Center and High School Educational Specifications

June 16, 2016



Every Student Succeeds

Agenda

- Purpose and Intent of the Educational Specifications
- Alignment of Educational Specifications with High Performing Schools and ACPS 2020 Strategic Plan
- Overview of the Development Process
- Engagement of Stakeholders to Date
- Key Components of Pre-K Center Educational Specifications
- Key Components of High School Educational Specifications
- CIP Drivers that Impact Future High School Capacity
- Schedule/Next Steps

Purpose and Intent of the Educational Specifications

- An **Educational Specification** (Ed Spec) is a guiding planning document that describes the proposed outcomes of a school modernization or new construction project.
- It is important to note that these Ed Specs are not an indication of ACPS's intentions to build new schools, but rather serve as a guiding document to assess the gap between current schools and model schools.

Alignment of Educational Specifications with High Performing Schools and ACPS 2020 Strategic Plan

- Provide a strong instructional program and opportunities for continuous professional learning ¹
- Provide opportunities for collaboration and community engagement ¹
- Provide optimal and equitable learning environments ²
- Provide safe and supportive learning environments ²

¹ Characteristics of High Performing Schools

² [ACPS 2020 Plan](#)

Overview of the Development Process

| <u>Date</u> | <u>Action</u> |
|-------------------|---|
| Summer 2014 | ACPS developed Ed Specs for elementary and middle schools as part of the first phase of the Long Range Educational Facilities Plan (LREFP) with the intention to pursue Ed Specs for a pre-k center and high school at a later date. |
| March 2016 | ACPS contracted with Brailsford & Dunlavey (B&D) to develop the Ed Specs for a Pre-K Center and High School as part of the plan to develop the second phase of the LREFP. |
| March - June 2016 | ACPS Facilities Staff along with Brailsford & Dunlavey compiled the latest state and national guidelines, solicited input from ACPS experts, and reviewed trends in education to develop draft Ed Specs for the Pre-K Center and High School. |

Engagement of Stakeholders to Date

Over the past several months, the following groups have participated in the Ed Specs development:

- Senior Leadership Team
- Department of Curriculum & Instruction
 - ChildFind
 - Pre-K Central and School-Based Staff
- Campagna Center
- Secondary School Administration
- Facilities Staff

Key Components of Pre-K Center Educational Specifications

- The proposed ideal capacity of the model school is 360, with a range of capacity from 320-400.
- The proposed Ed Spec calls for 20 classrooms, a multi-purpose room, stage, play group area, 2 cafeterias, health suite, a library and an outdoor playspace .
- The proposed model school size is approximately 59,000 SF or 63,000 SF with ChildFind.

Key Components of High School

- The proposed ideal capacity of the model school is 1600, with a range of capacity from 1400-1800.
- At ideal capacity, the proposed Ed Spec calls for 72 core academic spaces as well as all extracurricular and community spaces necessary for a successful high school.
- The proposed model school size is approximately 260,000 SF.

CIP Drivers that Impact Future High School Capacity

| Status | Location | 2015-2016 Enrollment | FY 2026 Projected Enrollment | Current Capacity | FY 2026 Seat Difference |
|---------|-----------------------------|----------------------|------------------------------|------------------|-------------------------|
| Current | T.C. Williams King Street | 2740 | 3637 | 2766 | -871 |
| | T.C. Williams Minnie Howard | 854 | 986 | 883 | -103 |
| Total | | 3594 | 4623 | 3649 | -974 |

| Status | Potential Solution | Proposed Capacity |
|--------|---------------------|-------------------|
| Future | Model High School | 1600 |
| | Specialized Academy | 650 |
| | Early College | 200 |
| Total | | 2450 |

Schedule/Next Steps

- June 16, 2016 The Educational Specifications are presented to the School Board.
- June 23, 2016 ACPS will incorporate any proposed changes from the School Board and staff and the final Ed Specs will go to the School Board for adoption.
- July 2016 ACPS will coordinate meetings and solicit input from the Work Group for the second phase of the LREFP. ACPS will work with B&D at this time to conduct the gap analysis based on the adopted Ed Specs for the LREFP.
- Sept. 2016 ACPS will form a community engagement plan to solicit feedback on the draft of the second phase of the LREFP. Groups to be involved include: School Board, City Council, Campagna Center, PTA Council, ACPS/City Staff and Community Members.

Questions?

Erika Gulick
Facilities Planner/GIS Specialist
(703) 619-8298
erika.gulick@acps.k12.va.us

Date: June 30, 2016

For ACTION

For INFORMATION

Board Agenda: Yes

No

FROM: Erika Gulick, Facilities Planner & GIS Specialist
Richard Jackson, Director, Educational Facilities
Elijah Gross, Director, Planning, Design & Construction

THROUGH: Alvin L. Crawley, Ed.D., Superintendent of Schools
Clarence Stukes, Chief Operations Officer

TO: The Honorable Karen Graf, Chair, and Members of the Alexandria
City School Board

TOPIC: Educational Specifications for Pre-K Center and High School(s) for ACPS

BACKGROUND: On Thursday, June 16, 2016, ACPS staff presented the educational specifications (Ed Spec) for a high school and pre-k center to the School Board. Following the presentation of the Ed Specs, ACPS compiled comments from the School Board as well as other interested parties who have provided feedback on the Ed Spec documents. ACPS circulated the document through several community groups, including the Early Childhood Education group, VQ Mentors and the ACPS pre-k staff and collected comments on the document. In addition to comments from groups, there were individual comments from stakeholders with pre-k experience. ACPS staff reviewed all comments received and has made the following changes:

Pre-K Center Ed Spec:

A description of playgrounds was added to account for several separate playspaces, each with a different function. The diagram of a general playspace was also removed. The text included is as follows:

- Engaging outdoor play areas are essential to the growth and education of pre-k students. The model pre-k center should have several small play areas, which are easily accessible to the classrooms. Smaller play spaces enable teachers to engage with children outdoors and to facilitate learning. Small spaces can also be more comfortable for children, easing their transition from inside to the outdoors and giving a better sense of control in their environment. Play spaces should include opportunities for children to move and manipulate parts (this can include outdoor blocks, logs, tree slices, sand, and water) and be engaging for both the students and the teachers. They should also include interaction with the natural world, to aid in creating calm and increasing attention spans. Model play spaces should provide for multiple sensory experiences for children.
- Each play area should be able to accommodate two classrooms worth of students (up to 40 students) and be safely supervised by two teachers. Surfacing of the play spaces should consider the age of the students and avoid hard surfaces. Designers should also consider elements such as shade and creative seating space to promote comfortable use of the playgrounds. Small, easy to access storage areas should be included with each play space. Play areas should comply with playground safety standards, city code and ADA requirements.

ACPS added the following text to the parking capacity section:

- Due to the increased amount of staff required for pre-kindergarten age students, ACPS should consider parking exceeding city code requirements for an elementary school at the time of development of the pre-kindergarten center.

A shared storage space was added for laundry facilities and specified that if the building is multiple floors, ACPS should consider placing one of these spaces per floor.

A staff lounge, separate from the Administrative space was added to the core academic spaces.

Shared bathrooms between classrooms have been updated to include a changing table.

A private space for a small shower was added to the large group restroom space.

The two student dining areas have been converted to multi-purpose use areas which should be adjacent so that they can be expanded into a larger collaborative space. The following text was added regarding food and nutrition services:

- Due to the age of the students in the pre-kindergarten center, minimizing transitions out of the classroom is optimal. Students will eat in their classrooms and staff will deliver food from the kitchen to the classroom. Teachers will work with ACPS Facilities staff to ensure that classrooms cleanliness is maintained.
- The dining experience for students will reflect a family style meal, served by staff to the students. Students will be arranged at tables in sets of eight to 10 with at least one adult at each table. Site coordination between administration and foodservices is required to ensure an efficient and smooth lunch experience for students.
- School Nutrition Services (SNS) is responsible for food preparation division wide. SNS facilities should incorporate space for speed scratch and/or speed cooking and warming kitchens with the appropriate equipment. Facilities must include space for frozen storage, cold storage, dry storage, manager and assistant manager offices, a dedicated loading dock, and pot washing equipment. The architect should coordinate with the director of SNS during the design development phase to ensure current needs are met.

High School Ed Spec:

Add section for inclusion of a pool which will be regulation size for high school competitions. We would also include a second diving well for diving competitions.

RECOMMENDATION: The Superintendent recommends the School Board approves the Ed Spec documents.

IMPACT: The adoption of these educational specifications will be used to benchmark the existing school facilities as well as inform the focus of future resources and future building projects.

CONTACT PERSON: Erika Gulick, 703-619-8298

ATTACHMENTS:

1. Draft Pre-K Center Educational Specifications
2. Draft High School Educational Specifications

Date: July 5, 2016

For ACTION

For INFORMATION

Board Agenda: Yes

No

FROM: Erika Gulick, Facilities Planner & GIS Specialist
Richard Jackson, Director, Educational Facilities
Elijah Gross, Director, Planning, Design & Construction

THROUGH: Alvin L. Crawley, Ed.D., Superintendent of Schools
Clarence Stukes, Chief Operations Officer
Stacey Johnson, Chief Financial Officer

TO: The Honorable Karen Graf, Chair, and Members of the Alexandria
City School Board

TOPIC: Educational Specifications for Pre-K Center and High School(s) for ACPS

BACKGROUND: On July 5, 2016, Board Member Ramee Gentry submitted several questions related to the Pre-K Center and High School Educational Specifications (Ed Specs). The following are questions and staff responses.

HIGH SCHOOL ED SPEC

1. pp. 44-45: This document lays out an expectation that teachers will move from one room to another throughout the day. I can appreciate that doing this currently with our high enrollment has been an excellent example of "creative use of space". Going forward, I understand that the division may be called upon to do something similar at some point in the future. I don't think it is appropriate to have it as part of the Educational Specifications. We should not "build" to that, but should build to each teacher having their own space. While much has changed since I was a student in terms of technology, techniques, etc., I can't imagine that it has changed so much that there isn't value in allowing a teacher the ability to create a unique space for their subject matter. To have a single location that students can go to find that teacher.

No recommended change. Trends in high schools have been moving away from every teacher "owning" a classroom. This language reflects a need for flexibility in space and programming and promotes collaboration.

2. Seems to be a number of places in the document where we are referring to specific data or programs that we are currently doing now, rather than what Educational Specification requirements and expectation we have for the 1600 school prototype. Would suggest we remove those references. I've listed them below:

pp. 31-35: We need the section that lays out requirements for science labs, but we don't need the section describing the STEM program. STEM classes either use labs or standard classrooms. We don't need a programmatic description of course offerings unless it directly relates to an ed spec need. For this reason, we can also remove the sections on Academy of Finance and marketing. There is no unique classroom need for these programs. Page 35 even indicates that "Other programs, such as the academy of finance and marketing courses, require standard flexible classrooms." I would also question the need for the

separate section on Technology Education. Their special requirements seem related to computers rather than Ed Specs ("Technology education require computers with significant processing power and specialized software.") and do not seem unique to their program ("Depending on the scheduling of the course, technology education may share a space with the business and information technology lab.")

Recommended change. *ACPS will remove all specifications for particular academies. These decisions will be made when/if ACPS decides to build a new high school or change the current program.*

3. p. 41 Parking and Transportation section

Delete first sentence in this section. "ACPS transportation provides services to 5,800 students daily and approximately 2,200 of those students attend T.C. Williams and Minnie Howard schools." Not relevant to this document, which is discussing a prototype for a 1600 high school.

Recommended change. *This language will be removed.*

4. I find these two sentences (in the second paragraph of this section) confusing "Currently, ACPS' policy is to provide transportation only for students living more than 1.5 miles from their designated school site. If ACPS expands to multiple high school campuses, the Division will offer transportation to all students." What is the intent of this text? Continue to provide for students more than 1.5 miles? Transportation for all students regardless of their distance from the school site?

Recommended change. *The second sentence will be removed and ACPS will leave the language detailing the current transportation policy.*

PRE-K CENTER ED SPEC

5. Overall, I would like the specs to open with specific language of the nationally recognized best practices that are being represented in these specs. I think in particular a reference to NAEYC would be very useful. Board members and members of the community have offered various suggestions of things they would like to have, and certainly it could be fun to create an ultimate wish list of desired items, but I think it would help ground and focus this conversation if we keep referencing back to things like NAEYC.

Recommended change. *We will add the following sentence to page 8, after the quote from the National School Boards Association: The Pre-K Center will be designed to support ACPS' goal of providing high quality pre-k education as outlined by the National Association for the Education of Young Children (NAEYC) standards for facility planning.*

6. p. 25 Table listing "Recommended/Average Class size per grade". This is confusing. Is it the recommended? Is it the average? Those can be two different things!

No recommended change. *This chart shows average class sizes where available and recommended class sizes from ed specs. The chart compiles the class sizes from neighboring divisions and takes an average to compare with ACPS' recommended class sizes.*

7. p. 27 Typo. Under the section describing the Main Office, it references the "high school". Change to Pre K Center.

Recommended change. *This will be changed to Pre-K Center.*

8. p. 33 Site Management. Talks about collaboration with RPCA, but we also need to include reference to partners that use the space for program such as before and after care (Campagna). These programs have specific requirements, often tied to them keeping licences, etc. so they need to be involved/included.

No recommended change. *We do not feel we should detail partners specifically in the document. This particular section is discussing coordination with RPCA as it relates to site management. Before/After school programs such as Campagna's were considered in the development of spaces which can be programmed or shared as well as storage spaces. Space for partners is documented as necessary on page 20 in the Community Context section.*

9. p. 33 Transportation. "The Pre K Center will provide transportation to all students." As in every single student? In another sentence in this section, it references that elementary students living within a mile of a school do not receive transportation. Are we not going to use that as a guide to providing transportation?

Recommended change. *We will have this sentence now read: Transportation for the Pre-K Center should be determined at the time of development.*

10. pp 56-58. Drawings and descriptions for the Resource Classrooms and Sensory Classrooms: We've received some public comment expressing concern that some of the Pre K specs seem to skew too academically focused rather than play-based learning, and when I see these drawings I think I see what might be causing this response, as I have a similar response when I see these drawings. Both include multiple desks. Hard for me to understand imagine 3 and 4 year olds working in this space, especially since these rooms would be used by students that might need some extra supports. Perhaps the rationale and functioning of these classrooms could be elaborated in the document.

pp. 62-63. Pre K Classroom. The drawings show 2 "Learning Center Sets" (these are the things like: play kitchen, art cart, sand table, etc.) It wasn't clear to me from looking at the drawing or reading the description if the intent was for there to be ONLY two Learning Center Sets per classroom. That seems far too low to me. I can't think of a Pre K classroom I've been in, either public or private, that didn't have multiple "Learning Center Sets". Is the drawing actually indicating only 2 or is it really meant to be a basic representation?

No recommended change. *ACPS staff received this comment and adjusted the sensory classroom diagram to show a playspace with rugs. The resource rooms and classrooms are meant to be basic representations to ensure ACPS provides ample space for pre-k activities. Actual furniture, learning center sets and room setups will be determined at the time of development.*

RECOMMENDATION: The Superintendent recommends the School Board approves the Ed Spec documents with the above changes.

IMPACT: The adoption of these educational specifications will be used to benchmark the existing school facilities as well as inform the focus of future resources and future building projects.

CONTACT PERSON: Erika Gulick, 703-619-8298

Date: October 19, 2016

For ACTION

For INFORMATION

Board Agenda: Yes

No

FROM: Erika Gulick, Facilities Planner & GIS Specialist
Richard Jackson, Director, Educational Facilities
Elijah Gross, Director, Planning, Design & Construction

THROUGH: Alvin L. Crawley, Ed.D., Superintendent of Schools
Clarence Stukes, Chief Operations Officer
Terri Mazingo, Ed.D., Chief Academic Officer

TO: The Honorable Karen Graf, Chair, and Members of the Alexandria
City School Board

TOPIC: Educational Specifications High School(s) for ACPS

BACKGROUND: On Thursday, June 16, 2016, ACPS staff presented the educational specifications (Ed. Specs.) for a high school and pre-k center to the School Board. Following the presentation of the Ed. Specs., ACPS compiled comments from the School Board as well as other interested parties who have provided feedback on the Ed. Specs. The High School Ed. Specs. were presented to the School Board on July 5, 2016. At that time, the School Board requested that staff research the utilization at the High School to see if it is better to have every teacher assigned to a classroom.

FINDINGS: Staff has found that using teacher collaboration rooms for teacher planning periods allows for more efficient utilization of the school and for teachers of similar subject areas to share ideas and plan collaboratively to achieve academic success.

Currently, ACPS utilizes this practice with a majority of T.C. Williams High School classrooms being used by more than one teacher during the school day. Classrooms are coordinated by subject area so that similar subjects are taught in the same classrooms. Staff also asked neighboring school divisions how their high schools are utilized and found that this model of efficient space utilization and teacher collaboration is consistent throughout the region.

At the July 5, 2016, meeting, the School Board expressed concerns that teachers would be required to teach in several different classrooms which may disrupt the teachers' workflow. Efficient scheduling may allow for most teachers to stay in the same classroom for the majority, if not all, of their classes. The School Board also expressed concern that classrooms may lose their identities if they are used by multiple teachers and/or subject areas. The Ed. Specs. promote configuring classrooms by subject area so that teachers of similar subject areas teach in the same classrooms. This will allow for classrooms to maintain identities, for example, as a math classroom.

RECOMMENDATION: The Superintendent recommends the School Board approves the High School Ed. Specs.

IMPACT: The adoption of these educational specifications will be used to benchmark the existing school facilities as well as inform the focus of future resources and future building projects.

CONTACT PERSON: Erika Gulick, 703-619-8298

ATTACHMENTS: Attachment 1 – Presentation – High School Ed. Specs.
Attachment 2 – Effects of Teacher Collaboration Summary
Attachment 3 – NCEF Study – Teacher Workspace
Attachment 4 – The Value of Teacher Collaboration
Attachment 5 – Teacher Collaboration Research Excerpt
Attachment 6 – ACPS High School Ed. Specs.

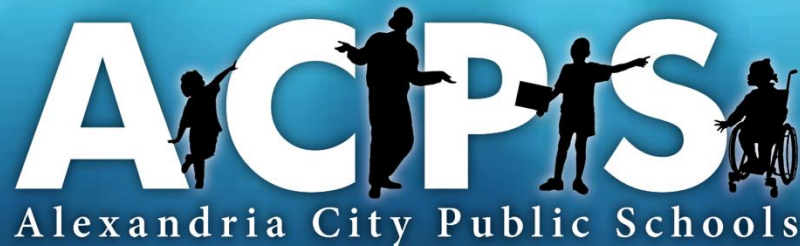
High School Educational Specifications

School Board Meeting

Erika Gulick

Facilities Planner/GIS Specialist

October 27, 2016



Every Student Succeeds

Essential Questions

1. What are Educational Specifications?
2. How do Teacher Collaboration Rooms (TCRs) promote academic success and efficient building utilization?
3. How does ACPS currently utilize its high school classroom space vs. neighboring school divisions?
4. How can ACPS implement the Ed. Specs. to facilitate efficient scheduling that may benefit teachers?
5. How will the Ed. Specs. be used for facilities planning?

Introduction & Background

- An **Educational Specification** (Ed Spec) is a guiding planning document that describes the proposed outcomes of a school modernization or new construction project.
- ACPS presented the Draft High School Educational Specifications to the School Board on June 16, 2016.
- The High School Ed. Specs. came back to the School Board on July 5, 2016. At that time, the School Board requested that staff research the utilization at the High School to see if it is better to have every teacher assigned to a classroom.

Teacher Collaboration Rooms

Rather than teachers having their planning periods within the classroom, teacher collaboration rooms (TCR) would be used for planning periods.

Each full time teacher may have his or her own storage space within the TCR and there would be hoteling stations to accommodate teachers during their planning periods.

Benefits of Teacher Collaboration Rooms

- Allow for teachers of similar subject areas to share ideas and plan in a collaborative manner to ensure all students are given the best possible academic experience
- Promote better utilization of the schools to save square footage in the building

Current Conditions: ACPS

- Currently, at T.C. Williams High School, most classrooms are used by more than 1 teacher during the school day.
- Classroom use is grouped by subject matter, rather than specific to a teacher.

Current Conditions: Surrounding Divisions

ACPS staff reached out to the academic and facilities staff of neighboring school divisions to learn how high school utilization is addressed in their facilities. Below are the responses ACPS received:

| <u>School Division</u> | <u>Current Conditions</u> |
|--|---|
| Arlington Public Schools (APS) | APS does not plan for teachers to have their own classrooms. This is not included in their Ed. Spec.; however, guidelines for efficient space usage to address capacity issues are outlined in the Arlington Facilities and Student Accommodation Plan (AFSAP). APS is pursuing CIP projects to add teacher workspace in an effort to increase capacity so that classrooms are used more effectively. |
| Prince William County Public Schools (PWCPs) | PWCPS utilizes classrooms to the maximum extent possible. All but highly specialized rooms are shared to meet capacity needs. |
| Fairfax County Public Schools (FCPS) | Teachers are assigned to classrooms with no guarantee that the classroom would not be used during planning periods by other teachers. Depending on how crowded the high school is, FCPS has teachers on carts who have a teacher desk in a work room for planning. Utilization is building specific and adjusted to meet capacity. |

Response to School Board Questions

- Would teachers have to change classrooms every period?
 - Efficient scheduling may allow for most teachers to stay in the same classroom for the majority, if not all, of their classes.
- How will classrooms maintain an identity?
 - Classrooms would be grouped by subject area to maintain an identity within the classroom.

Summary & Recommendation

- The current draft of the High School Ed. Specs.:
 - Allows for scheduling to be made to be most convenient to the teachers
 - Promotes teacher collaboration and efficient space utilization
 - Supports grouping by subject matter so that classrooms maintain identities.
- Staff recommends that the School Board adopt the High School Educational Specification.

Next Steps

- Once adopted, ACPS will use these Ed. Specs. to continue the second phase of the Long Range Educational Facilities Plan.
- The Ed. Specs. will also be considered as ACPS pursues a grade level feasibility study to determine the best use of ACPS facilities.



Questions and Discussion

Erika Gulick

Facilities Planner/GIS Specialist

(703) 619-8298

erika.gulick@acps.k12.va.us

Teacher Workspaces

National Clearinghouse for Educational Facilities

Douglas Gordon, Hon. AIA

October 2010

Well-designed and -equipped teacher workspaces provide the opportunity to improve student achievement at every step of their K–12 education. Shared workspace enhances communication among teachers as they evaluate student performance individually and collectively, and share insights with one another.

In elementary school, where children generally tend to have one primary classroom and teacher, the year's curriculum within a given class is fairly homogenous. As a natural off shoot, each teacher tends to use the classroom as his or her home base, conducting supplemental discussion with other faculty and administrators elsewhere.

As students grow older and diverge in their abilities and pursuits, most often beginning in middle school and becoming more pronounced in high school, teacher workspaces reflects that divergence. More discussion among teachers is necessary to track the progress of any one student or group of students, and a teacher's primary workspace moves from the classroom to areas shared with other faculty or a separate office.

Educational Trends

Classroom-based workspaces traditionally consist of a teacher's desk, shelving, and storage. Office-based workspaces traditionally include individual planning spaces and a group work area. In addition, some teachers may have individual offices or share an office with another teacher. The commonality among all office arrangements, it seems, is that teachers never feel they have enough storage space. (Bissell 2004)

In a classroom-based workspace, teachers often use their desks to demarcate a corner as their *de facto* office, which some teachers may even embellish with personal items. In these instances, the teachers' desk is typically at the front of the room slightly to one side or the other of the wall-mounted writing surface (which side

most often depends on existing immovable fixtures such as cabinets or outlets). Behavioral observation indicates that the boundaries of these imaginary offices are respected as private by other teachers who will not step into that space (although some students seem to feel comfortable doing so). The feeling is so subconsciously set that other teachers using the classroom temporarily will only tenuously encroach on the home-base office space and take pains to return it to the original condition when finished with the room. (Bissell 2004)

For the Cougar Elementary School in Manassas Park, Va., completed in 2009, VMDO Architects created a hybrid variation on separate and classroom-based offices, which reflects the school's practice of having students change classes periodically during the day. Enclosed teacher workspaces there are long and relatively shallow, along the hallway, outside the classrooms, with the office doorways at right angles to the classroom doors. Featuring a kitchenette, desk, and storage area, each of these offices accommodates two teachers. By moving the "teacher-owned" space outside the classroom, the Manassas Park school effectively returns the learning space entirely to its intended purpose.

Office-based workspace design in general is influenced by the move toward alternative school schedules and the professionalization of teaching. A large number of secondary schools now use alternative forms of scheduling—often called "block" or 4x4 plans—to allow for more effective use of time, space, and resources (Canady and Rettig 1995: 4–6). In many middle schools, a "house" or "family" of maybe 125 students moves among a collection of classrooms based on the subjects being taught in each. Likewise, one room may be used by two or three teachers as they migrate among several classrooms in the course of one day. For teachers to maintain their interdisciplinary communication with one another, the office-based workspace becomes their home for planning the curriculum, preparing for classes, and grading. Whether teachers are grouped in offices based on a single discipline or based on cross-discipline sets is often a matter of school policy (Brown 2010).

National Clearinghouse for Educational Facilities

at the National Institute of Building Sciences

1090 Vermont Avenue, NW, Suite 700, Washington, DC 20005-4950 888-552-0624 www.ncef.org
Prepared under a grant from the U.S. Department of Education, Office of Safe and Drug-Free Schools

©2010, National Institute of Building Sciences

Either way, research shows that shared workspace does foster professional communities and promote networking and collaboration among teachers (Lieberman 1996: 51). This interaction, in turn, has been shown to affect students' academic achievement positively.

Furthermore, areas dedicated for group use by teachers builds cohesion both within and across disciplinary boundaries (Duke et al 1998: 166).

Key Elements of Teachers' Workspaces

It is important to note that classroom- and office-based workspace uses may overlap. Teachers may have a classroom-based workspace and make use of both the teachers' workroom and lounge. Alternatively, if teachers lack a permanent classroom, they should have an individualized workspace either in or adjacent to the teachers' workroom. In general, the square footage requirements for areas related to teachers' workspaces are:

Classroom-based workspace

desk and storage space 100

Office-based workspace

Private office

without storage capacity 150

with storage capacity 300

Teachers' workroom

main workroom area 200-400

teacher planning space/workstation 50-75 each

breakout room 150

large conference room 300-400

Teachers' lounge 10-20 per faculty and administrative staff; 300 minimum

Faculty restrooms 120-180

Classroom-based workspace. Classroom-based workspaces should be designed for use by an individual teacher, as a shared space for several teachers, or as a temporary place for teachers who carry their materials with them. In general, a classroom-based teacher workspace should include wiring for an intercom/telephone and a computer. Controls for lighting and

ventilation should be easily accessible, as should control panels for equipment, such as a closed-circuit television or projection system. Adequate storage should be provided in the form of file cabinets, closets, and cupboards. Because teachers engage in a wide variety of activities that demand some level of privacy, storage spaces for teachers and students should be designated and clearly marked. One-on-one tutoring, parent meetings, collaborative curricular planning, computer-based work, personal tasks, phone discussions, reading and grading of assignments, and reflection are all facilitated by a range of privacy-enhancing designs, such as movable partitions. Classroom-based workspace should be away from high-use areas and, if possible, be located next to an external window. Moving the teacher's desk away from the front of the room permits greater flexibility in designing classroom space.

Office-based workspaces. Components of office-based teachers' workspaces generally include private offices; a teacher workroom with workstations, a breakout room, and a conference room; a lounge area; and restrooms.

- **Private office.** A private office is often necessary for Title 1 specialists, speech pathologists, and special education teachers. It may also be used as a departmental center or as a common office connecting classrooms of similar use. Because private office spaces may serve as a resource and storage center for some teachers, they should contain adequate storage (particularly for department heads who are often responsible for the department's textbooks) and be wired to accommodate phone, computer, intercom, and cable technology. Private office space may be used for one-on-one meetings and consultations (with students, parents, administrators, and other teachers) and should provide adequate privacy, comfort, and space to facilitate such interactions. Additional space and technology may be necessary to conduct learning activities and tutorials if the office is used for student "pull-out" programs, such as reading or math enrichment.
- **Teacher workrooms.** Teacher workrooms should serve as a focal point for teams or clusters (elementary and middle schools) and departmental or interdepartmental units (high school). These workspaces can be placed at the hub of a cluster of classrooms, adjacent to classrooms sharing a common space, or overlooking high-use interior and exterior areas—such as restrooms, student commons, and courtyards—for added supervision.

Electrical wiring and spatial configurations should accommodate multiple phone lines, a copier/printer/fax machine, computers, an intercom, a worktable, and specialized equipment (e.g., a laminator or typewriter). Teachers' workrooms should also have mechanical ventilation to remove chemicals and fumes produced by materials and equipment and provide ample open shelving and lockable cabinets.

Individual workstations or planning space should be placed either at the periphery of the workroom or directly adjacent to it. It is important for individual teachers to have a permanent base from which to plan, reflect, and make preparations. An alternative to individual spaces may be combined or shared planning spaces. Shared spaces for four to six teachers can promote flexibility and increase spatial efficiency.

The teacher workroom should be adjacent to a conference room or breakout rooms. Activities within such rooms may include one-on-one consultations, small-group brainstorming sessions, committee meetings, and faculty meetings. Both rooms should have whiteboards and bulletin boards and be able to accommodate multimedia and video presentations.

- **Teachers' lounge.** The teachers' lounge may be part of the teacher workspace, adjacent to the teacher workspace, or deliberately placed in a less trafficked area to promote a more relaxed atmosphere. More than one lounge/teacher workroom may be needed depending on the size of the school. The lounge should have a kitchenette with a microwave and two refrigerators, comfortable furniture, a phone in a quiet spot, and a television with cable access. A dishwasher and vending machine are also useful. Windows or outdoor access to the outside fosters a restful environment.
- **Faculty restrooms.** Faculty-only restrooms should be located adjacent to each teacher workroom.

Principles of Teacher Workspace Design

Teacher workspaces should be seen as a critical element in the success of the academic program of the school. Without adequate space, teacher preparation and innovation may be negatively affected. When designing teacher workspaces:

- Consult all teachers regarding their needs before completing the design of a school. Teachers may want very different forms of spaces depending on the type of curriculum being implemented.
- Consider additional purposes—such as promoting interdisciplinary planning—that can be served by group workspaces. The importance of a strategically located space that facilitates cross-disciplinary interaction cannot be overstated. Discussion of curricular issues, student progress, and school goals are all enhanced by a well-placed workspace.
- Consider the benefits of locating group offices in areas where teachers can monitor unsupervised student activity (e.g., across from restrooms or stairwells).
- Balance the needs of privacy and collaboration. Teachers need privacy, time to reflect, and space to conduct personal and school tasks. The need for privacy, though, should not override a teacher's connection to the department or school. Designing individual spaces in close proximity or adjacent to the main workroom or lounge area promotes easier interaction among faculty.

The teachers' lounge that serves as a place in which to relax with coffee and exchange gossip is being transformed into an office-type setting. Spaces for reflection, research, and collaboration have become necessary as teaching professionals increasingly share their classrooms with colleagues. Teacher workspaces encourage sustained planning and preparation time, facilitate interaction and collaboration among teams and departments, and foster a professional community across and within grade levels.

References

Bissell, Janice. 2004. "Teachers' Construction and Use of Space. Texas Tech University School of Architecture. http://www.arch.ttu.edu/people/faculty/haq_s/EDRAMOVE/2004/JBissell.pdf

Brown, William. 2010. Interview with author. Springfield, Va. BeeryRio Architecture + Interiors.

Canady, Robert Lynn, and Michael Rettig. 1995. "The Power of Innovative Scheduling." *Educational Leadership* 53 (3), pp. 4–10.

Day, C. William. 2009. "Office Space." *American School and University*; v81 n10, pp.28-31 (May). <http://asumag.com/Construction/technology/technology-education-office-200905/>

Duke, Daniel L., Bill Bradley, Dan Butin, Margaret Grogan, and Monica Gillespie. 1998. "Rethinking Educational Design in New School Construction." *International Journal of Educational Reform* 7 (2), pp. 158–67.

Kelly, Frank; Keck, Roz. 2006. "Building Blueprints: Teacher Workspaces." *School Planning and Management*, v45 n11, pp.36,37 (November).

Lieberman, Ann. 1996. "Creating Intentional Learning Communities." *Educational Leadership* 54 (3), pp. 51–55.

Lintner, Janice K. 2004. "Faculty Workspaces." *School Planning and Management*, v43 n2, pp.68,69 ; (February).

Additional Information

See NCEF resource list, *Teacher Workspaces*, online at http://www.ncef.org/rl/teachers_spaces.cfm

Publication Notes

Teacher Workspaces was updated in October 2010 based on the June 2000 report of the same title by Dan Butin of the Thomas Jefferson Center for Educational Design at the University of Virginia.

MAKING SPACE: The Value of Teacher Collaboration



School on the Move Best Practice Research

Research:**Rennie Center for Education Research & Policy**

Jennifer Poulos, Lead Author/Research Director

Nina Culbertson, Research Associate

Peter Piazza, Consultant

Chad d'Entremont, Executive Director

**About The Rennie Center:**

The Rennie Center's mission is to improve public education through well-informed decision-making based on deep knowledge and evidence of effective policymaking and practice. As Massachusetts' preeminent voice in public education reform, we create open spaces for educators and policymakers to consider evidence, discuss cutting-edge issues, and develop new approaches to advance student learning and achievement. Through our staunch commitment to independent, non-partisan research and constructive conversations, we work to promote an education system that provides every child with the opportunity to be successful in school and in life.

Production:**EdVestors**

Janet Anderson, Executive Vice President

Alison Stevens, Director of Grantmaking

Laura Perille, CEO & President

About Edvestors:

EdVestors, a dynamic school change organization, focuses on accelerating substantive improvement in urban schools and seeks to level the playing field of opportunity and achievement for all students. It advances its mission by identifying and shaping the most effective improvement initiatives, partnering with donors to invest in these efforts, and supporting education project leaders with hands-on expertise. Since 2002, the entrepreneurial nonprofit has raised and directed over \$16 million in private donations for urban school improvement efforts through EdVestors' Urban Education Investment Showcase, the BPS Arts Expansion Initiative, the School on the Move Prize, and our newest Improving Schools Initiative, partnering with a cohort of under-performing schools to accelerate improvement.

**Support For This Project Provided By:**

The Barr Foundation, Best Practice Sponsor of the 2013 School on the Move Prize

Acknowledgements

EdVestors would like to recognize and thank our contributors to this project:

- The hard-working members of the School on the Move Prize selection panel
- The teachers and school leaders of the five study schools, who generously shared the important work they do on behalf of the students in their schools

Designed by Jason Fairchild, Truesdale Group

Photographs by Michael Manning

Printed by Recycled Paper Printing, Inc.

Table of Contents

| | |
|--|----|
| Letter to Colleagues. | 4 |
| Introduction | 5 |
| About the School on the Move Prize | 6 |
| Study Approach | 7 |
| Building and Sustaining Collaboration in School Communities. | 8 |
| Findings | |
| Schools create the structures necessary for collaboration | 11 |
| Schools instill a culture of meaningful collaboration and continuous improvement | 14 |
| Teacher collaboration is a key factor in improving student learning. | 16 |
| Considerations for School and District Leaders | 19 |
| Conclusion. | 20 |
| References. | 21 |
| Endnotes | 23 |

Letter to Colleagues

EdVestors, in partnership with the Rennie Center for Education & Policy, is pleased to release this report, *Creating Space: The Value of Teacher Collaboration*. For the past eight years, EdVestors has annually awarded the School on the Move Prize to the most improving Boston Public School. This \$100,000 prize is intended to shine a spotlight on schools that have undergone significant improvement over multiple years, delivering better outcomes for their students. The Prize is paired with best practice research to provide an opportunity for other schools to learn from their experiences. The winning schools have represented all grade levels – elementary, K to 8, middle and high schools – and all types of schools – regular district schools and pilot schools. Despite these variances, our 2010 report, *Charting the Course: Four Years of the Thomas W. Payzant School on the Move Prize*, identifies four key practices that all rapidly improving schools demonstrate. One of these is shared ownership and teacher collaboration.

Based on this evidence, which is confirmed by a wide body of research and our own experience working with many schools, EdVestors believes that school change is only possible when the adults in the schools – teachers and leaders – take responsibility for changing their practice in order to ensure that all students learn at high levels. This change does not happen without the space for teacher collaboration – both the time for teachers to meet to discuss instructional practices and a culture that fosters shared decision-making and accountability where differences of opinion strengthen outcomes. This current report digs deeper into how teacher collaboration happens and what it looks like on the ground in five successful Boston Public Schools.

We also know that teachers are hungry for this change in their work culture. A single teacher working in isolation is no longer the model of instructional excellence, but instead teams of teachers working together to problem-solve, challenge and support each other needs to be the new norm, as it is in many other professional settings. In the most recent state-wide survey of teachers conducted in 2012, educators report challenges in finding sufficient time to plan and collaborate with colleagues. Only 55% of responding teachers report that “non-instructional time provided for teachers in my school is sufficient.” Fewer than 6 in 10 educators report that there are effective strategies to make collaborative decisions to solve problems in their schools.¹

We hope this report will contribute to the body of knowledge on improving schools by providing a road map for schools and districts to create the conditions for teacher collaboration, which ultimately leads to student success and achievement in all schools.

Laura Perille
President & CEO

Janet Anderson
Executive Vice President

¹ New Teacher Center. (2013). *Understanding the Results of the 2012 TELL Massachusetts Survey: General Trends* (Research Brief). Santa Cruz, CA. Retrieved from http://www.tellmass.org/uploads/File/MA12_brief_gentrends.pdf.

MAKING SPACE: The Value of Teacher Collaboration

Introduction

In recent years, unparalleled levels of national attention have been paid to the issue of teacher effectiveness. Sophisticated measurement techniques have been developed to isolate teachers' impact on students' academic growth and ability to master challenging content and to inform large-scale educator evaluation systems. However, these efforts have largely focused on the impact of individual teachers. While the recruitment, preparation, and performance of individual teachers are, of course, critical to building successful education systems, current conversations have neglected how staff at high-functioning schools interact and work together to produce successful outcomes. Research by Amy Edmonson at the Harvard Business School finds that organizations often thrive, or fail, based on their ability to work as teams to learn, improve, and innovate.¹ Other contributions to teacher research have derived similar conclusions for schools. Drawing on the notion of social capital, research points to the high value teachers of all abilities draw from working together and the extent to which teachers report doing so as a remedy to solve instructional problems.² In fact, schools with higher levels of teacher collaboration are associated with stronger student performance.³ For example, a study in New York City showed that teachers were more likely to produce student achievement gains if they taught in schools where they had strong ties to colleagues with whom they worked often on instructional issues, regardless of their education, experience, or previous student achievement levels.⁴ Further, teachers have reported being more likely to work on instructional issues with a peer teacher than a principal or district-designated professional resource.

This evidence builds consensus on teacher collaboration as a key element in driving school improvement, creating an environment for teachers to improve their practice, while facilitating action designed to address diverse student needs. Perhaps one reason why teacher collaboration has received limited attention in current policy discussions is that it is difficult to achieve, especially through state or district directives. In large urban schools, often characterized by higher than average rates of teacher turnover, the task is even more daunting. And yet, educators in some urban schools have found a way to transform school cultures into collaborative work environments, where leaders and teachers set expectations for shared responsibility of whole-school improvement. It is a process that has led some schools to overcome many of the challenges endemic to the urban environment and become models of practice.

“Teacher collaboration is the highest leverage strategy for school improvement that we have.”

—Principal from one of the study schools

In this research report, the Rennie Center for Education Research & Policy examines the role of teacher collaboration in driving school improvement. The research study focuses on leader and teacher practices in EdVestors' School on the Move (SOM) prize-winner and finalist schools – urban schools in Boston recognized for exemplary progress in advancing the academic achievement of all students. The Rennie Center has done extensive documentation of SOM schools since 2006, including annual case studies of prize-winners and additional analyses examining common practices across these rapidly-improving schools. The research presented here adds to this body of knowledge as part of an ongoing effort to look inside these schools to uncover successful practices that may inform district- and school-level decision-making on school reform. In the sections below, we detail strategies used in SOM schools to build structures and routines to support and sustain collaborative cultures. Research findings present specific steps all schools may take to build leader and teacher collaboration to advance meaningful reform.

About the School on the Move Prize

The School on the Move (SOM) Prize recognizes individual schools within Boston Public Schools that have made significant progress in improving student achievement. Schools are invited to apply for the SOM Prize annually based on an analysis of their students' performance on the Massachusetts Comprehensive Assessment System (MCAS) over a four-year period. To be eligible, schools must show rates of improvement that are significantly greater than the district average and their student demographics must be representative of the district as a whole. In their application, invited schools describe the strategies they use to improve academic performance over the review period, including shared leadership and ownership, meaningful teacher collaboration, effective use of data, strengthening academic rigor and student support, and effective family and community partnerships. An independent selection panel reviews applications and conducts site visits to select the winning school each year. Since its inauguration in 2006, eight schools have won the annual \$100,000 Prize. As part of the Prize each year, EdVestors commissions best practice research – in collaboration with the Rennie Center for Education Research & Policy – documenting the strategies of the winning schools in order to better understand how schools improve and to share the findings with educators, school leaders and policymakers.

Study Approach

The Rennie Center conducted research to document evidence-based teacher collaboration practices in SOM prize-winners and finalists, and the extent to which these practices act as a conduit in advancing other school improvement strategies. The study methodology is informed by the following research questions:

1. What are the school-based structures that promote teacher collaboration, and what are barriers that stymie collaboration? How have SOM prize-winners and finalists created the conditions for meaningful teacher collaboration and overcome any barriers?
2. To what extent are the teacher collaboration practices in SOM winner and finalist schools replicable? What trainings and supports for teachers and leaders are needed?
3. Is teacher collaboration a primary lever for school-wide change? How does teacher collaboration cultivate and support other high leverage practices, such as: the effective use of data to improve instruction; increased academic rigor and student supports; and effective family and community partnerships?

To address these research questions, the study team pursued a comprehensive data collection and analysis plan including:

- **Promising practice scan.** The study team reviewed the literature on teacher collaboration, focusing on practices critical to developing sustainable, teacher-led school communities. We also focused on key linkages between teacher collaboration and other school improvement strategies.
- **Teacher logs.** Designed to be completed by teachers every day for a period of two weeks, the teacher logs captured descriptive information about the opportunities teachers have to work with other teachers and with school leaders.
- **Principal survey.** The study team developed and administered a principal survey, completed by school leaders, about how they work with teachers and create opportunities for collaboration.
- **Site visits to schools.** Using data on teacher collaborative practices from the logs and surveys, the study team conducted a site visit to all study schools. These visits included an interview with the school leader, a teacher focus group and an observation of a teacher team meeting.
- **Analysis of quantitative and qualitative data.** The study team integrated quantitative and qualitative data to identify key themes about how teachers and leaders work together in study schools, challenges to collaboration, and the ways in which schools have overcome barriers.

The study team conducted this research during the fall and winter of the 2013-14 school year with a sub-set of the SOM prize-winners and finalists located throughout Boston, including:

- **Clarence R. Edwards Middle School.** A School on the Move winner in 2011, the Edwards Middle School is located in Charlestown and enrolls approximately 490 students in grades 6-8.
- **New Mission High School.** Formerly in Mission Hill, this Hyde Park-located high school is a pilot school with an enrollment of about 260 students. New Mission is the 2012 School on the Move winner.
- **George H. Conley Elementary School.** A small elementary school with one class per grade located in Roslindale and enrolling 224 students from pre-kindergarten through grade 5. Conley Elementary is the 2013 School on the Move winner.
- **Orchard Gardens Pilot K-8 School.** Located in Roxbury serving kindergarten through grade 8, Orchard Gardens enrolls 830 students. Orchard Gardens was a 2013 School on the Move finalist and recently emerged from state-designated Turnaround School status.
- **Urban Science Academy.** Located in the West Roxbury Education Complex where it shares its campus with another urban high school, the Urban Science Academy enrolls about 600 students in grades 9-12. Urban Science Academy was a 2011 and 2013 School on the Move finalist.

Building and Sustaining Collaboration in School Communities

Effective teacher collaboration is defined as engaging in regular routines where teachers communicate about classroom experiences in an effort to strengthen pedagogical expertise⁵ and push colleagues to try new things.⁶ These types of interactions among staff have been difficult to achieve in schools. Sociologist Dan Lortie, conducting research in the 1970s, famously claimed that American schools are widely defined by a culture of individualism.⁷ Still pervasive today, teachers tend to work independently and are often unaware of what is going on in nearby classrooms. Thus, fostering collaboration is a challenge for most schools. When it does occur, collaboration depends on establishing trust among teachers and between teachers and school leaders.⁸ In short, a two-pronged approach is needed. First, schools must implement structures, routines, and protocols to establish and facilitate teacher interaction focused on instructional issues. Second, specific attention must be devoted to nurturing school-wide behavioral norms that undergird collaborative practices, such as collective responsibility for student learning. In such a school environment, a more holistic view of student learning can emerge where all adults are committed to working together to achieve commonly-held goals.

Structuring professional protocols and routines in teacher communities. The building of teacher collaboration begins with implementing a set of routines that fosters teachers working together on common instructional issues. Schools committed to collaboration exist on a continuum ranging from developing to implementing to sustaining environments where teacher-led communities emerge (see Figure 1). In developing school communities, teachers work with school leaders to develop structures, like teacher teams, and common professional protocols for regularly occurring team meetings, including agendas and procedures for addressing and responding to teachers' concerns about their own instructional practice. It is school leaders, however, who often ensure that regular team meetings are held.⁹ These structures and protocols contribute to the development of a shared vision for school improvement, in a way that engages all members of the school community. This vision becomes a foundation for the community and exists as a statement of purpose. Without these in place, teacher communities function more like a collection of individuals than a cohesive team that moves together towards common targets for school improvement.¹⁰

Meanwhile, in more advanced, implementing school communities, teachers begin to determine direction – teachers play substantial roles in developing and leading professional development opportunities for colleague teachers.¹¹ Teachers and leaders in implementing school communities often take up issues related to addressing professional conflict. Protocols for acknowledging conflict have been identified as a key lever for the development of more advanced collaborative practice; when teachers and school leaders work together to develop these protocols, they become systems for conflict management reflective of collective decision-making.¹² Addressing differences between colleagues can encourage teachers' buy-in to a community's shared vision for school improvement, as they create opportunities for teachers to consider new perspectives.¹³ In sustaining school communities, or those with the most developed notions of collaboration, the routines of teachers working together – and with leaders – towards a common goal are well-established. With protocols in place, teacher leadership in school communities begins to emerge. Teachers begin to demonstrate specialized skills in particular facets of collaborative work (e.g., analyzing data, facilitating and leading teams, developing plans for classroom interventions), and teams harness the diversity of these skills as a way to accomplish team goals. This process translates teamwork into a teacher-owned enterprise, relying on school leaders for minimal supervision and direction.¹⁴

“Effective teacher collaboration is defined as engaging in regular routines where teachers communicate about classroom experiences in an effort to strengthen pedagogical expertise and push colleagues to try new things.***

— *Brownell, M. T., Yeagar, E. Rennels, M. S. & Riley, T. (1997). / **Davis, K. S. (2003).

Figure 1: Key Elements of Collaborative School Communities*

| | Developing Communities | Implementing Communities | Sustaining Communities |
|--|---|---|--|
| <p>Characteristics</p> <p>Members of the school community...</p> | <ul style="list-style-type: none"> ... work to develop collaboration norms and goals for school improvement¹⁵ ...are reluctant to address differences of opinion about effective teaching¹⁶ ...see participation as individual and disconnected from their practice¹⁷ | <ul style="list-style-type: none"> ...have established common goals & a shared language around reform¹⁸ ...demonstrate a communal responsibility for student learning¹⁹ ...use collaborative dialogue closely linked to practice²⁰ | <ul style="list-style-type: none"> ...allow teachers to primarily drive collaboration²¹ ...use data to drive continuous improvement²² ...move beyond short-term achievement gains to address underlying obstacles to student achievement²³ |
| <p>Teacher behaviors</p> <p>Teachers in the community...</p> | <ul style="list-style-type: none"> ... create data teams, oriented explicitly towards evaluating test-based outcomes²⁴ ... monitor student growth by developing a system with school leaders that is based on multiple measures of student performance and linked directly to a shared vision²⁵ ... generate & use a list of obstacles to student learning to guide collaborative discussion²⁶ | <ul style="list-style-type: none"> ... develop standards & protocols for managing conflict that are linked to shared goals²⁷ ... encourage peers to make innovative changes to practice & engage in reflection about challenges & breakthroughs²⁸ ... work with school leaders to shape professional development²⁹ ... seek opportunities for classroom observation or co-teaching with peers³⁰ | <ul style="list-style-type: none"> ... work with peers who have similar learning goals, using formal structures to collaboratively plan & analyze data³¹ ... create opportunities for informal interaction with peers³² ... seek opportunities for continual improvement by accessing additional expertise (e.g., in the form of external service providers/partners)³³ |
| <p>Leader behaviors</p> <p>School leaders in the community...</p> | <ul style="list-style-type: none"> ... develop common standards & protocols for participation in meetings³⁴ ... model normative practices & protocols for collaboration³⁵ ... facilitate collaboration in a way that makes opposing views “visible” & subject to supportive discussion³⁶ ... establish a coherent school-wide reform message³⁷ ... restructure school time to allow for daily opportunities for teachers to meet in school-wide, departmental, or grade-level teams³⁸ ... restructure school time to allow for one period of collaborative planning each week³⁹ | <ul style="list-style-type: none"> ... create a data & accountability system for monitoring school improvement (including student data, information about teachers, and information about students’ school experiences)⁴⁰ ... create a team of teachers & leaders exclusively focused on instructional supports that aligns to teacher identified classroom challenges⁴¹ ... increase teacher interaction time with teachers during meetings⁴² ... address predictable sources of conflict or risk⁴³ ... resist the temptation to solve problems unilaterally; instead work with teachers individually to respond to conflict⁴⁴ | <ul style="list-style-type: none"> ... work with teachers to develop a plan that aligns teacher professional development with learning goals⁴⁵ ... create a model in which mentor teachers serve as coaches to beginner teachers to improve instruction⁴⁶ ... encourage team teaching and integrated lesson design⁴⁷ ... provide resources to support teacher-directed collaboration, but resist the temptation to offer direct guidance⁴⁸ |

* The Key Elements of School Communities was developed by the Rennie Center study team based on a synthesis of teacher collaboration research literature. Teacher and leader behaviors were sorted into categories based on commonly-held characteristics of collaborative school communities existing in the research literature.


Building collaborative culture in school communities. While procedural aspects of teacher collaboration are important, school leaders must also pay attention to building a vibrant collaborative culture. A comprehensive research study of teacher collaboration conducted in Boston Public Schools found that schools with the most effective collaborative practices exhibited a school culture oriented towards “norms of collective responsibility and continual learning.”⁴⁹ In sustaining communities like these, high levels of organizational trust define teacher and school leader behaviors (see Figure 1). School leaders must demonstrate trust in teachers to work together without close and regular supervision, while teachers must develop trust with school leaders and colleagues to have effective discussions about instructional challenges, offer constructive critique, and use each other as resources. School leaders in developing communities begin this process of building trust through the use of a coherent school-wide reform message⁵⁰ and increasing teacher interaction time during team meetings.⁵¹ In implementing communities, characterized by higher levels of organizational

trust, more attention is paid to teachers expressing instructional concerns freely during these meetings.⁵² Research notes that in sustaining communities with the highest levels of trust, teachers are more likely to make changes to classroom practice when they engage in data-driven conversations and explore challenging questions about student learning and effective teaching with peers.⁵³ Indeed, as teacher-led communities emerge in schools practicing more advanced notions of collaboration, high-levels of organizational trust can help nurture the transition to teacher responsibility for community goals and teams.

Understanding the contributions that leaders and teachers make to transform a well-run school with competent, effective staff into a school-wide community characterized by a structure and a culture that support collaboration is a critical step in driving systemic school improvement. However, starting from scratch is difficult. Instructive examples are needed to foster schools’ ability to cultivate collaboration when few, if any, of the norms described above by research are regularly demonstrated by the adults in the building.

Findings

Consistent with the literature base, school leaders in the five study schools established structures, routines, and protocols to promote teacher interaction school-wide. Working together, leaders and teachers fostered a culture of meaningful collaboration and continuous school improvement and engaged in activities that led to improved opportunities for student learning. The findings presented are based on analysis of all study data – including log/survey data and interviews with school leaders and teachers. Documented below are examples critical to understanding both what teachers and leaders do as part of their collaborative practices, and how these practices are established as norms within these school communities.



Schools create the structures necessary for collaboration

In the five study schools, creating teacher teams laid the groundwork for the development of school-wide collaboration oriented towards continuous school improvement. Team meetings helped increase the frequency of teacher behaviors positively associated with more collaborative practice (see Table 1). As one leader noted: “If you don’t have the structures, you can’t get teachers – especially those differing in personality or vision – in the same room to work together.” Below, specific strategies used by study schools to organize and maximize the effectiveness of team structures are examined, as well as the challenges with which schools continue to grapple.

Table 1: Most Frequently Reported Teacher Behaviors in Team Meetings

| During team meetings, teachers in study schools... | | |
|--|---|--|
| <ul style="list-style-type: none"> Engage in at least one reflective conversation about an in-class obstacle or teaching challenge. | <ul style="list-style-type: none"> Review schools goals. | <ul style="list-style-type: none"> Discuss instructional topics, such as the content of a lesson or effective teacher practice. |

“Matrixed” teams foster school-wide interactions. All study schools describe implementing integrated, matrixed teams to promote school-wide collaboration. This teaming structure, often established by school leaders, presents an opportunity for school-wide interactions among teachers and staff. Each team is guided by specific, distinct goals that are linked to the goals of other teacher teams and the school’s

strategic plan and governed by protocols for how teachers will work together. All five schools’ teams are structured so that nearly all teachers are on more than one academic team, such as grade-level and subject-area teams (see text box for examples). Grade-level teams are typically characterized by short, frequently occurring meetings (e.g., about 35 to 50 minutes weekly, in some schools twice per week) and allow teachers who share the same students a chance to discuss ongoing challenges. Subject-area meetings are usually scheduled for a longer block of time, and study schools demonstrated greater variation in how often these teams meet (e.g., ranging from once/twice per week to once a month). These meetings address content issues – such as identifying common gaps in student mastery of a particular skill or concept. All schools also report having a bi-monthly instructional leadership team (ILT) meeting, focusing on meeting school-wide improvement goals. A few schools also have a teacher-leader team comprised of teachers who have a formal leadership role; the team meets to discuss critical issues confronting teams and to report out on professional development needs. Some schools report having “specialty teams,” special education meetings, or school improvement sub-committees, for example, that meet regularly to discuss learning goals and challenges not typically represented in grade-level or subject-area team meetings.

A Matrixed Approach to Teacher Teams

At the *Edwards Middle School*, an 8th grade math teacher meets with:

- The grade-level team teachers with whom she shares most students twice a week;
- All math teachers twice per week;
- Other teacher leaders (e.g., if she has this role) weekly;
- Other members of different cross-school teams once every other week to discuss specific school initiatives, such as the implementation of extended learning programming;
- Other members of the instructional leadership team (e.g., if a teacher leader); and
- The entire faculty once per month.

At *Urban Science Academy*, a 9th grade science teacher meets with:

- The 9th grade team once per week;
- Teachers with whom he co-teaches or is implementing an interdisciplinary project about once per week, often more;
- All science teachers once per month;
- Other teacher-leaders (e.g., if he has this role) once every other week; and
- Other teachers and leader as part of the instructional leadership team once per month.

Teaming improves important two-way communication. Meeting in a matrixed team structure helps to improve two-way communication between teachers and school leadership. Both teachers and leaders identify teams as a key support to the effective functioning of the school. Described by the literature as a valuable way to build organizational trust, team meetings are characterized by the use of common protocols and routines to define joint work (see text box for additional information). Teacher leaders, whether a formal designation or an informal role, then have responsibilities for initiating, facilitating, and reporting out on team activities (e.g., goals, progress, needs). In schools with formal teacher leader designations, this is done in lead teacher meetings and/or the ILT. One school leader describes this interplay of team meetings as maximizing the opportunities for cross-communication, so that each small group or team can contribute to the

larger school improvement plan: “[We want to] leverage what happens in individual teams for the whole school.” In this way, teachers, teacher leaders, and school leaders all discuss – and weigh in on – school improvement plans and strategies before they are implemented school-wide. This process helps schools to maintain focus on articulated school improvement goals, while garnering buy-in school-wide.

School leaders transfer team management and leadership to teachers.

School leaders are involved in a gradual release of responsibility to teacher teams. One school leader, in referring to opportunities for collaboration, tells new teachers, “These are not top-down structures; you have to drive these.”

School leaders often take purposeful steps to give teachers greater control over team management, such as establishing schedules for team meetings, identifying next steps and assigning roles, and developing protocols for group conversations. As teachers assume leadership responsibilities, school leaders provide support, rather than direction. Teachers describe the school leader’s changing role: “[She] sets the tone of where we are; this is

what we want to do... This is different than in the past; when she first joined, she used to facilitate all meetings, [in an effort] to make sure all had the same vision for the school...[now, she] sees the value in letting people do the work.”

The emergence of teacher leadership is not without tension. School leaders struggle in determining when to provide detailed guidance and when to let teachers work productively without direct oversight. School leaders still want some direct “say” about what happens in teacher team time. Teachers often want more autonomy and consider the routines and protocols of teacher-led team management the most critical elements for teams to be highly effective. This push-pull defines a learning experience for teachers and school leaders alike. In one school, a school leader describes the tension he felt in allowing “teams who wanted to try something and fail – and get something from that experience.” However, while it can be difficult to transfer leadership of teams to teachers, leaders note it is a necessary step towards a more collaborative school culture. Here, there is an important but nuanced difference between practice in study schools and the existing literature. Research indicates that teacher-led school communities are characterized by teachers and leaders creating a shared vision for school improvement, and then teachers establishing plans for teams’ execution with very limited direction from school leaders. In study schools, while teachers are assuming greater responsibility for teams, it is within a vision for the school set by school leadership.

Protocols and routines define team meetings.

The vast majority of teachers in each study school report that nearly all team meetings are defined by the following protocols and routines:

- An agenda detailing discussion topics that is developed prior to the start of the meeting.
- An agreed-upon protocol to guide the flow of discussion.
- A teacher or leader designated as a meeting facilitator.



Schools instill a culture of meaningful collaboration and continuous improvement

All leaders agree that establishing structures, and the routines and protocols that support them, can only get schools part of the way to school-wide collaboration. Indeed, research notes that structures are necessary but not sufficient to build collaboration – leaders need to articulate a vision for school culture that values increased teacher voice and leadership. One leader notes her school encountered an obstacle to effective collaboration when “the whole school [staff] realized they didn’t work through the mission and vision consistently enough and they needed to address it as a whole school first before moving forward.” School leaders in this school also reported frustration with a persistent “culture of nice” that prevented more meaningful dialogue and critique. The school’s ILT is now focusing on re-establishing school-wide participation in teams, trying to create these as safe spaces for teachers to voice conflicting opinions about community goals. Study schools use particular approaches to build a culture of collaboration, which are not without distinct challenges; these are described in detail below.

School leaders set goals and expectations for collaboration. School leaders communicate shared team goals linked to the vision for school improvement. One teacher commented on the ways individual team meetings contribute to whole school success, noting, “Grade-level teaming is important for the students.

Professional norms in team meetings are established.

Teachers in each study school report that nearly all team meetings are defined by the following:

- A shared common language;
- A level of comfort contributing ideas to the meeting;
- Equal opportunity to participate;
- Safe space to express disagreement; and
- Instances of disagreement are handled appropriately.

Department meetings are good (professionally) for teachers. Whole school faculty meetings are good for school identity. You need to bring together the whole to make sure people get it, and are moving together as a school.” Leaders have been successful in articulating expectations for how teachers will work together – including placing a premium on learning with colleagues. Teachers report they “use each other as a resource” on common pedagogical challenges, relying on the expertise of peers and specialists to develop a holistic un-

derstanding of student learning. Aligned with the research, this demonstration of a communal responsibility for student learning is a foundation for collaboration in a school community. And, the commitment to learning with peer teachers is characterized by a degree of “professionalism and respect for your colleagues.” However, learning from peers is not without challenges; some teachers may be hesitant to critique high-performing peers, and others may come from schools or pre-service experiences that did not prepare them sufficiently for this deeper level of collaborative dialogue. In these cases, school leaders, many of whom see teachers’ reluctance as the biggest challenge to a school-wide collaborative culture, model expected behaviors and instill norms for communication that value constructive criticism as an important vehicle for school-wide improvement.

Teachers' collaboration with peers extends beyond formal teaming structures. High percentages of teachers in study schools describe frequently seeking out peers to solicit feedback on a current challenge in their classroom (see Table 2). In comparison to the discussions on instructional topics that characterize team meetings, these informal, peer-to-peer interactions are more specific to teachers' own concerns about classroom practice. Research notes that these deep, personal conversations with peers about in-class practices drive the hard work of adjusting pedagogy to meet student needs.⁵⁴ Research also notes that school communities reaching high levels of collaboration have done so by either fostering these informal peer-to-peer relationships (e.g., matching teachers in peer pair teams, arranging for these teachers to share a common prep periods), or formalizing reflective conversations within the team structure (e.g., through the use of instructional rounds).⁵⁵ While strong levels of informal peer-to-peer collaboration exist in all study schools, some schools are attempting to create more formal opportunities for reflection, albeit with mixed results. A few schools have tried implementing instructional rounds, where teachers observe each other and debrief the strengths and weaknesses of the observed lessons. In the one school currently implementing this practice, scheduling challenges only allow for two to three instructional rounds per year and a limited number of teachers participating. Research suggests this practice can be implemented school-wide with powerful results.⁵⁶

“Indeed, ... structures are necessary but not sufficient to build collaboration: leaders need to articulate a vision for school culture that values increased teacher voice and leadership.”

Table 2: Most Frequently Reported Teacher Behaviors in Peer-to Peer Interactions

| During informal, peer-to-peer interactions, teachers in study schools... | | |
|--|--------------------------|---|
| • Weigh the pros and cons of specific teaching practices. | • Work on a lesson plan. | • Discuss a problem experienced in their classroom. |

Hiring decisions are critical to making collaboration more pervasive in teacher culture. School leaders discuss the importance of recruiting and hiring teachers who want to work in an environment where collaboration is the norm. Leaders put a priority on a teacher who is a “fit” for the vision of a school culture defined by shared goals for student learning, feedback on practice, use of data, and working within teams. Leaders also admit that it is hiring – more than any support and guidance offered to new teachers – that is an important vehicle for instilling a rich collaborative culture with teachers. When leaders have the opportunity to “open hire” (i.e., select a teacher for an open position), they often employ other teachers in this process. Teachers participate in interviews and ask candidates about their past experience collaborating with other teachers, trying to gauge their willingness to work with colleagues. One school leader “looks for receptivity to feedback” among teacher candidates. Teachers who are strong collaborators need to be able to accept feedback and act on it. A teacher describes looking for potential colleagues who are interested in “constant learning,” irrespective of their years of experience.

School leaders invest time in establishing – and maintaining – a collaborative school environment.

Leaders have a variety of responsibilities in developing and nurturing teacher collaboration. Leaders must spend substantial time on setting up teacher teams and establishing a school schedule to support meetings. However, once team structures are established, a leader’s work continues. For example, school leaders report they regularly check in with teacher leaders, or those teachers who facilitate meetings, as an important way to “take teacher temperature.” Leaders take on the task of working with teachers, often individually, who may initially be resistant to collaborative culture. This practice – one-on-one interactions with a varied set of teachers school-wide – represents a direct connection with the literature on orienting new teachers to a collaborative environment. Leadership also devotes significant time to cultivating personal relationships with teaching staff, so that they feel comfortable voicing concerns or discussing classroom challenges.

“This process (of teacher collaboration) translates teamwork into a teacher-owned enterprise...”

Given this diverse set of tasks, it is no surprise that leaders report spending a large amount of time in support of teacher collaboration. In all study schools, at least one school leader reported spending at least half of their time in direct support of teacher collaboration. In some cases, this was the school principal, who then designated other school leadership responsibilities (e.g., administration, facilities) to another school leader. In other schools, an Assistant Principal or Director of Instruction took on the responsibilities associated with teacher culture, including the work of supporting teams.

 **Teacher collaboration is a key factor in improving student learning**

Teachers and leaders report linking collaborative activities to a variety of positive school and student outcomes. For example, school leaders at Urban Science Academy attribute to the work of teacher teams that “more students are in Advanced Placement courses and performing well; students are getting into prestigious colleges and getting scholarships; and MCAS performance is improving.” Universally across study schools, educators note that teams have enabled schools to use data to inform instruction, to increase the school’s academic rigor, and to more effectively support student learning needs – all key factors in improving student learning. Below, we discuss each finding in depth, while offering examples drawn from team meetings at the study schools.

Collaboration supports improvements in teacher practice. Teachers report that the reflective conversations they have with other teachers – both in team meetings and informally with peer teachers - are critical to improving their classroom practice. Teachers will discuss particular students with colleagues, explore new pedagogical techniques, and review curricular materials, when working with other teachers. As one teacher notes, “We spend an hour fine-tuning teaching and different protocols we use in the classroom. We have a direct discussion of how to make something better.” Fundamentally, collaboration presents opportunities to

try new skills or techniques in service of student learning. For example, in Urban Science Academy, teachers lead semester-long mini-professional development courses that occur over three sessions. These small group sessions are planned and facilitated exclusively by teachers, and each session focuses on a single strategy, such as a certain technology application or pedagogical technique. Teachers describe these as a powerful platform from which to initiate changes in their practice. The structure allows for continuity, allowing teachers to reflect on techniques and try new strategies with the opportunity for feedback, as teachers who instruct professional development sessions are colleagues “right down the hall” who are “there as a resource as you implement and incorporate” practices.

Collaborative teaming supports data-driven instruction.

In study schools, collaborative work is a data-rich activity. Teacher teams typically use multiple forms of data, including state summative assessment results, formative assessment results, and teacher-developed assignments and performance tasks. Team meetings are characterized by a discussion of data on the students, or the subject-area, teachers share. At the Conley, a team of 3rd, 4th and 5th grade teachers use MCAS English Language Arts results from the previous year to identify common skills across grade levels where students are not reaching mastery, discuss standards at different grade levels that address these skills, and then create a plan to allocate more instructional time to these standards. Across study schools, the review of data is done in a way that actively engages teacher teams in planning interventions and strategies to better address student learning needs. Teachers utilize different types of tools and protocols to incorporate the use of data. For example, some grade-level teams use a formal protocol when reviewing students’ progress and consider only grade-level, in-class academic concerns. These teams tend to focus discussion on pedagogical techniques to address specific skills or content with which a student may be struggling. A sub-set of these teams work at an even more detailed level: creating daily plans and goals, and a timeline for next assessing students’ performance. Additionally, a few schools also use data to inform inquiry cycles, where “teachers will discuss an issue, observe it and talk about it,” as part of their methodological process to improve their instruction with a focus on struggling students.

A Focus on Struggling Students at Orchard Gardens K-8 School

“What do our struggling students need to learn to move to the next level?” With this opening question, teachers on the grade 3-8 ELA team identified skills they needed to reinforce with struggling readers. Their focus was the five lowest readers in each class – many of whom are at least two grade levels behind in reading. Previous to this team meeting, teachers had used data to identify the struggling students; now, working in small groups, teachers differentiated between needed skills at each reading level, and then developed an intervention plan to address student skill gaps. Many of the teachers paused to reflect on the curricular materials they would use to execute the newly-crafted teaching plan. One teacher brainstormed out loud, “I can’t really use these texts [with this group of students] to work on close reading skills, they’re just not even there yet with comprehension.” Teachers either worked in peer pairs if student needs were similar, or worked individually and paused to get feedback on their plans from others. When the whole group reconvened, discussion turned to how to align pedagogical techniques surfaced by teachers with the important work of preparing all students for MCAS assessments. This process is iterative throughout the school year; teachers reflect on – and potentially reset – student goals and intervention plans monthly based on progress and performance.

“Schools with higher levels of teacher collaboration are associated with stronger student performance.”

—Goddard, Y., Goddard, R., & Tschannen-Moran, M. (2007)

Teaming helps create strategies for increasing academic rigor. Teacher teams, across all schools, report that collaboration serves the larger purpose of raising academic rigor. In one school, grade-level teams implemented interdisciplinary projects to foster the improvement of critical reading and analysis skills among students across all subjects, while subject-area teams focused on key curricular issues (e.g., the implementation of Common Core State Standards). Teachers

use team meeting time to discuss new curricular materials and issues of vertical alignment (e.g., what concepts students need to master in a lower grade to ensure success with an upper grade/level curriculum). One school leader noted that the additional time for vertical planning has led to “amazing results” across grade levels and content areas.

A Focus on Rigor at New Mission High School

The study team observed a math team meeting at New Mission comprised of 9th, 10th and 11th grade math teachers. The agenda for the weekly team meeting sought to review three publicly-released Partnership for Assessment of Readiness for College and Career (PARCC) math assessment items. Teachers worked individually to solve each math question and then de-brief the approach they used to arrive at an answer. Their reflection focused on the mathematical concepts they utilized in their solutions, and whether those were part of the math curriculum students would complete in time for the PARCC assessments. Given the new format of PARCC assessment (e.g., including multiple correct answers, or blending mathematical concepts in one question), teachers focused on a central question: “Would our kids be able to get the mathematical approach they are supposed to use, [and then] get to the right answer?” And: “Have we ever introduced problems that look like this when we’ve been teaching these concepts?” Discussion also included a comparison of MCAS items and PARCC items, and preparation techniques the teachers may need to change. The meeting concluded with a decision to do a more elaborate review of curriculum during their next team meeting. This team’s next conversation would focus on vertical alignment to articulate which mathematical concepts needed to be taught in each grade to ensure adequate mastery of concepts for the PARCC assessment.

Team meetings systemize work to support students’ academic and non-academic needs.

Teachers report that they work with peer teachers, often informally, on how best to support students. Teacher team meetings present opportunities to formalize conversations into specific plans for academic and socio-emotional interventions. In grade-level meetings, for example, student case management is the norm. At a number of schools, teachers work through set routines where each student is discussed “every 6-8 weeks,” strategies typically only used with students

with individualized education plans. These meetings often encompass a set of teachers with whom students regularly interact, as well as specialist staff, to ensure a nuanced assessment of student behaviors and performance. Teachers discuss student work habits and progress with assignments. In some team meetings, teachers also use non-academic data to create instructional plans. When school specialists (e.g., school psychologist) join the conversation, additional data on health issues and pertinent information on family circumstances may be considered. Common across many of these team meetings is not only an assessment and documentation of students’ needs and progress, but a collegial conversation about different instructional approaches. Teachers openly share the pedagogical adjustments they make to their practice to differentiate instruction and receive feedback from peers. The final result is a comprehensive plan for supporting student academic and non-academic growth and specific advice from peer teachers about how to implement the plan.

Considerations for School and District Leaders

Research findings from the five study schools reveal several replicable practices that are key to creating school-wide collaboration. These findings lend themselves to a number of considerations instructive to both district and school leaders interested in building teacher collaboration to drive school improvement.

Establish structures – and expectations – for collaboration that foster school-wide participation.

Universal among the literature base and practice in these study schools is the importance of a school leader creating school structures, including a school schedule that allows for teachers who share students, or share a content expertise, the opportunity to work together. These schools did so by establishing both subject-area and grade-level teams in which all instructional staff participate. Further, school leaders place a priority on teachers working together so that episodic interruptions of a school schedule have a minimal impact on teacher work time. Early on in the introduction of collaborative processes, school leaders create the expectation that teachers use team meetings as work time, not just “meeting” time. As such, school leaders routinely hold teachers accountable for achieving team goals. This expectation, in turn, fosters a dynamic where teachers expect to engage with peers in a discussion focused on instructional issues and hold each other responsible for producing work products.

A Focus on Student Support at Conley Elementary

To best serve students with disabilities, the Intellectually Impaired (I.I.) team is comprised of Special Education teachers from several grade levels and is facilitated by a teacher-leader. In the team’s weekly meeting, teachers reflect on student successes, challenges, and growth using multiple data sources, with the goal of providing appropriate services and supports. To ensure all students identified with a special education need receive equal attention throughout the year, the I.I. team maintains a rotating schedule set at the beginning of the year and regularly updated, and uses similar protocols to review student data during each meeting. Team members come to meetings prepared with information about students’ progress – both academic (e.g., progress against learning goals) and non-academic (e.g., behavior). All teachers participate in a group discussion of each student offering suggestions for classroom management, pedagogical and learning strategies, and welcome learning from peers. Some teachers suggest using specific curriculum materials and behavior management strategies and offer to meet outside of team time to guide a new teacher in her practice.

Model constructive feedback to strengthen a culture of collaboration.

Across study schools, leaders express desire for teacher collaboration to drive school-wide improvements in instructional practice. Drawing from the literature, this is most often accomplished when teachers engage in reflective conversations: debriefing classroom challenges, receiving feedback on practices, and identifying new pedagogical techniques to try. At its core, this process depends on peer critique – a ritual not yet universally strong across study schools. As one leader describes it: “Teachers still are not comfortable with being critical of one another at the level needed...the ‘culture of nice’ is in the way of the real work that needs to happen.” Research suggests that leaders can use two techniques – both hallmarks of school communities that have reached sustaining levels of collaborative practice – to overcome this potential obstacle to deeper levels of collaboration. First, leaders can model constructive feedback during team meetings, initiating critique as a routine part of group work. Next, school leaders can purposefully introduce challenging questions related to instructional practice in team settings.

The collegial debate that is spurred can be a chance for teachers to consider new perspectives. To make the most of these moments of productive conflict, leaders need to be attentive to team dynamics so that teacher voice can be expressed freely in team meetings. Initiated by leaders, these fundamental actions can bolster organizational trust, a key pre-cursor to the emergence of teacher-led teams.

Prioritize cultural fit when hiring teachers. Leaders and teachers alike describe the importance of hiring teachers who are seeking a collaborative school culture. As one teacher stated, “Chemistry is important. Hire with purpose. Hire the person with the best fit.” Looking towards the hiring cycle for the start of the 2014-15 school year, school leaders in the Boston Public Schools have been given the autonomy to hire the best teacher for each open teaching position rather than the teacher with the most seniority, referred to as “open-posting.” This new flexibility may allow school leaders to accelerate strategies for leveraging teacher collaboration to support school improvement efforts.

Create opportunities for peer teachers to work together as a mechanism for developing teacher-led collaboration. Teachers place a premium on the interactions they have with colleagues to support their practice. Our synthesis of the practices in study schools suggests that teachers use peer interactions for different purposes than team meetings, in that they have more in-depth conversations to solicit feedback and advice on their particular classroom challenges. However, in study schools, these interactions often happen informally between classes, during lunches, or after-school. School leaders can support teachers to work together more intentionally by establishing study groups or pairing peer teachers – strategies supported by the literature – or by creating a school schedule where teachers who share students or a subject-area have time to work together. School leaders can then identify teachers, who regularly reflect on instructional practice with peers, for leadership roles in facilitating team conversations.

Conclusion

This research study documented teacher collaboration practices in School on the Move prize-winners and finalists. Findings highlight the value of establishing school-wide structures and collaborative cultural norms to school leaders and teachers committed to working together. In these schools, collaboration is seen as “the way we work.” Teachers articulated feeling far more “isolated” in other schools in which they taught, and describe their current pedagogical practice as being defined by the daily routines of “learning things from other teachers.” Teachers universally point to the impact of teacher collaboration on student learning by improving classroom practice, promoting data use, increasing academic rigor, and supporting students’ non-academic needs. One school leader sums it up quite well: “It’s the highest leverage strategy for school improvement that we have.”

References in Alphabetical Order

- Abbate-Vaughn, J. (2004). The things they carry: Ideology in an urban teacher professional community. *The Urban Review*, 36(4), 227-249.
- Achinstein, B. (2002). Conflict amid community: The micropolitics of teacher collaboration. *Teachers College Record*, 104(3), 421-455.
- Boyd, V., & Hord, S. M. (1994). Principals and the new paradigm: Schools as learning communities. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA.
- Bryk, A. S. (2010). Organizing schools for improvement. *Phi Delta Kappan*, 91(7), 23-30.
- Bryk, A.S., & Schneider, E.L. (2002). *Trust in schools: A core resource for improvement*. New York: Russell Sage.
- Brownell, M.T., Yeager, E. Rennells, M.S. & Riley, T. (1997). Teachers working together: What learning educators and researchers should know. *Teacher Education and Special Education*, 20, 340-359.
- Coburn, C. E. (2001). Collective sensemaking about reading: How teachers mediate reading policy in their professional communities. *Educational Evaluation and Policy Analysis*, 23(2), 145-170.
- Cosner, S. (2009). Building organizational capacity through trust. *Educational Administration Quarterly*, 45(2), 248-291.
- Davis, K.S. (2003). "Change is hard": What science teachers are telling us about reform and teacher learning of innovative practices. *Science Education*, 87 (1) 3-30.
- d'Entremont, C., Norton, J., Bennett, M., & Piazza, P. (2013). Charting the Course: Four years of the Thomas W. Payzant School on the Move Prize. *Journal of Education*, 192(2/3), 3-12.
- Dooner, A. M., Mandzuk, D., & Clifton, R. A. (2008). Stages of collaboration and the realities of professional learning communities. *Teaching and Teacher Education*, 24(3), 564-574.
- EdVestors. (2011, November). Embracing change: How outside support can set low performing schools on the path to success. Boston, MA. Retrieved from: http://www.edvestors.org/wp-content/uploads/2013/07/2011_Embracing_Change.pdf.
- Edmonson, A. C. (2012). *Teaming: How Organizations Learn, Innovate, and Compete in the Knowledge Economy*. San Francisco, CA: Jossey-Bass.
- Fishman, B. J., Marx, R. W., Best, S., & Tal, R. T. (2003). Linking teacher and student learning to improve professional development in systemic reform. *Teaching and teacher education*, 19(6), 643-658.
- Friedman, V. (1997). Making schools safe for uncertainty: Teams, teaching, and school reform. *The Teachers College Record*, 99(2), 335-370.
- Glazer, E. M., & Hannafin, M. J. (2006). The collaborative apprenticeship model: Situated professional development within school settings. *Teaching and teacher education*, 22(2), 179-193.
- Goddard, Y., Goddard, R., & Tschannen-Moran, M. (2007). A theoretical and empirical investigation of teacher collaboration for school improvement and student achievement in public elementary schools. *Teachers College Record*, 109 (4), 877-896.
- Grossman, P., Wineburg, S., & Woolworth, S. (2001). Toward a theory of teacher community. *Teachers College Record*, 103(6), 942-1012.
- Horn, I. S. (2005). Learning on the job: A situated account of teacher learning in high school mathematics departments. *Cognition and Instruction*, 23(2), 207-236.
- King, M. B. (2002). Professional development to promote schoolwide inquiry. *Teaching and Teacher Education*, 18(3), 243-257.
- Kruse, S. D. & Louis, K. S. (1993). An emerging framework for analyzing school-based professional community. Paper presented at the Annual Meeting of the American Educational Research Association, Atlanta, GA.
- Leana, C. (2011, Fall). *The missing link in school reform*. Stanford Social Innovation Review. Palo Alto, CA. Retrieved from: http://www.ssireview.org/articles/entry/the_missing_link_in_school_reform.
- Learning Point Associates. (2010). The school leadership triangle: From compliance to innovation. Chicago, IL. Retrieved from: <http://www.learningpt.org/press-room/pressreleases/pr2010526.pdf>.
- Little, J. W. (2003). Inside teacher community: Representations of classroom practice. *Teachers College Record*, 105 (6), 913-945.

- Lord, B. (1994). Teachers' professional development: Critical collegiality and the role of professional communities. In N. Cobb (Ed.), *The future of education: Perspectives on national standards in education* (pp. 175-204). New York: College Entrance Examination Board.
- Lortie, D.C. (1975). *Schoolteacher: A Sociological Perspective*. Chicago: University of Chicago Press.
- Loucks-Horsley, S., & Matsumoto, C. (1999). Research on professional development for teachers of mathematics and science: The state of the scene. *School Science and Mathematics*, 99(5), 258-271.
- Louis, K. S., Marks, H. M., & Kruse, S. (1996). Teachers' professional community in restructuring schools. *American Educational Research Journal*, 33(4), 757.
- Marzano, R. J. & Toth, M.D. (2013). Supporting Teacher Growth with Instructional Rounds. *Reflective Leadership*, 19(8). Retrieved from: <http://www.ascd.org/ascd-express/vol8/819-marzano.aspx>.
- Mass Insight Education. (2012, May). Being bold: An assessment of turnaround initiatives in select districts and states. Boston, MA. Retrieved from: http://www.massinsight.org/publications/turnaround/162/file/1/pubs/2012/05/23/Mass_Insight_STG_-_Being_Bold_Assessment_-_May_2012_1.pdf
- Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review*, 20(3), 709-734.
- McLaughlin, M. W., & Talbert, J. E. (2006). *Building school-based teacher learning communities: Professional strategies to improve student achievement*. New York: Teachers College Press.
- Mundry, S. (2005). Changing perspectives in professional development. *Science Educator*, 14(1), 9-15.
- Nelson, T. H. (2008). Teachers' collaborative inquiry and professional growth: Should we be optimistic?. *Science Education*, 93(3), 548-580.
- Nelson, T., & Slavit, D. (2008). Supported teacher collaborative inquiry. *Teacher Education Quarterly*, 35(1), 99-116.
- Palincsar, A. S., Magnusson, S. J., Marano, N., Ford, D., & Brown, N. (1998). Designing a community of practice: Principles and practices of the GIsML community. *Teaching and Teacher Education*, 14(1), 5-19.
- Parise, L. M., & Spillane, J. P. (2010). Teacher learning and instructional change: How formal and on-the-job learning opportunities predict change in elementary school teachers' practice. *The Elementary School Journal*, 110(3), 323-346.
- Piazza, P., & McNeill, K. L. (2013). Negotiating competing goals in the development of an urban ecology practitioner inquiry community. *Journal of Science Teacher Education*, 24(7), 1157-1176.
- Pomson, A. D. M. (2005). One classroom at a time? Teacher isolation and community viewed through the prism of the particular. *The Teachers College Record*, 107(4), 783-802.
- Stiles, K. E., & Mundry, S. (2002). Professional development and how teachers learn: Developing expert science teachers. In R. W. Bybee (Ed.), *Learning science and the science of learning* (pp. 137-151). Arlington, VA: National Science Teachers Association Press.
- Stoll, L., Bolam, R., McMahon, A., Wallace, M., & Thomas, S. (2006). Professional learning communities: A review of the literature. *Journal of Educational Change*, 7(4), 221-258.
- Supovitz, J. (2002). Developing communities of instructional practice. *The Teachers College Record*, 104(8), 1591-1626.
- Supovitz, J., Sirinides, P., & May, H. (2010). How principals and peers influence teaching and learning. *Educational Administration Quarterly*, 46(1), 31-56.
- Talbert, J. E. (2010). Professional learning communities at the crossroads: How systems hinder or engender change. In Hargreaves, A., et al. (Eds.), *The second international handbook of educational change, volume 23* (pp. 555-571). Dordrecht: Springer.
- Vescio, V., Ross, D., & Adams, A. (2008). A review of research on the impact of professional learning communities on teaching practice and student learning. *Teaching and Teacher Education*, 24(1), 80-91.
- Westheimer, J. (1998). *Among school teachers: Community, autonomy, and ideology in teachers' work*. New York: Teachers College Press.
- Wood, D. (2007). Teachers' learning communities: Catalyst for change or a new infrastructure for the status quo? *Teachers College Record*, 109(3), 699-739.
- Wood, D. & Whitford, B. L. (2009). Teacher accountability without agency: Mission impossible? Paper presented at the 2009 Annual Meeting of the American Educational Research Association, San Diego, CA.
- Young, V. M. (2008). Supporting teachers' use of data: The role of organization and policy. In E. B. Mandinach & M. Honey (Eds.), *Data-driven school improvement: Linking data and learning* (pp. 87-106). New York: Teachers College Press.

Endnotes

- 1 Edmonson, A. C. (2012).
- 2 Edmonson, A. C. (2012).
- 3 Goddard, Y., Goddard, R., & Tschannen-Moran, M. (2007).
- 4 Leana, C. (2011, Fall).
- 5 Brownell, M. T., Yeagar, E., Rennels, M. S. & Riley, T. (1997).
- 6 Davis, K. S. (2003).
- 7 Lortie, D. C. (1975).
- 8 Bryk, A. S., & Schneider, E. L. (2002).
- 9 Boyd, V., & Hord, S. M. (1994); d'Entremont, C., Norton, J., Bennett, M., & Piazza, P. (2013); Nelson, T. H. (2008).
- 10 Coburn, C. E. (2001); Cosner, S. (2009); Grossman, P., Wineburg, S., & Woolworth, S. (2001); King, M. B. (2002); Louis, K. S., Marks, H. M., & Kruse, S. (1996); McLaughlin, M. W., & Talbert, J. E. (2006); Nelson, T., & Slavit, D. (2008); Talbert, J. E. (2010); Vescio, V., Ross, D., & Adams, A. (2008).
- 11 EdVestors. (2011, November); Fishman, B. J., Marx, R. W., Best, S., & Tal, R. T. (2003); Friedman, V. (1997); King, M. B. (2002); Kruse, S. D. & Louis, K. S. (1993); Little, J. W. (2003); Louis, K. S., Marks, H. M., & Kruse, S. (1996); Talbert, J. E. (2010).
- 12 Abbate-Vaughn, J. (2004); Achinstein, B. (2002); Cosner, S. (2009); Louis, K. S., Marks, H. M., & Kruse, S. (1996); Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995); McLaughlin, M. W., & Talbert, J. E. (2006); Piazza, P., & McNeill, K. L. (2013); Westheimer, J. (1998); Wood, D. (2007).
- 13 Abbate-Vaughn, J. (2004); Achinstein, B. (2002); Cosner, S. (2009); Louis, K. S., Marks, H. M., & Kruse, S. (1996); Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995); McLaughlin, M. W., & Talbert, J. E. (2006); Piazza, P., & McNeill, K. L. (2013); Westheimer, J. (1998); Wood, D. (2007).
- 14 McLaughlin, M. W., & Talbert, J. E. (2006).
- 15 Coburn, C. E. (2001); Cosner, S. (2009); King, M. B. (2002); Louis, K. S., Marks, H. M., & Kruse, S. (1996); McLaughlin, M. W., & Talbert, J. E. (2006); Nelson, T., & Slavit, D. (2008); Stoll, L., Bolam, R., McMahon, A., Wallace, M., & Thomas, S. (2006); Talbert, J. E. (2010); Vescio, V., Ross, D., & Adams, A. (2008).
- 16 Abbate-Vaughn, J. (2004); Achinstein, B. (2002); Cosner, S. (2009); Louis, K. S., Marks, H. M., & Kruse, S. (1996); Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995); McLaughlin, M. W., & Talbert, J. E. (2006); Piazza, P., & McNeill, K. L. (2013); Westheimer, J. (1998); Wood, D. (2007).
- 17 Glazer, E. M., & Hannafin, M. J. (2006); Kruse, S. D. & Louis, K. S. (1993); Leana, C. (2011, Fall); Loucks-Horsley, S., & Matsumoto, C. (1999); Louis, K. S., Marks, H. M., & Kruse, S. (1996); Mundry, S. (2005); Parise, L. M., & Spillane, J. P. (2010); Stiles, K. E., & Mundry, S. (2002); Supovitz, J. (2002); Wood, D. (2007).
- 18 Coburn, C. E. (2001); Cosner, S. (2009); Grossman, P., Wineburg, S., & Woolworth, S. (2001); King, M. B. (2002); Louis, K. S., Marks, H. M., & Kruse, S. (1996); McLaughlin, M. W., & Talbert, J. E. (2006); Nelson, T., & Slavit, D. (2008); Stoll, L., Bolam, R., McMahon, A., Wallace, M., & Thomas, S. (2006); Talbert, J. E. (2010); Vescio, V., Ross, D., & Adams, A. (2008).
- 19 EdVestors. (2011, November); Grossman, P., Wineburg, S., & Woolworth, S. (2001); Louis, K. S., Marks, H. M., & Kruse, S. (1996); Young, V. M. (2008).
- 20 Glazer, E. M., & Hannafin, M. J. (2006); Kruse, S. D. & Louis, K. S. (1993); Leana, C. (2011, Fall); Loucks-Horsley, S., & Matsumoto, C. (1999); Louis, K. S., Marks, H. M., & Kruse, S. (1996); Mundry, S. (2005); Parise, L. M., & Spillane, J. P. (2010); Stiles, K. E., & Mundry, S. (2002); Supovitz, J. (2002); Wood, D. (2007).
- 21 Fishman, B. J., Marx, R. W., Best, S., & Tal, R. T. (2003); Friedman, V. (1997); King, M. B. (2002); Kruse, S. D. & Louis, K. S. (1993); Little, J. W. (2003); Louis, K. S., Marks, H. M., & Kruse, S. (1996); McLaughlin, M. W., & Talbert, J. E. (2006); Talbert, J. E. (2010).
- 22 Mass Insight Education. (2012, May); McLaughlin, M. W., & Talbert, J. E. (2006); Young, V. M. (2008).
- 23 Abbate-Vaughn, J. (2004); Bryk, A. S. (2010); McLaughlin, M. W., & Talbert, J. E. (2006); Piazza, P., & McNeill, K. L. (2013).
- 24 Mass Insight Education. (2012, May); McLaughlin, M. W., & Talbert, J. E. (2006); Young, V. M. (2008).
- 25 McLaughlin, M. W., & Talbert, J. E. (2006); Wood, D. & Whitford, B. L. (2009).
- 26 Fishman, B. J., Marx, R. W., Best, S., & Tal, R. T. (2003).
- 27 Cosner, S. (2009); Dooner, A. M., Mandzuk, D., & Clifton, R. A. (2008); Grossman, P., Wineburg, S., & Woolworth, S. (2001); Lord, B. (1994).
- 28 Abbate-Vaughn, J. (2004); Cosner, S. (2009); Supovitz, J., Sirinides, P., & May, H. (2010); Piazza, P., & McNeill, K. L. (2013).
- 29 Coburn, C. E. (2001); Horn, I. S. (2005); McLaughlin, M. W., & Talbert, J. E. (2006); Pomson, A. D. M. (2005); Talbert, J. E. (2010); Wood, D. (2007).
- 30 Glazer, E. M., & Hannafin, M. J. (2006); Kruse, S. D. & Louis, K. S. (1993); Mundry, S. (2005); Parise, L. M., & Spillane, J. P. (2010); Supovitz, J. (2002).
- 31 Cosner, S. (2009).
- 32 Boyd, V., & Hord, S. M. (1994); Coburn, C. E. (2001); Cosner, S. (2009); Palincsar, A. S., Magnusson, S. J., Marano, N., Ford, D., & Brown, N. (1998).
- 33 Palincsar, A. S., Magnusson, S. J., Marano, N., Ford, D., & Brown, N. (1998); Wood, D. (2007); Talbert, J. E. (2010).
- 34 Abbate-Vaughn, J. (2004); Coburn, C. E. (2001); Horn, I. S. (2005); Young, V. M. (2008).
- 35 Talbert, J. E. (2010).
- 36 Abbate-Vaughn, J. (2004).
- 37 Coburn, C. E. (2001).
- 38 d'Entremont, C., Norton, J., Bennett, M., & Piazza, P. (2013).
- 39 Boyd, V., & Hord, S. M. (1994).
- 40 McLaughlin, M. W., & Talbert, J. E. (2006); Wood, D. & Whitford, B. L. (2009).
- 41 Learning Point Associates. (2010).
- 42 Cosner, S. (2009); Wood, D. (2007).
- 43 Piazza, P., & McNeill, K. L. (2013).
- 44 Cosner, S. (2009).
- 45 McLaughlin, M. W., & Talbert, J. E. (2006).
- 46 Glazer, E. M., & Hannafin, M. J. (2006); Mundry, S. (2005).
- 47 Kruse, S. D. & Louis, K. S. (1993).
- 48 McLaughlin, M. W., & Talbert, J. E. (2006).
- 49 McLaughlin, M. W., & Talbert, J. E. (2006).
- 50 Supovitz, J., Sirinides, P., & May, H. (2010).
- 51 Cosner, S. (2009); Wood, D. (2007).
- 52 Cosner, S. (2009); Wood, D. (2007).
- 53 McLaughlin, M. W., & Talbert, J. E. (2006).
- 54 Abbate-Vaughn, J. (2004); Achinstein, B. (2002); Cosner, S. (2009); Louis, K. S., Marks, H. M., & Kruse, S. (1996); Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995); McLaughlin, M. W., & Talbert, J. E. (2006); Piazza, P., & McNeill, K. L. (2013); Westheimer, J. (1998); Wood, D. (2007).
- 55 Cosner, S. (2009).
- 56 Marzano, R. J. & Toth, M.D. (2013).



renniecenter.org



edvestors.org

A Theoretical and Empirical Investigation of Teacher Collaboration for School Improvement and Student Achievement in Public Elementary Schools

Yvonne L. Goddard

Roger D. Goddard

University of Michigan

Megan Tschannen-Moran

College of William and Mary

Background/Context: *A review of the literature demonstrates that schools are frequently called upon to improve by developing high levels of teacher collaboration. At the same time, there is a paucity of research investigating the extent to which teachers' collaborative school improvement practices are related to student achievement.*

Purpose: *The purpose of this study was to review the literature and empirically test the relationship between a theoretically driven measure of teacher collaboration for school improvement and student achievement.*

Setting: *The data for this study were drawn from students and teachers in a large urban school district located in the midwestern United States.*

Population: *The population for this study came from the elementary schools in one large midwestern school district. Survey data were drawn from a sample of 47 elementary schools with 452 teachers and 2,536 fourth-grade students.*

Research Design: *Hierarchical linear modeling (HLM) was the primary analytic method. Survey data were collected approximately 2 months before students took the mandatory state assessments, which provided the scale scores that served as dependent variables in this research. HLM accounted for the nested nature of the data (students nested in schools).*

This was a naturalistic study that employed secondary data analysis. There was no intervention, treatment, or randomization. Naturally occurring differences in teachers' levels of collaboration were measured, and statistical controls for school social context were employed. At the student level, the study employed controls for children's social and academic backgrounds.

Data Collection and Analysis: *Data were obtained from teachers and students in the sampled schools. Teacher data were obtained via a survey assessing teacher collaboration. Student data were obtained from the central administrative office of the school district for all students who attended sampled schools during the year in which we surveyed teachers.*

Results: *Results of HLM analyses indicate that fourth-grade students have higher achievement in mathematics and reading when they attend schools characterized by higher levels of teacher collaboration for school improvement.*

Conclusions: *The authors suggest that the results provide preliminary support for efforts to improve student achievement by providing teachers with opportunities to collaborate on issues related to curriculum, instruction, and professional development. The authors also discuss the need for more research on the effects of different types of collaborative practices using more representative samples.*

From the one-room schoolhouses that characterized schooling in the United States over a century ago to modern multiroom school buildings, teachers have traditionally taught students in isolation. Collaboration among teachers has not been the norm historically (e.g., Lortie, 1975; Rosenholtz, 1989b; Sarason, 1996). Typically, collaboration is neither taught nor modeled in university coursework (indeed, few professors teach collaboratively), nor do practicing teachers receive substantial support from colleagues or administrators. Rosenholtz (1989a) argued that isolation was probably the greatest impediment to learning to teach or to improving existing skills because it forced teachers to rely on trial and error and to fall back on their own memories of schooling for models of teaching.

Recent reform efforts in education have included an emphasis on increasing teacher collaboration (Brownell, Yeager, Rennells, & Riley, 1997; Louis, Marks, & Kruse, 1996). In fact, Morse (2000) suggested that collaboration is an educational reform imperative: "Educators will recognize they are not alone in searching for new modes of human exchange. The fact is, this quest for a new way of human exchange is endemic in the social order...Rejecting collaboration is not an option" (p. xi). A focus on the process of collaboration, however, has preempted emphasis on outcome indicators. Indeed, collaboration is often advocated, yet its effects are less frequently investigated. Many studies have reported positive outcomes of collaboration for teachers, including improved efficacy (Shachar & Shmuelovitz, 1997), more positive attitudes toward teaching (Brownell et al.), and higher levels of trust (Tschannen-Moran, 2001). Little has been done, however, to test the prediction that teacher collaboration is associated with increased student achievement. For example, Marks and Louis (1997) stated that there is no clearly established link between teacher empowerment and student performance.

Researchers have, however, argued the possibility that collaboration may improve teaching and learning (Goddard & Heron, 2001; Pounder, 1998). According to Hausman and Goldring (2001), “teachers must be central to any meaningful change in schools” (p. 44). The more teachers collaborate, the more they are able to converse knowledgeably about theories, methods, and processes of teaching and learning, and thus improve their instruction. Evans-Stout (1998), however, concluded that “we still do not have much evidence suggesting which collaborative instructional practices lead to improved student learning” (p. 124). Indeed, of the few empirical studies on collaboration conducted in the 1970s, Evans-Stout noted that most suffered from poor designs and that more recent studies have investigated the advantages of collaboration for teachers rather than students. Furthermore, based on a comprehensive review of the literature on school-based problem-solving teams, Welch, Brownell, and Sheridan (1999) cautioned that we lack empirically based studies that directly link collaboration to student outcomes. Thus, there remains a gap in knowledge regarding the effects of teacher collaboration on student-level outcomes.

This study was designed, therefore, to investigate whether there is an empirical link between teacher collaboration for school improvement and student achievement. Our primary research question addresses whether teacher collaboration positively predicts differences among schools in student achievement. In light of the predominance of state systems of testing that emphasize high standards for all, we believe that our outcome variables, fourth-grade students’ achievement on high-stakes state-mandated mathematics and reading assessments, are particularly timely. Indeed, our results are of import for those interested in organizing schools so that teachers can meet the challenges brought by student assessment and school accountability.

Because we studied differences in the achievement of students nested in schools, our data were necessarily multilevel. Thus, to account for heterogeneity of regression among schools and to avoid the misestimated standard errors and aggregation bias that sometimes compromise results when ordinary least squares regression is employed to address multilevel research questions, we employed hierarchical linear modeling (HLM). We turn now to a review of the literature on teacher collaboration for school improvement to ground the research questions we tested.

RESEARCH ON TEACHER COLLABORATION

Hausman and Goldring (2001) view schools as potential “communal organizations” characterized by, among other constructs, “enhanced col-

legiality and collaboration” (p. 31). There are a variety of configurations, both formal and informal, within which collaboration may occur. For example, regular and special education teachers may work collaboratively to meet the needs of students with disabilities who spend a portion of the day in regular education settings. Middle school teachers may follow a team model in which they collaborate to improve instruction. School administrators at any level may establish teams of teachers to “problem solve about students experiencing difficulty, to establish and discuss academic standards, and to create positive working relationships with parents” (Friend & Cook, 2000, p. 16). Moreover, collaboration can occur when teachers talk often about their professional work (e.g., during planning periods). These examples clearly demonstrate that schools can present many opportunities for teachers to collaborate for the improvement of instruction, yet not all schools do. Indeed, not all teachers have opportunities to engage in professional discourse about their own learning and instruction. For example, they may work in schools with no formal mechanisms for collaboration and where administrators tightly control educational decisions involving curriculum, assessment, and student placement.

When educators having unique knowledge of a child operate in isolation, the child’s educational experience becomes fragmented, and the child’s needs may go unmet (Hart, 1998). Conversely, when teachers have opportunities to engage in professional discourse, they can build upon their unique content, pedagogical, and experiential knowledge to improve instruction. Although many scholars suggest that the combined skills and knowledge possessed by a team of educators should be an asset to school processes and hence student achievement, this argument is mainly theoretical. However, to make effective policy recommendations, researchers must move beyond expositions on the rationale for teacher collaboration to studies of its relationship to student learning (Evans-Stout, 1998; Hughes, 1994; Smylie, Lazarus, & Brownlee-Conyers, 1996; Welch et al., 1999).

In a study of teacher autonomy and control, Smylie et al. (1996) found that individual teacher autonomy was negatively associated with student achievement; conversely, team control over resources and accountability for outcomes was positively associated with student success. Although not related directly to collaboration, their results imply that the mutuality and shared responsibility that emerges when teachers collaborate may actually improve instruction and student learning. Other studies show that schools in which teaming occurs report fewer office-level behavioral problems (such as student office referrals and suspensions) than do those schools in which teaming does not occur (Crow & Pounder, 1997;

Pounder, 1998). A lower incidence of student misbehavior, in turn, provides increased opportunities to learn for all students. The less time teachers spend managing classroom conflict, the more time they are able to spend on instruction, thus improving students' academic outcomes.

Other research, although not specifically concerned with student achievement, suggests collaboration has important positive effects for teachers. For example, Erb (1995) found that when teachers work together, they are not only less isolated, but they are also more focused on academic and behavioral outcomes for students than when they work alone. Pounder (1998) examined teacher collaboration by studying teachers who participated formally as middle school team members to coordinate curriculum, interventions, management, and parental communications, as compared with nonteaming teachers. Pounder found that teachers who worked on teams reported more skill variety, knowledge of student performance, contact with parents, and knowledge of other teachers' work. Pounder asserted that when teachers work together on formal teams, there is a "tighter connection between teachers' work and student outcomes" (p. 66). We believe that this is because collaboration provides valuable opportunities for teachers to learn to improve their instruction.

In a review of existing research on educational collaboration, Brownell et al. (1997) concluded that positive outcomes are documented for teachers, including improved affect, heightened efficacy, and improved knowledge base. Shachar and Shmuelevitz (1997) also reported that higher levels of self-efficacy were associated with increases in teacher collaboration. Benefits to students are presumed to result from the positive changes experienced by teachers. For example, teachers' sense of increased efficacy, an outcome supported by research on teacher collaboration, has been linked to improved student achievement (Armor et al., 1976; Ashton & Webb, 1986; Englert, Tarrant, & Rozendal, 1993; Goddard, Hoy, & Woolfolk Hoy, 2000; Moore & Esselman, 1992; Ross, 1992). In sum, researchers believe that there is a link between teacher collaboration and student achievement, but the theory remains in need of testing.

RATIONALE FOR HYPOTHESIS

Our review suggests that when teachers collaborate to address important instructional issues, teaching and learning may be enhanced (e.g., Crow & Pounder, 1997; Erb, 1995; Goddard & Heron, 2001; Pounder, 1998; Putnam & Borko, 1997; Smylie et al., 1996). In light of this, we decided to examine the extent to which teachers work collectively to influence

decisions about school improvement, curriculum, instruction, and professional development. Specifically, we wanted to know whether teacher collaboration around these fundamental issues positively predicted the unequal distribution of student success among schools. Next, we briefly explain the possible benefits that accrue when teachers collaborate to solve problems and make decisions in each of these areas.

School improvement

Hausman and Goldring (2001) stressed the importance of teachers' influence over school decisions. Teachers are, after all, the school personnel most frequently and directly in contact with students. "They are thus a school system's primary reservoir of organizational knowledge about means and ends" (Conley, Schmidle, & Shedd, 1988, pp. 262–263). Other researchers contended that giving teachers responsibility for making key school decisions is important to developing professional communities among teachers (Louis et al., 1996; Marks & Louis, 1997).

Curriculum and instruction

The involvement of teachers in the selection of instructional methods and activities and the evaluation of curriculum and programs is also important. Englert et al. (1993) found that teachers who were given a voice in curricular development claimed ownership of the process and thus were able to sustain changes that were decided in a team context. In a survey of practicing teachers, Melnick and Witmer (1999) found that teachers believed so strongly in the importance of sharing instructional strategies and ideas that they often made time during nonschool hours to meet in teams to discuss these issues. Rosenholtz (1989b) supported these views and further stated that teachers should be involved collectively in instructional decision making.

Professional development

Hausman and Goldring (2001) stated that professional development opportunities, when offered at the level of individual schools, are indicators of school community. Melnick and Witmer (1999) contended that teachers must become actively involved in their own professional development. Such involvement provides opportunities for teachers to learn with colleagues. Further, Melnick and Witmer stated that encouraging active teacher involvement through professional development may allow

teachers to bring about systemic reform. Professional development may be key to improving instruction and fostering a strong sense of professional community (Louis et al., 1996). Moreover, teachers who find challenge and personal accomplishment, often through continued professional development, are more likely to remain in the teaching profession and to work hard to help their students succeed (Rosenholtz, 1989b). Our operational measure of teacher collaboration tapped each of the above areas and was employed to test the following hypothesis:

H₁: Teacher collaboration is positively and significantly related to differences among schools in fourth-grade achievement on state-mandated assessments of mathematics and reading achievement.

Notably, the state in which the data were collected was engaged in a large-scale accountability effort through which aggregate student achievement scores were publicized in local school “report cards.” Results of the fourth-grade assessments employed as dependent variables for this study were publicly reported in this manner. The public reporting of the results underscores the high-stakes nature of the assessment. Hence, we believe that the relationship between teacher collaboration and our dependent variables is highly relevant to those seeking to improve schools, particularly in the context of student assessment and accountability policy.

METHODOLOGY

The data for this study were drawn from students and teachers in a large urban school district located in the midwestern United States. The sample, data collection procedures, student-level variables, teacher collaboration measure, and multilevel analytic methods employed to test our research questions are described below.

SAMPLE

The elementary schools in a midwestern urban school district served as the population for our study. Because this study focused on schools in just one district, there was no possibility for uncontrolled between-district effects. Moreover, this design feature also held constant any differences that might be related to organizational structure (i.e., elementary, middle, secondary) of the schools. To schedule times for the administration of surveys to school faculties, a researcher contacted the principal of each

of 52 randomly selected schools. Principals in three of the selected schools declined to participate. Our decision rule for including schools in the final sample was that each school had at least 4 faculty respondents. The sample includes data from 47 elementary schools, with 452 teachers and 2,536 fourth-grade students.

DATA COLLECTION

Data were obtained from teachers and students in the sampled schools. Teacher data were obtained by a researcher who administered a survey assessing teacher collaboration to faculty groups during a regularly scheduled faculty meeting. At this time, other data beyond the scope of the present study were also collected. For this reason, half of the teachers in the room, selected at random, received a survey with questions assessing teacher collaboration, whereas the other half received a survey with different questions. Teacher surveys were anonymous; hence, we did not attempt to track the grade level that teachers taught or teacher demographics such as age or gender. We obtained student achievement and demographic data from the central administrative office of the school district for all students who attended sampled schools during the year in which we surveyed teachers.

STUDENT-LEVEL VARIABLES

Our student-level control variables included gender, race/ethnicity, free and reduced-price lunch status (a proxy for socioeconomic status [SES]), and prior student achievement. In the sampled schools, approximately 99% of the student population was either Black or White, so race was dummy-coded such that non-White = 1 and White = 0. Gender and SES were coded similarly (female = 1, free/reduced lunch = 1). The dependent variables for this study were fourth-grade students' scaled scores on state-mandated mathematics and reading assessments. The assessments were administered to students in our sampled schools approximately one month after we surveyed teachers in the spring. Reliability and validity evidence for the state-mandated achievement test was obtained from the state department of education. Cronbach's alpha suggested that the dependent measure was acceptably reliable. Further, content validity for scores on the assessment was suggested in two ways: (1) the involvement of expert educators in the development and selection of test items, and (2) the school district from which our sample was drawn followed the state model curriculum for which the mandatory assessment was developed.

As a statistical control for prior student achievement, we employed the Metropolitan Achievement Test (seventh edition) mathematics and reading normal curve equivalent scores obtained by the sampled students one year earlier, as third graders. Finley (1995) reported adequate reliability for scores on the Metropolitan Achievement Test, and Hambleton (1995), Nitko (1994), and Rogers (1994) indicated that adequate concurrent and construct validity evidence exists for scores on the assessment. Because of student mobility, we expected that we would not obtain a prior achievement (third-grade) measure for every fourth-grade student in our sampled schools. However, because we obtained data from the central office of the district, we were able to obtain third-grade mathematics and reading scores for students who, although mobile, made only intradistrict school changes. For this reason, although our research was conducted in an urban district in which mobility is problematic, our missing data rate for prior achievement was just under 14%. We standardized the prior achievement scores to a mean of 0 and a standard deviation of 1 for use in the multilevel hypothesis tests.

SCHOOL-LEVEL VARIABLES

Teacher collaboration was measured by teacher responses to a six-item Likert-type scale. The items are reported in the appendix. The items tap aspects of teacher collaboration recommended in the extant literature as discussed earlier in the rationale for the hypothesis.

School-level SES, constructed as a continuous variable representing the proportion of students in a school receiving a free or reduced-price lunch, was designed as a control for school social context. In addition, we constructed variables representing school size and the proportion of students who were minority.

MULTILEVEL ANALYSIS

Because our research question involved the effects of school practices on students, we employed HLM to account for the nested structure of the data we collected. Our within-school model included dummy variables for student gender, race, and SES, and a continuous variable representing students' prior-year academic achievement. At the school level, teacher collaboration for school improvement was tested as a predictor of differences among schools in students' mathematics and reading achievement. As controls for school context, we also modeled the effects of school SES, proportion of minority students, and size. These variables

were included as controls for aspects of organizational context that might also help to explain differences among schools in student achievement. At Level 2, only the prior achievement slopes were set to vary randomly among schools because variance in these slopes was statistically nonzero. The slopes for the other student-level predictors did not vary significantly among schools, so these effects were fixed. Thus, the equations for our full model are as follows:

$$1. Y_{ij} = \beta_{\cdot 0j} + \beta_{\cdot j\text{FEMALE}} X_{ij\text{FEMALE}} + \beta_{\cdot j\text{AFAM}} X_{ij\text{AFAM}} + \beta_{\cdot j\text{SES}} X_{ij\text{SES}} + \beta_{\cdot j\text{MISS}} \text{PRIOR ACH.} X_{ij\text{MISS PRIOR ACH.}} + \beta_{\cdot j\text{PRIOR ACH.}} X_{ij\text{PRIOR ACH.}} + r_{ij}$$

$$2. \beta_{\cdot 0j} = Y_{00} + Y_{0\text{NUMSTD}} W_{j\text{NUMSTUD.}} + Y_{0\text{SES}} W_{j\text{SES}} + Y_{0\text{PCT.BLACK}} W_{j\text{PCT.BLACK}} + Y_{0\text{COLLABORATION}} W_{j\text{COLLABORATION}} + U_{0j}$$

$$3. \beta_{\cdot j\text{PRIOR ACH.}} = Y_{50} + U_{j\text{PRIOR ACH.}}$$

RESULTS

Of the 49 participating schools, there were two in which too few faculty members were available to complete the questionnaires. Therefore, these two schools were dropped from the sample, leaving 47 schools, or 90.4% of the 52 schools randomly selected for inclusion. A total of 452 teachers completed the surveys, and over 99% of the forms returned were useable. The final sample included 2,536 students and 452 teachers in the 47 sampled elementary schools from one large urban school district. Descriptive statistics for both the student- and school-level variables appear in Table 1. Nearly 60% of the fourth-grade students in our study

Table 1. Descriptive Statistics

| | Student Level ($n = 2,536$) | | | |
|-----------------------------|-------------------------------|-----------|---------|---------|
| | <i>M</i> | <i>SD</i> | Minimum | Maximum |
| Mathematics achievement | 0 | 1 | -4.00 | 5.25 |
| Reading achievement | 0 | 1 | -3.92 | 3.95 |
| Prior math achievement | 0 | 1 | -1.94 | 2.45 |
| Prior reading achievement | 0 | 1 | -2.15 | 2.59 |
| Free or reduced price lunch | .67 | .47 | 0 | 1 |
| Black | .57 | .49 | 0 | 1 |
| Female | .48 | .50 | 0 | 1 |
| | School Level ($l = 47$) | | | |
| | <i>M</i> | <i>SD</i> | Minimum | Maximum |
| Teacher collaboration | 0 | 1 | -2.08 | 1.83 |
| Proportion F/R lunch | .62 | .20 | .10 | .89 |
| Proportion Black | .56 | .28 | .08 | 1.00 |
| Number of students | 401.40 | 107.26 | 229.00 | 710.00 |

were Black, and about two thirds received a free or reduced-price lunch. Notably, the school-level descriptive statistics indicate considerable variability across schools in the distribution of disadvantaged students.

Note: In the final analysis, all school-level predictors were standardized to have a mean of 0 and a standard deviation of 1.

The mean size of the elementary school faculties surveyed was just over 21. By design, we intended to measure teacher collaboration for school improvement by obtaining responses from approximately half of the faculty. However, because there were uncontrollable events (e.g., teacher absences and schedule conflicts), not every teacher attended the meetings in which surveys were administered. Our research team did not attempt to collect data from teachers who were absent. On average, across the schools in the study, we obtained responses from approximately 45% of the teachers in the sampled schools, with between 4 and 20 responses per school, depending on school size. In no case did teachers present at the faculty meetings we attended refuse to complete the surveys. The elementary schools we sampled were K–5, and teachers from all grades attended the meetings in which we collected our data.

Because we conceptualized the level of teacher collaboration as an important dimension of schools’ normative and behavioral environments, we conducted our psychometric analysis of the five collaboration items at the school level. We began by aggregating the five teacher collaboration items to the school level, which resulted in a mean score for each school on each item. Next, we submitted these items to a principal axis factor analysis. Results indicated that all of the items loaded on a single factor with an eigenvalue of 4.25. This single factor explained 85% of the total variance in the items, and item loadings ranged from .79 to .95.

Table 2. Correlations Among Student-Level Variables (n = 2,536)

| | Math achievement | Reading achievement | Prior math achievement | Prior reading achievement | Black | Free or reduced-price lunch | Female |
|-----------------------------|------------------|---------------------|------------------------|---------------------------|-------|-----------------------------|--------|
| Mathematics achievement | - | | | | | | |
| Reading achievement | .73** | - | | | | | |
| Prior math achievement | .72* | .67** | - | | | | |
| Prior reading achievement | .63** | .69** | .72** | - | | | |
| Black | -.31** | -.28** | -.29** | -.26** | - | | |
| Free or reduced price lunch | -.31** | -.31** | -.33** | -.34** | .27** | - | |
| Female | .01 | .08** | -.05** | -.07** | .00 | .00 | - |

* $p < .05$. ** $p < .01$.

Internal consistency for the five items was also quite strong ($\alpha = .96$). Based on the high reliability of scores on the scale and the strong single factor that was extracted, teacher collaboration for school improvement was operationalized as the factor score calculated for each school.

Table 3. Correlations Among School-Level Variables (n = 47)

| | Teacher collaboration | Proportion Black | Proportion F/R lunch | Number of students |
|--|-----------------------|------------------|----------------------|--------------------|
| Teacher collaboration | - | | | |
| Proportion Black | -.19 | - | | |
| Proportion free or reduced-price lunch | -.23~ | .52** | - | |
| Number of students | -.09 | .06 | .19 | - |

~ $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Correlations among the student-level variables are reported in Table 2. The results reveal a strong and significant negative association between being a student of color or receiving a subsidized lunch, and mathematics and reading achievement in fourth grade. Conversely, students' prior performance on the Metropolitan Achievement Test (in third grade) was significantly and positively related to their fourth-grade achievement in the same content areas. Table 3 reports correlations among the school-level variables. Among all the school contextual variables, the proportion of students receiving a subsidized lunch ($r = -.23$, $.05 < p < .10$) was the variable most strongly associated with the extent to which teachers reported influencing school improvement decisions. Notably, however, the magnitude of the relationship is not large, and the statistical significance is marginal.

Given that 14% of our student sample was missing prior achievement, we decided to conduct a missing data analysis to determine whether these prior achievement scores were missing randomly. Our analysis revealed that students who were missing prior achievement had significantly lower current achievement scores in both reading and mathematics, which may result from interdistrict mobility. To account for this, we created a student-level dummy variable called *missing prior achievement*, which we employed to adjust our multilevel models for the nonrandom nature of the missing data.

TEACHER COLLABORATION MODELS

We employed HLM to test our main hypothesis: that teacher collaboration for school improvement is related to differences among schools in students' mathematics and reading achievement. We began the multi-

Table 4. HLM Unconditional Model Characteristics: Variation Between Schools in Teacher Collaboration for School Improvement (n = 452 teachers in 47 schools)

| | Teacher Collaboration |
|---|-----------------------|
| Intercept (school average) | .011 |
| Between-school parameter variance | .279 ^a |
| Within-school parameter variance | .711 |
| HLM reliability estimate for intercepts | .772 |
| Proportion of variance between schools | .282 |

^aChi-square = 207.11, *df* = 46, *p* < .001.

Table 5. HLM Unconditional Model Characteristics: Variation Between Schools in Students' Mathematics and Reading Achievement (n = 2,536 students in 47 schools)

| | Mathematics | Reading |
|---|-------------------|-------------------|
| Intercept (school average) | .039 | .019 |
| Between-school parameter variance | .265 ^a | .195 ^b |
| Within-school parameter variance | .786 | .846 |
| HLM reliability estimate for intercepts | .943 | .919 |
| Proportion of variance between Schools | .261 | .194 |

^aChi-square = 742.04, *df* = 46, *p* < .001.

^bChi-square = 509.31, *df* = 46, *p* < .001

level tests with two unconditional models to estimate the extent to which both teacher collaboration and student achievement varied among schools. The results of the unconditional models are shown in Tables 4 and 5. The chi-square tests of significance indicated that, as expected, the proportions of variance among schools in both teacher collaboration (28%) and student achievement (26% mathematics, 19% reading) was statistically nonzero. Hence, we continued our multilevel modeling.

At Level 1 in our multilevel models, we adjusted average levels of school achievement (i.e., the intercepts) for the effects of student demographics (race, gender, and SES) and prior achievement. The within-school findings show that student achievement was significantly and negatively associated with both minority status and disadvantaged socioeconomic status, whereas prior achievement had a significant positive effect. At Level 2, we entered measures of school SES, minority proportion, and size as statistical controls for school social context. In addition, we added our measure of teacher collaboration for school improvement.

Consistent with our main hypotheses, teacher collaboration was a statistically significant predictor of variability among schools in both mathematics and reading achievement. Specifically, a one-standard-deviation increase in the extent to which teachers collaborated on school improve-

ment was associated with a .08 *SD* increase in average school mathematics achievement and a .07 *SD* increase in average school reading achievement. Thus, even with school means adjusted for student characteristics and school social context controlled, teacher collaboration for school improvement was a significant positive predictor of differences among schools in student achievement (see Table 6).

Table 6. HLM Analysis of the Effect of Student and School Characteristics and Teacher Collaboration on Students' Achievement in Mathematics and Reading Assessment (n = 2,536 students in 47 schools)

| | Mathematics | <i>p</i> value | Reading | <i>p</i> value |
|--|------------------|----------------|------------------|----------------|
| Intercept (average achievement) | .24*** (.04) | .00 | .23*** (.04) | .00 |
| Teacher collaboration | .08* (.03) | .02 | .07* (.03) | .02 |
| Proportion of students receiving free or reduced-price lunch | -.08 (.05) | .13 | -.09* (.03) | .01 |
| Proportion minority | -.01 (.05) | .88 | .02 (.03) | .58 |
| School size | -.08* (.04) | .04 | -.04 (.02) | .11 |
| Student receives free or reduced-price lunch | -.13** (.03) | .00 | -.13* (.03) | .00 |
| Female | .05* (.02) | .03 | .08 (.03) | .00 |
| Black | -.21*** (.03) | .00 | -.23*** (.03) | .00 |
| Prior math achievement | .64*** (.03) | .00 | - | - |
| Prior reading achievement | - | - | .60*** (.02) | .00 |
| Missing prior achievement | -.32*** (.05) | .00 | -.29*** (.07) | .00 |
| HLM variance parameters | | | | |
| Unconditional between school parameter variance | .26 | | .19 | |
| Full model between-school parameter variance | .05 ^a | | .03 ^b | |
| Proportion of between school variability explained by model | 81% | | 84% | |

^aChi-square = 276.445, *df* = 42, *p* < .001. ^bChi-square = 132.13, *df* = 40, *p* < .001.

~*p* < .10. **p* < .05. ***p* < .01. ****p* < .001.

DISCUSSION

When teachers collaborate, they share experiences and knowledge that can promote learning for instructional improvement. From the perspective of organizational theory, collaboration is a form of lateral coordination that can improve organizational performance by fostering “creativity and integration around specific problems” (Bolman & Deal, 2003, p. 55). Such learning can help teachers solve educational problems, which in turn has the potential to benefit students academically. “Of the many resources required by schools, the most vital are the contributions—of effort, commitment, and involvement—from teachers” (Rosenholtz, 1989b, p. 421). It is important to note that the results of this study indicate that teacher collaboration is associated with increased levels of student achievement. After controlling for the effects of student characteristics (race, gender, SES, and prior achievement) and school context, we found that teacher collaboration for school improvement was positively related to differences among schools in both mathematics and reading achievement. These results are important given that most prior research on teacher collaboration has considered results for the teachers involved, rather than student-level outcomes. This study thus offers original evidence of a positive and statistically significant relationship between teacher collaboration and student achievement.

Our results indicate that a one-standard-deviation increase in the extent to which teachers reported collaborating predicted just less than a .1 *SD* increase in differences among schools in student mathematics and reading achievement. Hence, although the main hypothesis of this study was confirmed, it is important to note that the relationship between teacher collaboration and differences among schools in student achievement was moderate. That it is not to say that most schools would not opt for such improvement; however, we believe that further research is needed. For example, one explanation for the magnitude of our findings may pertain to the restricted range of the schools in our sample. Indeed, our findings generalize to the elementary schools of one large urban district. This restriction in range quite likely restricts variability in the social context, collaborative practices, and achievement of the schools we studied. In other words, although our findings are promising, the generality of these results is somewhat limited. Thus, future investigators may wish to employ research designs that draw data from schools that are more broadly representative in terms of social context, urbanicity, and grade levels.

Although the findings are moderate, they are substantively important. In fact, the finding of a positive link between student achievement on

high-stakes assessments and teacher collaboration is timely and significant, particularly in light of the heavy emphasis that accountability policy places on such assessments. Moreover, this was a naturalistic study. We did not examine the effects of a specific program aimed at increasing collaboration for instructional improvement among teachers. Based on our results, however, we suggest that such systematic efforts to enable collaboration among teachers may be rewarded with improved student achievement. The design, costs, and effects of such programs are, however, questions for future researchers and school reformers. Based on the results of this study, we believe that if teachers in urban elementary schools have the potential to raise student achievement on high-stakes mathematics and reading assessments through collaboration, such efforts should be encouraged and supported. The extant literature already indicates that collaboration yields positive outcomes for teachers. Those findings, in conjunction with the important results of this study, further substantiate the need for teachers to be involved in collaborative efforts aimed at improving instruction for their students.

CONCLUSION

This study contributes important new knowledge to the existing research base regarding teacher collaboration. To our knowledge, this is the first study linking teacher collaboration for school improvement to student achievement on high-stakes assessments. Our findings suggest that teacher collaboration may improve schools' ability to foster student achievement.

From our perspective, the relationship between teacher collaboration for instructional improvement and student achievement is likely indirect. That is, the most important outcome of teacher collaboration may be that teachers learn how to improve their instructional practice. On the one hand, low levels of collaboration may indicate teachers' unwillingness to take personal risks, especially those teachers who have worked in isolation for many years. Collaboration, on the other hand, encourages teachers to move beyond reliance on their own memories and experiences with schooling and toward engagement with others around important questions of teaching and learning. The level of achievement envisioned for all students today is unprecedented, and scholars have argued that teacher learning is key to the success of this reform effort (e.g., Cohen & Hill, 2001). Although we did not study teacher learning directly, it is not unreasonable to speculate that the explanation for our results is that teacher collaboration fostered learning that improved instruction. At the very least, our results suggest that schools with greater

levels of teacher collaboration did indeed have significantly higher levels of student achievement. Thus, not only is collaboration good for teachers—quite possibly by fostering teacher learning—but it is also positively related to student achievement.

Appendix

Teacher Collaboration Scale

To what extent do teachers work collectively to influence these types of decisions?

| Not at all | | Not Very Much | | | |
|------------|---|---------------|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |

Planning school improvement

Selecting instructional methods and activities

Evaluating curriculum and programs

Determining professional development needs and goals

Planning professional development activities

References

- Armor, D., Conry-Oseguera, P., Cox, M., King, M., McDonnell, L., Pascal, A., et al. (1976). *Analysis of the school preferred reading program in selected Los Angeles minority schools*. Santa Monica, CA: Rand.
- Ashton, P. T., & Webb, R. B. (1986). Teachers' sense of efficacy, classroom behavior, and student achievement. In P. T. Ashton & R. B. Webb (Eds.), *Teachers' sense of efficacy and student achievement* (pp. 125–144). New York: Longman.
- Bolman, L. G., & Deal, T. E. (2003). *Reframing organizations: Artistry, choice, and leadership*. San Francisco: Jossey-Bass.
- Brownell, M. T., Yeager, E., Rennells, M. S., & Riley, T. (1997). Teachers working together: What teacher educators and researchers should know. *Teacher Education and Special Education, 20*, 340–359.
- Cohen, D., & Hill, H. (2001). *Learning policy: When state education reform works*. New Haven, CT: Yale University Press.
- Conley, S. C., Schmidle, T., & Shedd, J. B. (1988). Teacher participation in the management of school systems. *Teachers College Record, 90*, 259–280.

- Crow, G., & Pounder, D. G. (1997, April). *Faculty teams: Work group enhancement as a teacher involvement strategy*. Paper presented at the meeting of the American Educational Research Association, Chicago, IL.
- Englert, C. S., Tarrant, K. L., & Rozendal, M. S. (1993). Educational innovations: Achieving curricular change through collaboration. *Education and Treatment of Children, 16*, 441–473.
- Erb, T. O. (1995). Teamwork in middle school education. In H. G. Garner (Ed.), *Teamwork models and experience in education* (pp. 175–198). Boston: Allyn & Bacon.
- Evans-Stout, K. (1998). Implications for collaborative instructional practice. In D. G. Pounder (Ed.), *Restructuring schools for collaboration: Promises and pitfalls* (pp. 121–134). Albany: State University of New York Press.
- Finley, C. J. (1995). Review of the Metropolitan Achievement Test, seventh edition. In J. C. Conoley & J. C. Impara (Eds.), *The 12th mental measurements yearbook* (pp. 603–606). Lincoln: University of Nebraska Press.
- Friend, M., & Cook, L. (2000). *Interactions: Collaboration skills for school professionals* (3rd ed.). New York: Addison Wesley Longman.
- Goddard, R. D., Hoy, W. K., & Woolfolk Hoy, A. (2000). Collective teacher efficacy: Its meaning, measure, and impact on student achievement. *American Educational Research Journal, 37*, 479–508.
- Goddard, Y. L., & Heron, T. E. (2001). The consultation process. In T. E. Heron & K. C. Harris, *The educational consultant: Helping professionals, parents, and mainstreamed students* (4th ed., pp. 3–37). Austin, TX: PRO-ED.
- Hambleton, R. K. (1995). Review of the Metropolitan Achievement Test, seventh edition. In J. C. Conoley & J. C. Impara (Eds.), *The 12th mental measurements yearbook* (pp. 606–610). Lincoln: University of Nebraska Press.
- Hart, A. W. (1998). Marshalling forces: Collaboration across educator roles. In D. G. Pounder (Ed.), *Restructuring schools for collaboration: Promises and pitfalls* (pp. 89–120). Albany: State University of New York Press.
- Hausman, C. S., & Goldring, E. B. (2001). Sustaining teacher commitment: The role of professional communities. *Peabody Journal of Education, 76*(2), 30–51.
- Hughes, J. (1994). Back to basics: Does consultation work? *Journal of Educational and Psychological Consultation, 5*(1), 77–84.
- Lortie, D. C. (1975). *Schoolteacher: A sociological study*. Chicago: University of Chicago Press.
- Louis, K. S., Marks, H. M., & Kruse, S. (1996). Teachers' professional community in restructuring schools. *American Educational Research Journal, 33*, 757–798.
- Marks, H. M., & Louis, K. S. (1997). Does teacher empowerment affect the classroom? The implications of teacher empowerment for instructional practice and student academic performance. *Educational Evaluation and Policy Analysis, 19*, 245–275.
- Melnick, S. A., & Witmer, J. T. (1999). *Team-based professional development: A new model for professional growth*. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Quebec.
- Moore, W. P., & Esselman, M. E. (1992, April). *Teacher efficacy, power, school climate and achievement: A desegregating district's experience*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Morse, W. C. (2000). Foreword. In M. Friend & L. Cook, *Interactions: Collaboration skills for school professionals* (3rd ed., pp. xi–xii). New York: Addison Wesley Longman.
- Nitko, A. J. (1994). Review of the Metropolitan Achievement Test, sixth edition. In J. C. Impara & L. L. Murphy (Eds.), *Buros desk reference: Psychological assessment in the schools* (pp. 31–35). Lincoln: University of Nebraska Press.

- Pounder, D. G. (1998). Teacher teams: Redesigning teachers' work for collaboration. In D. G. Pounder (Ed.), *Restructuring schools for collaboration: Promises and pitfalls* (pp. 65–88). Albany: State University of New York Press.
- Putnam, R. T., & Borko, H. (1997). Teacher learning: Implications of new views of cognition. In J. Biddle, T. L. Good, & I. F. Goodson (Eds.), *The international handbook of teachers and teaching* (pp. 1223–1296). Dordrecht, The Netherlands: Kluwer.
- Rogers, B. G. (1994). Review of the Metropolitan Achievement Test, sixth edition. In J. C. Impara & L. L. Murphy (Eds.), *Buros desk reference: Psychological assessment in the schools* (pp. 35–40). Lincoln: University of Nebraska Press.
- Rosenholtz, S. J. (1989a). *Teachers' workplace: The social organization of schools*. New York: Longman.
- Rosenholtz, S. J. (1989b). Workplace conditions that affect teacher quality and commitment: Implications for teacher induction programs. *Elementary School Journal*, 89, 421–439.
- Ross, J. A. (1992). Teacher efficacy and the effects of coaching on student achievement. *Canadian Journal of Education*, 17, 51–65.
- Sarason, S. (1996). *Revisiting the culture of school and the problem of change*. New York: Teachers College Press.
- Shachar, H., & Shmuelovitz, H. (1997). Implementing cooperative learning, teacher collaboration and teachers' sense of efficacy in heterogeneous junior high schools. *Contemporary Educational Psychology*, 22, 53–72.
- Smylie, M. A., Lazarus, V., & Brownlee-Conyers, J. (1996). Instructional outcomes of school-based participative decision making. *Educational Evaluation and Policy Analysis*, 18, 181–198.
- Tschannen-Moran, M. (2001). Collaboration and the need for trust. *Journal of Educational Administration*, 39, 308–331.
- Welch, M., Brownell, K., & Sheridan, S. M. (1999). What's the score and game plan on teaming in schools? A review of the literature on team teaching and school-based problem-solving teams. *Remedial and Special Education*, 20, 36–49.

YVONNE L. GODDARD is an assistant professor and research scientist at the University of Michigan School of Education. Her research interests include teacher collaboration and effective strategies for teaching reading and writing skills to learners with special needs. Her work has been published in *Remedial and Special Education*, *Teaching and Teacher Education*, *Journal of Behavioral Education*, and *Teaching Exceptional Children*.

ROGER D. GODDARD is an associate professor of educational administration and policy at the University of Michigan School of Education. Grounded in social psychology, much of his research is concerned with organizational characteristics and teacher practices that enhance student learning and reduce achievement gaps. His most recent work examines the importance of teachers' collective efficacy beliefs to student achieve-

ment in elementary and secondary schools. These papers were published in *Educational Policy* and *Educational Researcher* in 2004.

MEGAN TSCHANNEN-MORAN teaches educational leadership at the College of William and Mary. Her research interests center on the social psychology of schools and how the quality of interpersonal relationships impacts the outcomes a school can achieve. Dr. Tschannen-Moran has examined the relationships between trust, collaboration, organizational citizenship, conflict, and school climate. Another line of inquiry focuses on the self-efficacy beliefs of teachers and principals and the collective efficacy beliefs within a school. Her work has appeared in the *Journal of Educational Administration*, *Teachers College Record*, and *Leadership and Policy in Schools*. Her recent book, *Trust Matters: Leadership for Successful Schools* (2004, Jossey-Bass) reports the experiences of three principals and the consequences of their successes and failures in building trust.

Date: January 6, 2017

For ACTION

For INFORMATION

Board Agenda: Yes
No

FROM: Erika Gulick, Facilities Planner & GIS Specialist
Richard Jackson, Director, Educational Facilities
Elijah Gross, Director, Planning, Design & Construction

THROUGH: Alvin L. Crawley, Ed.D., Superintendent of Schools
Clarence Stukes, Chief Operations Officer
Terri Mazingo, Ed.D., Chief Academic Officer

TO: The Honorable Ramee Gentry, Chair, and Members of the Alexandria
City School Board

TOPIC: High School Educational Specifications for ACPS

BACKGROUND: On Thursday, June 16, 2016, ACPS staff presented the Educational Specifications (Ed. Specs.) for a high school and pre-k center to the School Board. Following the presentation of the Ed. Specs., ACPS compiled comments from the School Board and other interested parties who have provided feedback on the Ed. Specs. The High School Ed. Specs. were also presented to the School Board on July 5, 2016. At that time, the School Board requested that staff research the utilization at the High School to determine if it is more feasible to have every teacher assigned to a classroom. The School Board also requested that the staff solicit feedback from the high school staff and high school students.

Facilities staff met with T.C. Williams staff on October 24, 2016, and November 18, 2016, and received substantial feedback on the document. Staff also met with T.C. Williams students on December 5, 2016, and received more input on the Ed. Specs. Along with the consultant, staff reviewed all input and incorporated suggested revisions into the Ed. Specs. where warranted.

RECOMMENDATION: The Superintendent recommends the School Board approves the High School Ed. Specs.

IMPACT: The adoption of these educational specifications will be used to benchmark the existing school facilities and inform the focus of future resources and building projects.

CONTACT PERSON: Erika Gulick, 703-619-8298

ATTACHMENTS: Attachment 1 – Presentation – High School Ed. Specs.
Attachment 2 – DRAFT ACPS High School Ed. Specs.

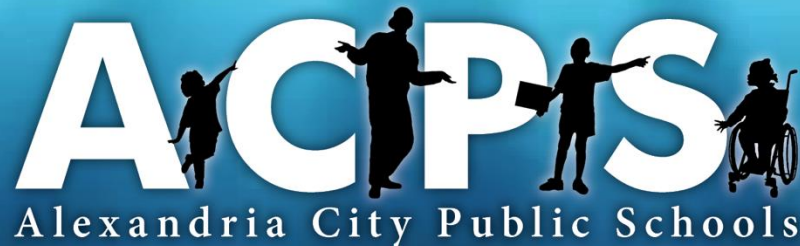
High School Educational Specifications

School Board Meeting

Erika Gulick

Facilities Planner/GIS Specialist

January 12, 2017



Every Student Succeeds

Essential Questions

1. What are Educational Specifications (Ed. Specs.)?
2. What input did ACPS educators provide regarding the High School Ed. Specs.?
3. What input did ACPS students have on the High School Ed. Specs.?
4. How have the High School Ed. Specs. been edited to reflect this input?
5. What additional concerns were raised?
6. How will the Ed. Specs. be used for facilities planning?

Introduction and Background

- An **Educational Specification** (Ed. Spec.) is a guiding planning document that describes the proposed outcomes of a school modernization or new construction project. An educational specification defines the programmatic, functional, spatial and environmental requirements of the educational facility
- ACPS presented the **Draft High School Educational Specifications** to the School Board on June 16, 2016.
- The **High School Ed. Specs.** were presented to the School Board on July 5, 2016. At that time, the School Board requested that staff research several issues including the utilization at the High School to determine if it is better for every teacher to be assigned to a classroom.

Teacher Engagement

Facilities staff met with department heads at T.C. Williams on October 24, 2016, and November 18, 2016, and discussed the High School Ed. Specs. The following are the comments received from the teaching staff:

- **Teacher Collaboration Rooms (TCRs)** seem appropriate; however, they should be expanded to allow for more **flexible use** and **personal teacher storage**.
- It was recommended that the amount of **TCR space** be represented in a ratio format so that future needs are met.
- **Science spaces** needed to be adjusted to allow for **more flexibility** and science suites should be outlined in the Ed. Specs.

Teacher Engagement (continued)

- A designated **space for testing** is needed to accommodate a large group of students without disrupting classroom activities.
- A **makerspace** should be included in the library for interdisciplinary uses.
- An **art studio** should be added to allow for the fine arts program to be appropriately scheduled.



Student Engagement

Facilities staff met with the student leadership team at T.C. Williams on December 5, 2016, and discussed the High School Ed. Specs. The following are the comments received from the students:

- To the extent possible, **restrooms** should be located in areas of **transition**, such as at hallway connections and high traffic areas to encourage use during class changes.
- Consideration should be given to the amount of time students spend on line in the **cafeteria** and limited, if possible. Outdoor and/or senior seating is desirable but only if enforced and secure. Furniture should be varying and flexible. The cafeteria should be a **central space** whereas the gymnasium could be on the perimeter of the building.

Student Engagement (continued)



- **Specialized student support centers/offices**, such as the College & Career Center, Math Center, Teen Wellness, nurse's office, etc., should have **designated spaces** and be near the cafeteria so that students are encouraged to use them.
- The organization of the **library** should allow for quiet study areas and group discussion spaces without one interfering with the other.

Changes Incorporated

- Teacher Collaboration Rooms (TCRs) were adjusted to **Teacher Collaboration Suites (TCSs)** which incorporate increased private storage space and a separate room for one-on-one instruction. The Ed. Spec. also specifies that 1 TCS should be provided for every 10 core classrooms.
- **Science** space(s), **art** space(s) and **library** space(s) were adjusted as proposed by the staff.
- A **Student Support, Testing and Community Gathering space** was added. The space is intended to be flexible to allow for designated rooms for student support spaces which could be opened up to a larger testing or community space if necessary. The space should be **centrally located**.

Changes Incorporated

- More description was added to the restroom narrative to stress that these should be located in high traffic/transition locations.
- More description was added to the cafeteria narrative to address student concerns about separate dining, varied seating and capacity.
- Text was added to the library narrative to address the need for the library to support both quiet and active learning spaces.



Impact

- These adjustments resulted in an overall proposed building square footage of **285,264**.
- Once adopted, ACPS will use these Ed. Specs. to continue the second phase of the **Long Range Educational Facilities Plan (LREFP)** and present them to the LREFP Work Group scheduled to meet January 30, 2017.
- The Ed. Specs. will also be considered as ACPS continues its **grade level feasibility study** to determine the best use of ACPS facilities.

Additional Concerns

Some additional concerns raised by the T.C. Williams staff and/or students were:

- Based on enrollment projections, a 1,600 student school may not be large enough for what ACPS needs.
- ACPS should consider efficient and best-use of space, especially given current capacity issues.
- While the Ed. Specs. will help provide the spaces for teacher collaboration and student achievement, adequate scheduling will ultimately contribute to the success of the teachers and students.

Summary and Recommendation

- The current draft of the High School Ed. Specs.: (CO)
 - Allows for **scheduling** to be made to be most convenient to the teachers
 - Promotes **teacher collaboration** and efficient space utilization
 - Supports grouping by subject matter so that classrooms maintain identities.
- Staff recommends that the School Board adopt the High School Ed. Specs. on January 26, 2016.

Questions and Discussion



Erika Gulick

Facilities Planner/GIS Specialist

(703) 619-8298

erika.gulick@acps.k12.va.us

Date: January 26, 2017
For ACTION

For INFORMATION

Board Agenda: Yes
No

FROM: Erika Gulick, Facilities Planner & GIS Specialist
Richard Jackson, Director, Educational Facilities
Elijah Gross, Director, Planning, Design & Construction

THROUGH: Alvin L. Crawley, Ed.D., Superintendent of Schools
Clarence Stukes, Chief Operations Officer
Terri Mazingo, Ed.D., Chief Academic Officer

TO: The Honorable Karen Graf, Chair, and Members of the Alexandria
City School Board

TOPIC: High School Educational Specifications for ACPS

BACKGROUND: On Thursday, June 16, 2016, ACPS staff presented the educational specifications (Ed. Specs.) for a high school and pre-k center to the School Board. Following this presentation, ACPS compiled comments from the School Board as well as other interested parties who have provided feedback on the Ed. Specs. The High School Ed. Specs. were presented to the School Board on July 5, 2016. At that time, the School Board requested that staff research the utilization at the High School to see if it is better to have every teacher assigned to a classroom. The School Board also requested that the Facilities staff work with the high school staff and students to solicit their feedback.

Facilities staff met with T.C. Williams staff on October 24, 2016, and November 18, 2016, and received substantial feedback on the document. Facilities staff also met with T.C. Williams students on December 5, 2016, and received more input on the Ed. Specs. Along with the consultant, staff reviewed all input and incorporated suggested revisions into the Ed. Specs. where warranted.

Please note that this document is not intended to serve as a design for the proposed High School capacity in the School Board adopted 2018-2027 CIP. Rather, this document serves to guide future planning efforts for high school development as well as assess current conditions of TC Williams King Street and Minnie Howard Campuses. As a result of School Board feedback, the Forward to the Ed Specs document further explains that each high school construction project, including the project as proposed in the CIP, will require a separate, site specific Ed. Spec. and thorough community and staff engagement process.

RECOMMENDATION: The Superintendent recommends that the School Board approve the High School Educational Specifications.

IMPACT: The adoption of these educational specifications will be used to benchmark the existing school facilities as well as inform the focus of future resources and future building projects.

CONTACT PERSON: Erika Gulick, 703-619-8298

ATTACHMENTS: Attachment 1 – Final Draft ACPS High School Ed. Specs.



Educational Specifications ■ Alexandria City Public Schools

JUNE 2016

PRE-KINDERGARTEN CENTER



for ward





The City of Alexandria (the City) and the **Alexandria City Public School Division** (ACPS) joined together in the fall of 2012 to develop a Long Range Educational Facilities Plan (LREFP) to improve facilities planning, accommodate the growing student population, and enhance educational programs and services. In the spring of 2016, as part of a Phase Two LREFP update, ACPS engaged Brailsford & Dunlavey and Studio27 (“the Planning Team”) to develop Pre-Kindergarten Center Educational Specifications. An Educational Specification (“Ed Spec”) is the guiding document used for capital improvement planning that describes the proposed outcomes of a school modernization or new construction project.

The document presented here is a result of the application of professional technical expertise and the collaboration of invested and knowledgeable stakeholders. The document is outlined in the following table of contents.

The recommended program and concepts presented herein constitute the professional opinions of the Planning Team based on the assumptions and conditions detailed throughout; however, the Board of Education will make the final recommendation. It is recommended this document be comprehensively updated every 10 years and be a living document updated by the Facilities Planning Department.

The **Planning Team** was comprised of the following individuals //

Jay Brinson, Program Manager
Beth Penfield, Accredited Learning Environment Planner
Ty Specht, Accredited Learning Environment Planner
Kate Dydak, Project Analyst
John Burke, Architect
Niki Livingston

The Planning Team wishes to acknowledge the support, cooperation, and effort of all the ACPS and City staff who contributed to the planning effort, in particular //

Dr. Alvin Crawley
Dr. Terri Mozingo
Clarence Stukes
Elijah Gross
Erika Gulick

And all the faculty, staff, and committee members who joined the effort throughout.

TABLE OF CONTENTS



introduction //

purpose 08
process 09
national trends 12
strategic vision 20

planning concepts //

capacity 24
program area summaries 27
conceptual building organization 36

design principles //

overview 38
the 360 student prototype 42
space summaries 43

SPACES ///

core academic / PKC-ACA **46**
library / PKC-L **68**
physical education / PKC-PE **80**
administration / PKC-AD **88**
child find / PKC-CF **116**

optional (site-specific)

health suite / PKC-HS **138**

student dining / PKC-SD **152**

before-after school / PKC-BA **168**

maintenance & custodial / PKC-MC **176**

building support / PKC-BS **186**

appendix //

space and tag list 202
energy / environmental criteria 206
safety / security 210
community use 212

INTRODUCTION ///

purpose

The purpose of these educational specifications (“Ed Specs”) is to serve as the guiding recipe and benchmark for future school renovations and new construction projects for Alexandria City Public Schools. The Ed Specs should encourage a school facility design that lends itself to a culturally competent student workplace for a broad range of diverse learners in our Pre Kindergarten centers.

Per the National School Boards Association //

“ The purpose of educational specifications (“Ed Specs”) is to define the programmatic, functional, spatial, and environmental requirements of the educational facility, whether new or remodeled, in written and graphic form for review, clarification, and agreement as to scope of work and design requirements by the architect, engineer, and other professionals working on the building design. ”

The Pre-K Center will be designed to support ACPS’ goal of providing high quality pre-k education as outlined by the National Association for the Education of Young Children (NAEYC) standards for facility planning. The Ed Specs tell the story of the school facility and how the built learning environment will support the academic programs and vision of school leadership. This generic Pre-Kindergarten Center (PKC) Ed Spec is primarily intended for use as a planning guide by architects and project planners but it is also intended to serve as a communication and benchmarking tool for all project stakeholders: students, parents, and families; faculty and administrators, civic leaders and community members; and project design and construction partners.

The general concept embodied in the Ed Specs is to provide adequate details for proposed spaces while leaving ample flexibility for creativity and options in design by the architects. They define expectations among project stakeholders but do not

limit creativity. The Ed Specs are also a living document; amendments can be discussed, developed and issued over time.

Project Planning //

During the planning phase of a project, the Ed Spec should be utilized to understand and develop future project scopes of work and budgets. The Ed Spec should be included in project procurements to ensure that interested vendors are clearly and uniformly communicated the intent of a project and therefore can provide well informed responses to meet actual project needs. While the unique site locations of new schools may necessitate floor plan modifications, the program and space requirements should be modified only as allowed within the parameters of this document.

Project Implementation //

During the implementation phase, the Ed Specs should be utilized for quality control, allowing ACPS to measure project deliverables against the stated benchmarks and standards. Design deliverables and construction should be reviewed for compliance with the standards and goals stated herein noting, however, that flexibility of +/- 10% is allowed when applying square footage requirements (particularly in the case of renovating an existing structure). Additionally, the Ed Spec will help provide the foundational support for project decisions during implementation as responses can be measured against their compliance with the Ed Spec.

Project Turnover and Occupancy //

Ed Specs serve as a valuable aid in the turnover of the facility to staff and administrators and other occupants. It is a user-friendly document that allows people outside of design and construction professionals to understand the building and the intent of its spaces.

process

Planning a state-of-the-art school requires consideration of several influencing factors:

- the historical and forthcoming context of the community
- the current and future learning pedagogy and curricular goals
- the technical expertise of the faculty and administrators
- national and regional trends and benchmarks
- the strategic visioning goals and objectives of the Division

Developing the plan requires the cooperative efforts of facility specialists, administrators, faculty, and instructional consultants, in addition to the careful involvement of outside partners and community stakeholders. In order to create the best possible learning environment for children, an effort has been made to incorporate the best ideas from existing plans and facilities and anticipate future needs for educating Alexandria's children.

As mentioned, ACPS and the City are working together to develop a long range educational facilities plan in order to develop a thoroughly coordinated plan that responds to projected enrollment growth and considers city-wide needs in a comprehensive manner. The LREFP process, shown in Figure 1.0, focuses on updating the LREFP based on technical details from the ACPS School Board approved Educational Specifications, Enrollment Forecasts, and Current Facility Conditions and Capacities.

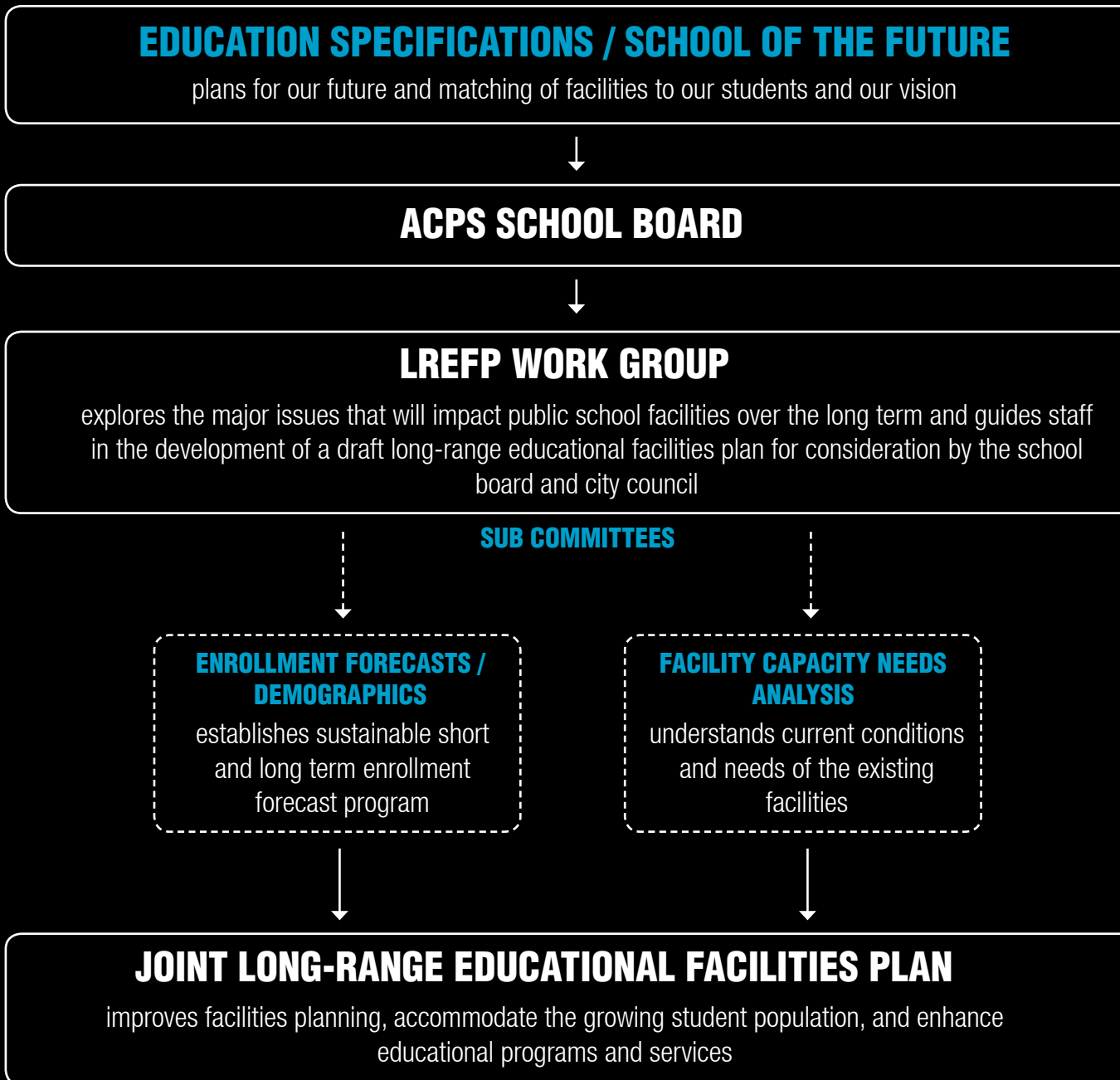


FIG. 1.0 /// **PROCESS DIAGRAM**

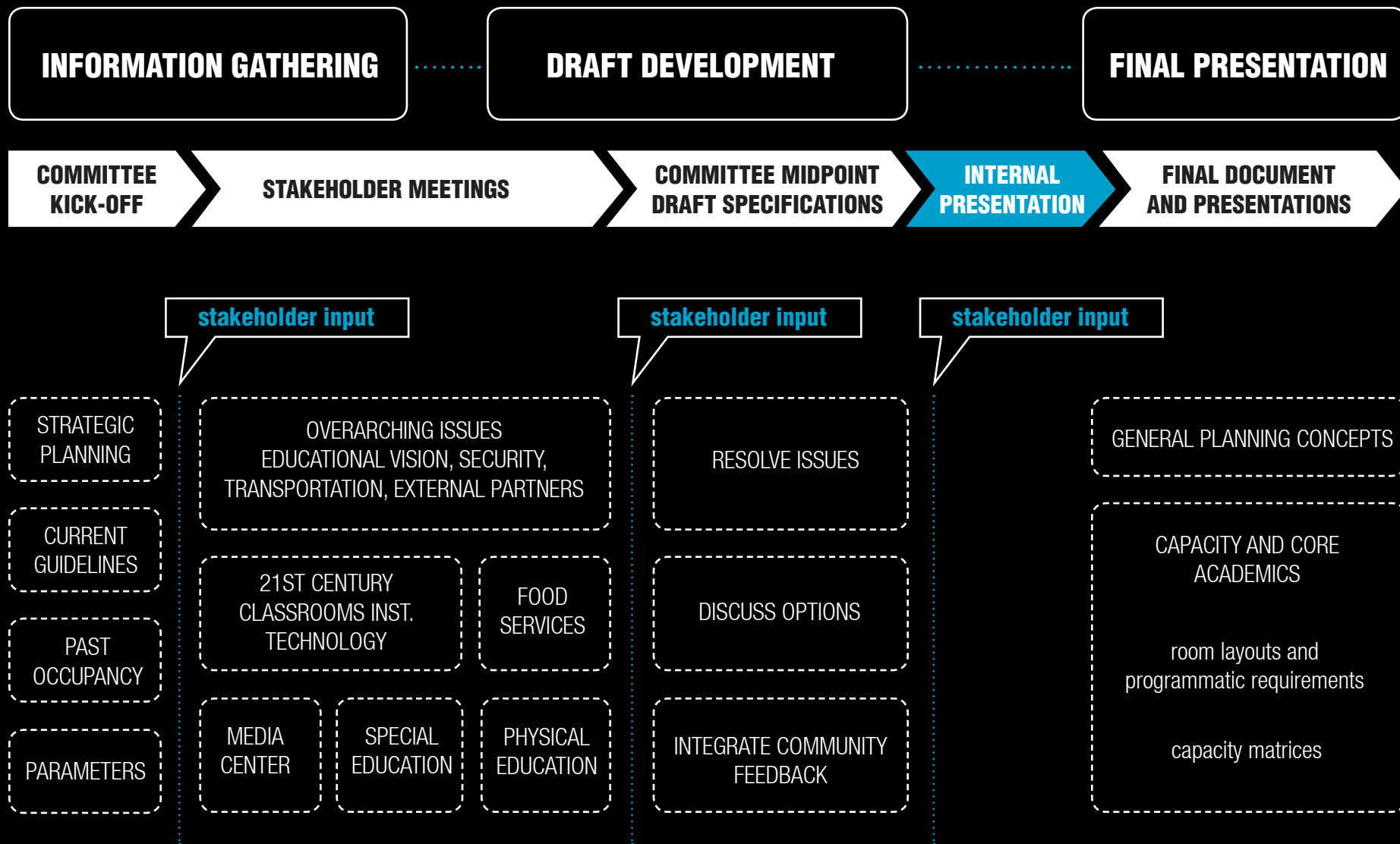


FIG. 1.1 /// WORKFLOW DIAGRAM

national trends in educational facility planning

Each school system is unique from an educational and building program perspective. When balancing national, state, and local regulations, it is important to understand that one size does not fit all. The trends and planning principles presented here are intended to provide context to the formulation and development of this document.

21st Century Learners //

Learning environments should be planned and designed with consideration of supporting all learners: auditory, tactile, kinesthetic, and visual. Individual learning styles affect the way in which individual students:

- Concentrate in their immediate surroundings
- Process information
- Make decisions and solve problems
- Complete tasks and assignments
- Behavior and interactions with others
- Retain new information

Educational facility planning and design can help maximize learning by considering differentiated instruction and recognize that one size does not fit all when it comes to learning environments.

Today's learners were born in a digital era and are used to having the world of information at their fingertips and in their pockets. Today, learning can occur "anytime, any place, any path, and any pace." Classrooms are transitioning from environments focused on teacher-directed whole-group instruction to learner-centered workplaces that support a collaborative culture for project-based student work.

Schools and homes continue to be important places

for learning, but not exclusively. Understanding the importance of the "third learning space" - the many places where students learn in ways not bounded by the schedule of the school day, the limitations of the four classroom walls, or the location of one's home - is a critical component in planning and designing innovative, inspirational, and thriving educational environments.

Classrooms & Technology //

The 'classroom of the future' should be more personalized, student-directed, collaborative, interdisciplinary, and hands-on than those of even 10 years ago. As the focus of education moves away from just transmitting information to developing creative problem solving and communication skills, the classroom setting is morphing into a beehive of activity – a learning studio.

At different times, students may be working alone, in pairs, or in groups:

- Working alone: reading, writing, interacting with the computer, or just thinking
- Working together in pairs or groups: dissecting a problem or reading and reacting to one another's written work, role-playing, or sharing ideas, opinions, and experiences
- Interacting with the teacher and the whole class: listening, making presentations, asking questions or brainstorming ideas

Teaching methods should address a variety of learning styles and children with disabilities are educated alongside their non-disabled peers.

The classroom of the future should no longer be just one-directional with rows of desks facing the ‘front’ of the room. It should have a variety of focal points with mobile resources to support learning, flexible furniture, and robust technology. Rooms should also range in size and purpose from small incubator and assessment spaces to large seminar and presentation areas. Corridors and informal learning spaces should create a seamless and extended learning environment.

Technology is infused seamlessly into the education program, and physical building and wireless connectivity allow for learning to occur whenever and wherever. Classrooms are versatile, flexible, and adaptable to support different mediums.

Libraries //

21st century school libraries are no longer quiet book-lined storage spaces for reading. Today, the library is an interactive studio of social collaboration and research for teachers and students. They are the learning ‘commons’ - an extension of the classroom and the social heart of the school. As such, they should incorporate spaces for quiet, solitary reading and spaces for group presentations, collaboration, and socialization.

It is important that the space be a comfortable and inviting one for young learners. The room should not feel cavernous. Rather, libraries should be outfitted with furniture that is comfortable and appropriately sized to the age of the student.

Furniture, seating, and shelving should flexible and

arranged to create multiple natural focal points. These areas should be sized for large-group story times and presentations, small-group resource pockets, and individual reading nooks. Small-group rooms, located off the library space, can accommodate student needs and add important flexibility to the space.

New Pre Kindergarten Center libraries will incorporate digital technology. Interactive electronic presentation devices help introduce students to educational technology while meeting the needs of a generation that is growing up with technology as a constant presence.

Building and Grounds //

The school building itself is a learning tool and a community asset. The buildings create a sense of identity and the quality of architecture instills a sense of place and pride. The architecture considers learning opportunities over the entire campus, including school grounds and landscaping.

Transparency of spaces helps foster an internal sense of community and excitement about the learning activities occurring within. The use of glass allows for visual connections externally and internally. Front entrances are inviting and welcoming for all community members – parents, families, neighbors. The school is a hub of activity before and after school.

Outdoor spaces are incredibly important to the learning experience. They provide students with the opportunity to learn about textures, water, plants, animals, and the natural world. Playgrounds, courtyards, and other outdoor

national trends in educational facility planning

spaces should be deliberately planned to complement the indoor learning environment and expand the school pedagogy.

Evidence-Based Environmental Elements //

Evidenced-based design is the consideration of credible research findings in the planning and design process with a goal of achieving positive outcomes. Researchers have presented findings that link measurable outcomes such as student attendance, academic performance, faculty retention, and disciplinary actions. More specifically, several design elements have been connected to these outcomes: lighting quality, indoor air quality, acoustics, and furniture design.

Lighting Quality //

The Heschong Mahone Group found statistical correlations between the amount of daylight in an elementary school classroom and the performance of students on standardized math and reading tests in 1999. Since then, case studies and further research have supported this finding and the educational facility planning community has generally accepted the classroom design parameters listed in the appendix.

Goal: Improve natural and artificial lighting in classrooms.

Environmental / Air Quality //

According to the US Center for Disease Control and Prevention, American children miss approximately 14 million school days each year due to asthma. Controlling environmental factors such as dust, pollen, and carbon monoxide could help prevent more than 65% of asthma

cases in elementary-school-age students according to the American Journal of Respiratory and Critical Care Medicine. The classroom design parameters listed in the appendix should be considered when modernizing a school facility.

Goal: To ensure comfortable rooms, address temperature control, ventilation, air filtration, carbon dioxide levels, and HVAC background noise.

Acoustics //

Research links the importance of maintaining appropriate acoustic conditions for student learning. This relates to noise from external sources and reverberation in the classroom and is linked to academic achievement, behavior, attention, and academic concentration. Acoustics are also important for teacher wellness and avoiding straining vocal cords while attempting to speak over noise. Classroom design parameters are generally accepted as outlined in the appendix.

Goal: Limiting reverberation and background noise and improving sound isolation.

Ergonomics //

A 2007 study compared adjustable furniture in schools to traditional fixed furniture. Students using adjustable furniture were found to have higher grades than those in the control group using traditional school furniture. Characteristics of furniture that promote good posture should be considered as well as adjustable tables and chairs that allow students of varying sizes and body types to improve their comfort levels when sitting for long

periods of time. Research studies continue to explore this issue.

In summary, these national trends provide an important context for many of the ideas that ACPS is working to implement and how those concepts are articulated within this document.

City of Alexandria: Demographic and Economic Context //

The City of Alexandria is divided into 18 planning neighborhoods, each with its own unique history and atmosphere ranging from the urban historic neighborhoods close to the District of Columbia to the suburban western communities. In general, most neighborhoods consist of higher income professionals seeking a safe, walkable community close to DC. Typical of the DC Metro area, people come from all over the world – ACPS records 127 countries of birth and 115 native languages.

According to the most recent census data released in February 2011, the city was 60% white, 22% Black and African American, 16% Hispanic, and approximately 2% other. Approximately 24% of the population is foreign born and just over ten percent of the population is school-aged children. However, ACPS is more diverse:

Asian: 4.68%

- Black: 30.13%
- Hispanic: 35.59%
- White: 26.76%
- Native Hawaiian/Pacific Islander: 0.22%
- Multi-racial: 2.37%

As a percentage of total population, the school-age

population in Alexandria is lower than the United States as a whole. This is due primarily to the fact that much of the city's historic growth in the last 60 years has been from young adults moving to the Washington, DC metropolitan area for jobs. As a result, the city has become more urbanized with over 60% of the housing stock being multifamily and an average household size of just over two persons.

The school-age population in Alexandria had been steadily declining since 1970, but the decline tapered off in 2007. Based on recent trends and recent work with the city's planning department, the city has a projected growth of 8%, while ACPS believes that enrollment growth over the next five years will be 19%. This projected growth outpaces the citywide growth rate by nearly 2.5 times.

To underscore the diversity of the student population in Alexandria it is important to note that although median incomes in the city are among the highest in the region, approximately 60% of ACPS students are eligible for free- or reduced- meals programs. Further, the division has a strong international presence with English Language Learner (ELL) students accounting for nearly 29% of the school population.

| SCHOOL | ENROLLMENT BY GRADE | | | | | | | | ENROLLMENT BY SUBGROUP | | | | | | |
|--------------------|---------------------|------|------|------|------|------|---------|--------------|------------------------|-------------|-------------|------------|-------------|-------------|-------------|
| | PK | KG | 1st | 2nd | 3rd | 4th | 5th | TOTAL | FARM | SWD | ELL | ASIAN | BLACK | HISPANIC | WHITE |
| Barrett | 19 | 88 | 81 | 80 | 85 | 63 | 61 | 477 | 144 | 73 | 86 | 12 | 80 | 116 | 246 |
| Cora Kelly | 2 | 58 | 62 | 70 | 53 | 60 | 52 | 357 | 285 | 58 | 195 | 4 | 80 | 248 | 26 |
| MacArthur | | 130 | 129 | 118 | 114 | 112 | 109 | 712 | 222 | 66 | 110 | 21 | 146 | 138 | 372 |
| Polk | | 126 | 125 | 118 | 145 | 117 | 112 | 743 | 469 | 68 | 284 | 36 | 272 | 237 | 170 |
| Jeff-Houston | 53 | 70 | 56 | 47 | 64 | 47 | 38 | 375 | 270 | 68 | 60 | 5 | 231 | 80 | 51 |
| Adams | 127 | 174 | 159 | 165 | 145 | 130 | 117 | 1017 | 642 | 150 | 459 | 93 | 354 | 367 | 184 |
| Mason | | 103 | 106 | 103 | 103 | 69 | 74 | 558 | 154 | 44 | 133 | 5 | 29 | 180 | 320 |
| Lyles-Crouch | | 74 | 70 | 82 | 70 | 67 | 50 | 413 | 111 | 35 | 37 | 7 | 132 | 33 | 222 |
| Maury | | 78 | 82 | 59 | 84 | 74 | 65 | 442 | 139 | 35 | 26 | 6 | 131 | 40 | 252 |
| Mt. Vernon | | 154 | 142 | 147 | 152 | 136 | 122 | 853 | 443 | 71 | 380 | 12 | 57 | 484 | 282 |
| P. Henry | 95 | 109 | 95 | 108 | 94 | 71 | 71 | 643 | 481 | 61 | 214 | 39 | 327 | 192 | 68 |
| Tucker | | 151 | 135 | 131 | 117 | 113 | 102 | 749 | 407 | 62 | 249 | 56 | 304 | 199 | 164 |
| Ramsay | 32 | 151 | 160 | 139 | 150 | 142 | 128 | 902 | 735 | 42 | 586 | 69 | 221 | 506 | 86 |
| Total | 328 | 1467 | 1402 | 1365 | 1377 | 1199 | 1101 | 8239 | 4502 | 583 | 2819 | 365 | 2364 | 2820 | 2443 |
| SCHOOL | 6th | 7th | 8th | 9th | 10th | 11th | 12th PG | TOTAL | FARM | SWD | ELL | ASIAN | BLACK | HISPANIC | WHITE |
| Jeff-Houston | 68 | 53 | 29 | | | | | 151 | 106 | 34 | 12 | 5 | 95 | 31 | 19 |
| GW | 462 | 405 | 420 | | | | | 1287 | 538 | 153 | 153 | 28 | 268 | 415 | 536 |
| Hammond | 428 | 498 | 473 | | | | | 1399 | 1046 | 158 | 361 | 97 | 546 | 566 | 174 |
| M. Howard | | | | 854 | | | | 854 | 465 | 94 | 187 | 44 | 267 | 304 | 209 |
| TC Williams | | | | 121 | 1069 | 814 | 736 | 2740 | 1598 | 264 | 657 | 153 | 885 | 1073 | 544 |
| CFC | | 2 | 1 | 4 | 10 | 4 | 2 | 23 | 18 | 4 | 8 | 0 | 12 | 11 | 0 |
| Nell | | | | 14 | 3 | 0 | 0 | 17 | 5 | 0 | 3 | 0 | 0 | 17 | 0 |
| Total | 959 | 958 | 923 | 993 | 1082 | 818 | 738 | 6471 | 3776 | 707 | 1381 | 327 | 2073 | 2417 | 1482 |
| GRAND TOTAL | | | | | | | | 14710 | 8278 | 1540 | 4200 | 692 | 4437 | 5237 | 3925 |

FIG. 2.1 // ENROLLMENT STUDENT DATA

* Provided by ACPS

ACPS Learning and Teaching Model //

Learning and teaching in ACPS is a well-executed balance between a rigorous curriculum, proven instructional strategies (pedagogy), and relationships with students that communicate high expectations and commitment to student success.

ACPS has developed and uses a 21st century curriculum that is focused on helping students become critical thinkers and problem solvers. In addition to helping students acquire declarative and procedural knowledge, each academic unit has a focus on higher-order thinking skills to ensure students are developing critical thinking skills needed for post-secondary success: reading complex text, writing at a post-secondary level, analyzing and interpreting data, and participating in discourse across the disciplines.

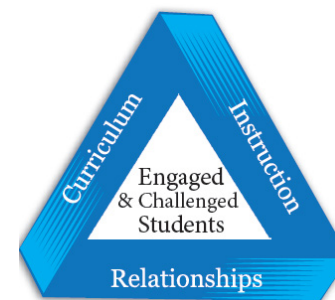
ACPS is implementing a standardized curriculum across the Division with the intention of providing purposeful and consistent education across the system. The standardized curriculum will include interdisciplinary integration and cross-collaboration of content for both students and staff. A standardized approach will maintain the integrity of the curriculum across the system, which allows the Division to track student progress and development. Individual schools will maintain control of the delivery method and instruction. The early childhood curriculum will align with the upper grades.

Instructional Methods //

Instructional methods vary with grade level, but maintain continuity from early childhood education through the primary, intermediate, and secondary grades. Predominant elements include:

- Sensory experiences
- Integrated cross-content learning
- Flexible groupings
- Extended-day learning opportunities
- Parent involvement and volunteer activities

The Division is committed to using purposeful differentiation for all students to meet each student's individual learning needs. This differentiation includes students with disabilities as well as students who are advanced learners, all of whom require specialized curriculum



THIS PAGE IS LEFT BLANK INTENTIONALLY

strategic visioning

In 2014, ACPS was guided through a series of visioning sessions with educators and administrators that challenged them to clarify their expectations related to facility operations, sustainability, architectural quality, space priorities, and the community context. The visioning sessions focused on identifying gaps between ACPS' future goals and its current realities. An update to this visioning was performed in 2016. The following narrative summarizes the areas of greatest dissonance and formulates the concept for the construction and operation of a school of the future in Alexandria.

Programmatic Structure, Scale, and Proportionality //

ACPS desires to offer comprehensive primary and secondary education facilities that provide students with access to educational and extracurricular learning opportunities in local neighborhood communities. The Division also desires to provide citywide early childhood education by providing regionally-located centers that increase the amount of early childhood education available. A center will also centralize early childhood expertise for stronger collaboration and professional development. All schools will be sized to offer students a strong sense of culture while also ensuring students have access to teachers and administrators as needed. The system's desire for students to learn whenever and wherever drives the need for future facilities to implement a spatial organization that provides both formal and informal learning spaces and maximizes collaboration and interaction between students and faculty.

School designs should focus on creating collaborative, interdisciplinary, and adaptable learning spaces supported by a robust and seamless integration of technology, and flexible and ergonomic furniture. Incorporating an overall organization

of small learning communities with breakout spaces in hallways known as extended learning areas (ELAs), collaborative spaces in classrooms, and spaces that facilitate chance interactions throughout the school should allow teachers to collaborate across disciplines and tailor learning objectives and lessons to students' individual needs.

Providing multifunctional spaces for third-party partner and community programs that extend educational and extra-curricular services to students, families, and the community is a priority. The facility should operate as one organism that can be segmented into different functions and zones, depending on the time of day and use.

Community Context //

ACPS school facilities and grounds should serve as neighborhood assets and centers for parent, family, and community interaction and engagement. Parental and family support plays a critical role in the success of students. ACPS students and families come from diverse backgrounds and schools should be welcoming and inviting places that include dedicated space for parent and family engagement as well as spaces available for community and partnership use.

Each school community is unique, and designers should consider what spaces best support the community's needs. However, all schools should be planned and designed to support community use during non-school hours. Implementing a secure separation between the academic core and the shared-use spaces along with the

Careful application of active and passive design strategies should create safe and secure learning environments.

As previously defined, Pre Kindergarten Centers PKC will be regional facilities that offer early childhood education across the division. Elementary schools are essential components of a walkable neighborhood community. Therefore, new elementary schools should be located within neighborhood communities so that when safe, students can walk to school.

Future Pre-K Center facilities will be the anchor of their communities. They will offer both choice and specialty programming to all students. Pre-K Center facilities will respond to the needs and demands of the local community and will serve students from across the city.

Organizational and Operational Paradigm //

ACPS believes an integrated, interdisciplinary team approach will increase student achievement and faculty collaboration. The priority of the Division is to advance student performance and success by enhancing the overall learning experience for students through a collaborative team approach. This is best facilitated with small learning communities, extended learning environments, and a departmental organization of spaces. Libraries should be seen as the 'learning commons' and be utilized regularly as an extension of teachers classrooms and workspaces.

ACPS desires to increase inter-student collaboration and group learning activities. To support this, flexible and adaptable, informal, and formal teaching spaces are required. Emphasis should be on spaces and configurations that support critical thinking and project-based learning,

ideally within groups of four students and the ability to break out of formal learning environments. Utilizing a push-in and team-teaching approach, special education students should learn in the same collaborative learning environment as their peers to the maximum extent possible.

Architectural and Construction Quality //

ACPS has a strong belief that high-quality architecture has a positive influence on student success and faculty retention and it is committed to delivering high quality, state-of-the-art, and sustainable facilities to students, faculty, and the community. This belief applies to the external and internal qualities of the facility. The school facility and grounds are considered to be a learning tool and creativity in design and architecture is a priority.

Quality of design and engineering should focus on areas that most impact the learning environment with a particular emphasis on incorporating researched-based facility elements such as enhanced natural lighting, acoustics, air quality, climate control and technology, that directly impact student achievement and educator effectiveness. Externally, the architecture must be respectful of the historical and cultural context of the community while simultaneously inspiring students and the public.

Materials and system selections should consider extended life cycles. Building systems, materials, and finishes must be resilient, easy to maintain, and create a positive, aesthetically-pleasing learning environment. The life cycle of materials should balance quality and potential for future costs in an effort to ensure appropriate use of public funds.

ACPS 2020 //

In June of 2015, ACPS formally adopted a strategic plan to act as a foundation for all the actions of the school division. It directs the actions that the division takes in meeting the goals and aspirations of the Alexandria community and guides the activities of employees and leaders as well as the expenditure of all funds entrusted to the school board. While the plan reaches far beyond school buildings to reach all aspects of student life, a project like the Pre-Kindergarten Center (PKC) can help in fulfilling all of its six specific goals:

Academic Excellence and Educational Equity:

- 1 Every student will be academically successful and prepared for life, work, and college.

Family and Community Engagement:

- 2 ACPS will partner with families and the community in the education of Alexandria's youth.

An Exemplary Staff:

- 3 ACPS will recruit, develop, support, and retain a staff that meets the needs of every student.

Facilities and the Learning Environment:

- 4 ACPS will provide optimal and equitable learning environments.

Health and Wellness:

- 5 ACPS will promote efforts to enable students to be healthy and ready to learn.

Effective and Efficient Operations:

- 6 ACPS will be efficient, effective, and transparent in its business operations.

THIS PAGE IS LEFT BLANK INTENTIONALLY

PLANNING CONCEPTS ///

The following sections elaborate on the planning and design concepts for a prototypical Pre-Kindergarten Center with an enrollment of approximately 360 students. ACPS is considering implementing Pre-Kindergarten Centers through tenant fit-outs of commercially-available space in the city. The program expects to grow over time and require additional facilities. These facilities will be distributed across the city to serve its growing population. Current planning anticipates an initial facility of approximately 20 classrooms to serve the immediate need for early childhood education space. Over the next five years, separate stand-alone facilities may be established to provide a majority of the City's growing early childhood needs. Architects and designers should be mindful that the following sections are a guideline and a tool to advance the design of a Pre-Kindergarten Center. These rules should be vetted throughout the schematic design phase by coordinating with the professional planning staff of ACPS and its stakeholders.

capacity

Every school project begins with establishing the number of students who will be served when the project is complete or the 'capacity'. Capacity is the primary driver in determining the number, type, and size of the spaces in the new or modernized building.

For the purposes of this planning document, this educational specification assumes Pre-Kindergarten Center capacities will range between 320 and 400 students. This prototype is based on a 20-classroom or 400-student facility, for illustration only. Other Pre-Kindergarten Centers, located in Richmond, serve between 275 and 850 students.

Simply defined, school capacity is a product of the number of classrooms at a school and the student stations assigned to each room type. Only classrooms that are 600 square feet or more with a teacher and students regularly assigned to the space count toward full-time capacity. For early childhood education, small instructional spaces and specialized labs including art, music, or resource are not part of the capacity calculation. It is possible for a school's capacity to change in minor ways from year to year based on average class sizes (determined by the budget) or changes in the number and type of programs.

Currently, the ACPS early childhood budgeted class size cap is not to exceed 16 students in Virginia Preschool Initiative ('VPI') classrooms without permission from the superintendent. The maximum class size in VPI classes is 18 students, with permission. Head Start requires that no more than 17 students be present in double-session classes and no more than 20 students be present in regular-session classes.

Figure 3.1 on the opposite page identifies class sizes for school divisions surrounding the City of Alexandria in addition to those recommended by the code of Virginia. The classroom size limits enunciated by the ACPS school board are generally in line with the regional averages.

Regional Benchmarks //

Class size caps establish a maximum desirable class size but the average class size in ACPS is lower. The lower class sizes are more in keeping with the division's long-range policies and goals.

FIG. 3.0 // **CLASS SIZE**

| ROOM TYPE | RANGE OF CLASS SIZE | TARGET FOR PLANNING |
|-------------------------|---------------------|---------------------|
| VPI | 16-18 | 16 |
| Head Start | 17-20 | 18 |
| Specialized Instruction | 6-12 | 10 |

FIG. 3.1 // **REGIONAL BENCHMARKS**

| SPACE | ENROLLMENT | | | RECOMMENDED / AVERAGE CLASS SIZE PER GRADE | | | | | | | | |
|-----------------------------------|----------------------------|-------------------|--------------------|--|------|-----|----|----|----|----|----|----|
| | Pre-K (total) ¹ | H.S. ² | K-5th ¹ | Pre-K | H.S. | VPI | K | 1 | 2 | 3 | 4 | 5 |
| Arlington ⁴ | 987 | 204 | 12,577 | 23 | 20 | 18 | 24 | 24 | 26 | 26 | 27 | 27 |
| Fairfax ⁵ | 3,506 | 1,635 | 83,624 | NP | 20 | 18 | 22 | 21 | 21 | 21 | 23 | 23 |
| Loudoun ⁶ | 1,052 | 109 | 34,919 | NP | 20 | 18 | 22 | 22 | 22 | 22 | 22 | 22 |
| Prince William ⁷ | 1,205 | 397 | 40,057 | NP | 20 | 18 | 24 | 24 | 24 | 24 | 25 | 25 |
| District of Columbia ⁸ | 5,615 | 5,952 | 22,116 | 18 | 20 | --- | 20 | 20 | 20 | 23 | 23 | 23 |
| Average | 2,473 | 1,659 | 38,659 | 21 | 20 | 18 | 22 | 22 | 23 | 23 | 24 | 24 |
| United States ⁹ | 1,336,000 | 824,947 | 22,909,000 | 22 | 20 | --- | 22 | 22 | 22 | 22 | 22 | 22 |
| Alexandria | 275 | ----- | 7,918 | 18 | 20 | 16 | 20 | 22 | 22 | 24 | 24 | 24 |

Note: Pre-K numbers from the Department of Education include students enrolled in Virginia Preschool Initiative (VPI) classes. They do not include Head Start students, unless those students are enrolled in the public school district as part of their Head Start program.

¹Virginia Department of Education Fall Membership Data, 2015-2016

²Office of Head Start - Program Information Report (PIR) Enrollment Statistics Report - 2015

³Virginia Preschool Initiative Guidelines for the Virginia Preschool Initiative Application, 2016-2017

⁴<http://www.apsva.us/cms/lib2/VA01000586/Centricity/Domain/11/2014-15%20class%20size%20report.pdf>

⁵Fairfax County Public Schools Capacity and Utilization Dashboard, <http://www.fcps.edu/fts/dashboard/presentation1.html>

⁶Loudoun County Public Schools FY 16 Appropriated Budgets

⁷<http://www.fcps.edu/fts/budget/wabe/2014.pdf>

⁸Orr Elementary School Educational Specifications, September 2015

⁹National Center for Education Statistics, Projections of Educational Statistics to 2022 (2011), Schools and Staffing Survey (2011)

For the purposes of planning, the following class sizes should be used to calculate a planning capacity. It is important to size all classrooms to accommodate the maximum number of students even if the average is used for capacity planning. This allows for program flexibility and interchangeable uses year to year.

Once a capacity is proposed, many other areas of the building are sized to support the enrollment. The number of small group rooms, art and music labs, and support staff offices are based on staffing formulas. The size of the core areas such as library, dining and food services, physical education facilities, and site amenities are based on local and national benchmarks related to size.

The following chart (FIG.3.2) summarizes the breakdown of the proposed capacity for a prototype 360-student Pre-Kindergarten Center. The balance of this document outlines

the spaces for this sample prototype.

Per the Guidelines for School Facilities in Virginia’s Public Schools, the goal of the optional guidelines developed by the Virginia Department of Education is:

“... to provide recommendations that will help local school divisions ensure that their school sites and facilities support the principles of good teaching and learning and promote sound educational programs.”

The guidelines developed here by the project team respond to or exceed the Virginia State guidelines and recommendations. It is the responsibility of the architect to ensure the plans meet or exceed the current state guidelines at the time of actual project design in the event the state guidelines have changed and this document has not yet been updated to reflect those changes.

| CORE ACADEMIC TOTAL | # OF CLASSROOMS | CAPACITY | TOTAL |
|--------------------------------|------------------------|-----------------|--------------|
| Outdoor Area (when available) | 1 | 0 | 0 |
| Shared Classroom Toilet | 12 | 0 | 0 |
| Shared Classroom Storage | 12 | 0 | 0 |
| Shared Student Project Storage | 4 | 0 | 0 |
| Resource Classroom | 3 | 0 | 0 |
| Sensory Classroom | 1 | 0 | 0 |
| Workroom/Teacher Office | 2 | 0 | 0 |
| Pre-Kindergarten Classroom | 20 | 18 | 360 |
| Multipurpose/ELA | 2 | 0 | 0 |
| Total | | | 360 |

FIG. 3.2 // **CLASSROOM CAPACITY**

program area summaries

The following section provides executive level narrative summaries of the core program space areas. Detailed descriptions of each space within a program area is provided later in this document.

Main Office-Reception/Administration/Student Services //

All school locations should include a double-perimeter approach where every visitor is guided through a secure exterior door into a secure holding vestibule prior to gaining access to the main office. As students, families, and other visitors enter an ACPS building, it is important that they are greeted with an inviting and well-organized front office suite. The main office should be located near the primary entrance to the school. The architect should consider security when designing the main office. The space must be organized to provide direct visual access to the entrance doors. Limiting the number of entry points into the facility is important for student safety and security. Visual access from the main office to the exterior vestibule is mandatory and every entrance to the school should have a CCTV IP camera.

Appropriately sized office spaces with an adjoining shared conference room and adjacent staff restroom should be provided. Occupational and physical therapy services are provided by ACPS staff who travel between multiple school locations. Within or near the main office, an appropriately-sized space that includes itinerant work stations and storage. The Family and Community Engagement center should be provided near or adjoining the main office. Other administrative functions can be dispersed throughout the school to encourage maximum student collaboration and connection.

Visitor parking should be located near the front door. Signage and building design should clearly indicate the school entrance. Immediately upon entry, visitors should be directed to the welcome center/main office. For security reasons, no visitor should be able to enter the classroom areas without being checked through the reception area. See the Security section for additional suggestions.

A digital information kiosk in the lobby may provide real-time data on building operations (including information on energy use, water use, and the latest recycling rates) or be used to announce upcoming events and other announcements, such as the location of community events or classes.

Child Find //

Child Find is responsible for identifying students between two and five years old with developmental delays or disabilities. A team of support professionals is necessary to accurately and effectively diagnose children. This team includes:

- One child find specialist
- One speech pathologist
- One psychologist
- One special education coordinator
- One social worker
- Two educational evaluators
- One receptionist/administrative assistant

Office space must be provided for these individuals. Additional support staff may be assigned part time, and hoteling spaces should be provided in the facility

for these individuals. Other staff space needs include staff workrooms with sinks and other standard office support spaces like supply storage and restrooms. Record storage should be included that is appropriately sized for the approximately 320 students screened each year. Records must be maintained for five years. The architect and designers should familiarize themselves with current regulations.

Spaces for parents and children within the Child Find suite include conference rooms, a waiting room, a child playroom, and space for evaluation and screening. The evaluation room has a layout similar to a doctor's office waiting room, with toys and activities for children and parents. One-way mirrors should be located so that observers can look into the evaluation room from both the waiting room and the screening room. The screening room is where Child Find professionals can observe children and note their behavior and interaction with other students.

Child Find should be located near the main office of the Pre-Kindergarten Center but have a separate entrance for visiting families. This entrance should be proximate to visitor parking. As with the main office, a receptionist / administrative assistant should be stationed at a secure entrance controlling access, either directly from the outside if Child Find is on the main level or with the help of a camera if Child Find is on an upper level. The administrative assistant's workspace needs to be in the Child Find suite. See the Security section for further details. Direct, controlled access from the Child Find suite to the Pre-Kindergarten Center space is also needed.

Health Services //

Health Services should be located near the main entrance to the Pre-Kindergarten Center. Health Services is responsible for providing health-related amenities to all students, staff, and Child Find. The space should be organized to provide appropriate space for:

- health screenings
- illness or injury treatment
- meetings and trainings
- prescription medication storage and distribution
- secure records keeping
- private consultations
- rest and recovery units
- a waiting area.

In addition, it is possible that a facility in the future will provide (location-dependent) partnership-operated wellness centers. The centers may offer amenities such as:

- full medical evaluations
- full laboratory services
- dental services
- radiology services
- pharmaceutical services

Cooperative and collaborative wellness centers are desired (location-dependent) and operated through community partnerships.

If the school division elects to provide a school-based health center (SBHC), the architect should work with the division's officials to ensure full space programming requirements are met according to federal regulatory

standards. This center should be adjacent to the PKC clinic, but implementation of a full SBHC will require significant advance coordination by ACPS.

Core Instructional Spaces //

The basic organizational structure of the center should reflect a cluster concept and should consist of general purpose classrooms, commons space for informal instruction, a small group room, two- and three-dimensional display areas, a dining space, and a teacher work center. Each cluster should also contain a resource classroom used by support educators and an extended learning area to facilitate collaborative teaching and learning. Student restrooms should be located within all classrooms with space for a changing table.

Classrooms //

Flexible and easy-to-arrange furniture that is easy to store is preferred. Student arrangements should reflect small collaborative groupings over individual desk arrangements. Classrooms are designed around discovery-based learning centers. ‘Teaching and learning’ surfaces to include touch screen interactive boards, magnetic white boards and tackable surfaces at student height on as many walls as possible should be provided. Classrooms should be sized so as to include enough space for a student naptime cot for every student. With the exception of some pull-out spaces, all classrooms should be the same size to promote programming flexibility.

Restrooms should be included in all classrooms. Each classroom should include a sink and a water bubbler. Each classroom will be staffed by two professionals, a teacher and a teacher’s aide. They will both require stations for their

computer. The provision of an itinerant or hoteling space for drop-in or special needs instructors/related service providers is another unique feature that should be included in each classroom.

Extended Learning Areas (ELA) //

ELAs should be incorporated into designs as additional learning areas that occur adjacent to each academic cluster. ELAs are open spaces off the corridor that are meant to facilitate break-out instruction, small group and project-based work in addition to multi-class collaboration and joint teaching initiatives. ELAs vary in size based upon the individual needs of the school and the academic cluster and should be designed and equipped to accommodate a variety of furniture arrangements to optimize flexibility.

Science //

Each classroom should be designed to support science activities such as sand and water stations. Schools should supplement the in-classroom sinks by providing a portable science demonstration cart. Additionally, the provision of an outdoor classroom, a garden area, and/or a food lab should also be considered in order to support early childhood instruction.

Special Education //

Special education facilities should be integrated throughout the center to support the concepts of inclusion and the specialized requirements for the students. Currently more than 70% of all students with disabilities are included in standard learning environments for 80% of each day. For early childhood education, provide at least four resource spaces to support individualized learning

needs (resource), and/or speech therapy, occupational therapy, physical therapy and sensory rooms. Typical occupancy of a pullout space is approximately four to five people. A storage closet is needed for adaptive equipment (ex. standers, walkers, wheelchairs, large balls etc.).

A dedicated, programmatically-sized classroom may be necessary on a location-by-location basis to support city-wide programs and would be identified at the time of individual site planning. Special education facilities should be integrated throughout the school to support the concepts of inclusion and these specialized requirements should be considered for the identified student groups. Special attention should be given to accessibility of all facilities and an integrated learning program.

English Language Learning (ELL) //

Language learning is a key part of early childhood instruction for all students. ELL supports are not currently provided to early childhood students.

Visual and Performing Arts //

ACPS has a strong arts focus for pre-kindergarten students in early childhood. Well-designed spaces need to support a vigorous curriculum and creative presentations. Art and music classrooms should be shared throughout the day by general classes and small group instruction when not occupied by art or music. Art and music are best provided in dedicated spaces that are central to the learning pods of the school. Centrally locating these rooms to provide easy access for students will promote orderly transitions.

Pre-Kindergarten Centers often have an art teacher and a music teacher. These teachers will need functional spaces in which to teach their subjects. The optimal location for an art room is on the ground floor with a northern daylighting orientation. Access to an outside patio or seating area can offer additional workspace, display spaces, and performance spaces. Music rooms should have acoustical treatment to reduce noise with access to a larger performance space outfitted with a small stage, stage lighting, and sound equipment. This performance space should incorporate storage. The performance should be located on one end of a gross motor area or gymnasium and will be used primarily for student performances, talent shows, and full-school announcements.

Library //

The library serves a dual role – its traditional role as a gathering place for reading and learning and a new role as a technological information base and learning hub. In this new role, the library may house a wireless voice/video/data network, which runs throughout the entire building. This network enables the transmission of media services to the desktops of teachers and students without physically entering the library. The new library will utilize digital technology to enhance voice, video, and data communications within the school, among division facilities, and with distant learning resources.

“ Today’s library is a learning place, not a warehouse space. And it must be a fluid environment, one that continually reinvents itself to remain relevant, that adapts to new knowledge of learning and new pedagogy. The concept of the library as a hushed, quiet space, where all students

study individually and silently, sitting up straight on uncomfortable, wooden chairs is a concept that should have long ceased to exist. Students have become accustomed to multimedia environments, working in groups, and multitasking.

Libraries must be spaces where multiple activities can take place simultaneously. And since there are many different learning styles, the library should offer as many different types of environments as possible—quiet study areas, group activity areas, spaces for individual and small group work, spaces for instruction, and spaces where students can listen to music.... ””

Rolf Erikson, DesignShare interview Nov 2006

The library in an Pre Kindergarten Center should have age-appropriate furniture and design features, similar to those of the children’s section at Barnes & Noble. The space will be used for teaching, and presentations such as puppet shows. The library should include space for group story time, small group resources, and individual learning. The space should feel cozy and have a home-like atmosphere, without being cavernous.

Physical Education //

To support the early childhood physical education program, indoor and outdoor gross motor areas are required. Outdoor physical education teaching areas should be located near the indoor gymnasium. Physical education facilities should be designed with the possibility for community use during non-school hours.

An indoor gross motor area is very important to the early childhood curriculum. A voluminous space that is large enough to host indoor recess, which is free of columns or obstacles, is appropriate for this need. The gross motor area will be used for student assessment, indoor recess, and activity play. Flexibility of space use is desired but this area should not be a full size gymnasium. A storage closet to house tricycles, balls, hula hoops, walking beams, and other materials is needed. A stage can be co-located in this area, but when a performance space is provided as part of this area, storage for portable seating is needed. Designers should provide the ability to separate this space from the rest of the center for use after school hours.

Dining and FoodSERVICE //

Due to the age of the students in the pre-kindergarten center, minimizing transitions out of the classroom is optimal. Students will eat in their classrooms and staff will deliver food from the kitchen to the classroom. Teachers will work with ACPS Facilities staff to ensure that classrooms cleanliness is maintained.

The dining experience for students will reflect a family style meal, served by staff to the students. Students will be arranged at tables in sets of eight to 10 with at least one adult at each table. Site coordination between administration and foodservices is required to ensure an efficient and smooth lunch experience for students.

Foodservices is responsible for food preparation division wide. Food services facilities should incorporate space for speed scratch and / or speed cooking and warming

kitchens with the appropriate equipment. Facilities must include space for frozen storage, cold storage, dry storage, manager and assistant manager offices, a dedicated loading dock, and pot washing equipment. The architect should coordinate with the director of foodservices during the design development phase to ensure current needs are met.

Site //

Site circulation should be organized for safety and efficiency. This should be accomplished through careful separation of vehicular traffic, including the separation of school buses, parents, and staff. Particular consideration should be given to providing safe passage to pedestrian traffic. Sufficient stacking space should be provided to prevent congestion of busy streets.

All play areas should be protected from vehicular and pedestrian traffic, so students can be assured of a safe and secure environment on the entire school site. Adult safety gates are imperative so students cannot enter or exit without an adult. Shading elements should be considered, along with an outdoor learning area and garden. Outdoor storage unit, for tricycles, water and sand toys, gardening tools, balls, and other gross motor equipment is needed.

The Virginia Department of Education Guidelines recommend that each school site “have areas that can be developed to provide the minimum number of play areas required for physical education.”

Alexandria school sites are urban in nature and most current and future sites cannot accommodate the recommendations outlined in the Guidelines for School Facilities in Virginia’s

Public School. It is recommended that architects work with ACPS and RPCA to prioritize types of outdoor space development on a site-specific occasion. Architects should endeavor to design new schools or future renovation in a way that will maximize available open space.

Site Management //

Recreation, Parks, and Cultural Activities (RPCA) is a partnership program that utilizes shared ACPS facilities for afterschool programming. RPCA operates the majority of playing fields, courts, parks, and playgrounds adjacent to Alexandria schools. When funds are available to enhance the campus or grounds of the school, architects should coordinate and consider

RPCA's requirements toward playgrounds, courts, fields, and gymnasium spaces, per the joint ACPS/RPCA Facility & Outdoor Maintenance & Use Agreement.

Parking and Transportation //

ACPS transportation provides services to 5,800 students daily. At school facilities where space can be provided for school bus parking, it is desirable to orient busses in the parking lot to prevent them from reversing out of a parking spaces – in a manner similar to that seen in a bus depot parking area. If a bus parking loop must be utilized, avoid parallel, double-wide parking during loading and unloading, as this increases danger to the students.

It is important to note that most ACPS schools are located in densely-populated neighborhoods and many students either walk to school or receive rides from parents. At the elementary level, current ACPS policy is to only provide transportation for students living more than one mile from their designated school site. The Pre-Kindergarten Center will offer transportation to all students given consideration to proximity to school and safety. Due to the high percentage of students arriving by alternate means, designers should be careful to separate parking lots and school bus loading areas from each other and from student drop-off areas and pedestrian walk ways (see Figure 3.4). Furthermore, the use of bicycles should be encouraged by providing bike racks in quantities at a minimum consistent with LEED guidelines.

The following chart (Figure 3.5) recommends the minimum parking requirements based upon proposed capacity prototype. Actual parking requirements may be impacted by factors such as zoning, site constraints, absences or

presence of other modes of transportation, etc. The architect must coordinate at time of design and it should be noted that ACPS offers incentives to encourage carpooling and the use of mass transit by staff.

Due to the increased amount of staff required for pre-kindergarten age students, ACPS should consider parking exceeding city code requirements for an elementary school at the time of development of the pre-kindergarten center.

FIG. 3.4 // **BUS DIAGRAM**

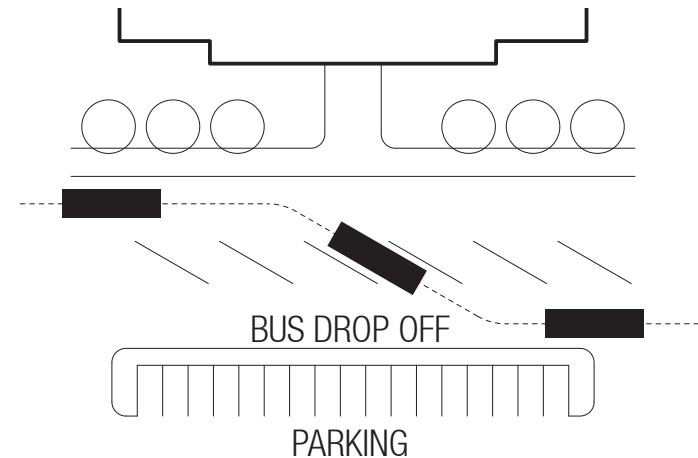


FIG. 3.5 // **PARKING CAPACITY**

| DESCRIPTION | CAPACITY PROTOTYPE |
|------------------------------------|---------------------------|
| Building Capacity | 360 |
| Teaching Stations | 20 |
| Staff Parking | |
| Teachers | 40 |
| Ancillary Staff | 9 |
| Administration | 5 |
| Custodial / Maintenance | 3 |
| Food Service | 4 |
| Total Staff Parking | 61 |
| Total Visitor Parking | 9 |
| Alexandria Code Requirement | 1 space / 25 seats |

NOTE 1

Ancillary staff includes teaching aides, media center specialist, special education staff, etc. The total is calculated as percentage of the student population as follows: Elementary: 2%.

NOTE 2

Administration includes principals, secretarial, itinerant staff. Calculation at 1%

NOTE 3

Custodial/maintenance staff includes full-time staff for regular school hours. Calculation: one staff per 150 students.

NOTE 4

Food service staff is calculated at one staff per 100 meals served with 80% building capacity participation for a full-service kitchen.

NOTE 5

Visitor parking is calculated at 2% of building student capacity.

THIS PAGE IS LEFT BLANK INTENTIONALLY

conceptual building organization

Careful and thoughtful consideration of building organization during design is critical to the success of a future school program. The Academic Cluster concept best meets the needs of the educational programs, students, and staff. The cluster concept facilitates a variety of instructional strategies and it provides a learning environment that is characterized by flexibility, a sense of community for the students and teachers, and a safe, well-supervised environment. The clusters will foster family-like learning communities that enhance student collaboration. The space will provide small group and blended learning areas that integrate technology into the core curriculum. The clusters will incorporate smaller personalized spaces within the larger whole that allow students to personalize their learning atmosphere. Teachers should have the option and flexibility within a cluster to create and organize learning environments that work for students and their learning styles.

Academic areas are located in the quiet areas of the building that can be isolated during the off hours. Noisier areas are grouped near the parking and public areas and allow for after-hours access. Figure 4.0 shows a relationship model based on the cluster concept.

"PRIVATE SIDE" = SERVICE ACCESS / ALLEY

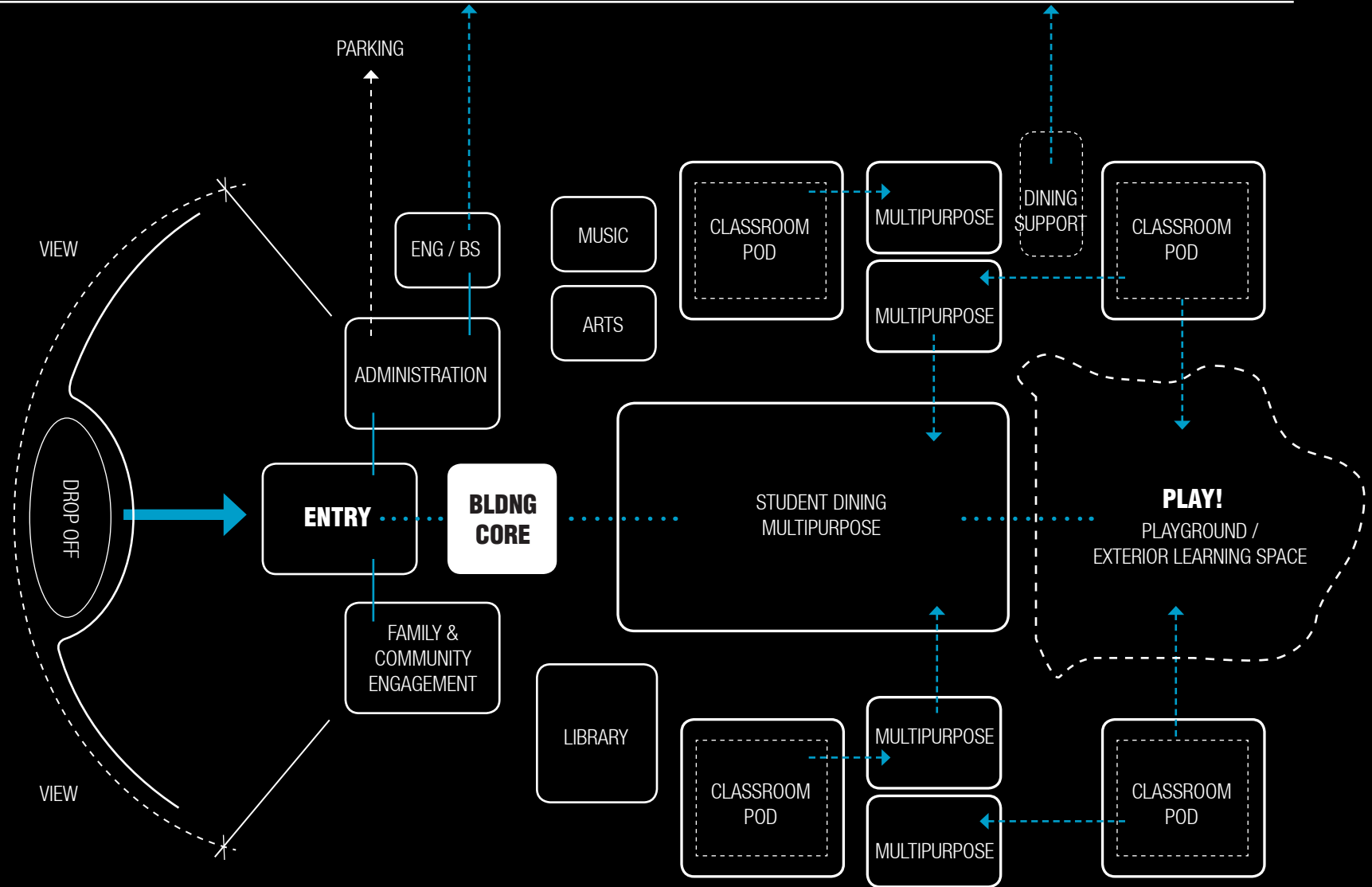


FIG. 4.0 /// ADJACENCY DIAGRAM

DESIGN PRINCIPLES ///

overview

The following section provides executive summaries of the guiding design principles that should be applied to each space within an ACPS school facility. The appendix of this document includes expanded detailed guidance for some of the categories discussed here.

Furniture and Equipment //

Classrooms vary in shape and size. Therefore, the furniture should be flexible to accommodate a variety of classroom formats for both individual and group activities. Teachers and students should have storage space for personal belongings, papers, books, supplies, and teaching materials. Teachers should also have access to a community storage room to exchange and share materials in large plastic containers labeled by unit theme.

To the extent possible, movable furnishings should be used, rather than fixed casework, to provide flexibility for future reconfiguration. Furniture should be selected for its ergonomic traits. Consideration should be given to variability and adjustability to support diverse learning styles.

Technology //

The facility should contain the latest in technology, and infrastructure should be provided to support wireless access to data and video throughout the building. It is intended that access to technology will be seamless and pervasive throughout the building with only the minimal number of hard drops needed to support voice, teaching stations, and wall-mounted devices. Technology infrastructure should support the concept that learning can happen anywhere by enabling a one-to-one student-to-device ratio. The specific tools and design guidance will be determined based on the best

practices at the time of construction.

Every learning area should be wired for teacher audio enhancement. Research into this cutting-edge technology suggests that student learning can improve in classrooms where the teacher's voice is amplified and the classroom acoustics are designed to support voice clarity. Please reference Appendix 2 for additional guidance regarding technology infrastructure requirements.

Universal Design //

The entire facility should be accessible for students, staff, and visitors. This should be accomplished through judicious use of ramping and elevators with sufficient internal clearances for circulation, convenient bus/van loading and unloading, and nearby handicapped parking spaces. All elements of the Americans with Disabilities Act must be complied with, including way-finding and signage, appropriate use of textures, and universal accessibility of all indoor and outdoor school facilities.

Safety and Security //

ACPS wants to maintain a warm and inviting environment, while simultaneously ensuring the safety of students, staff, and community. The organization of a building will have a major impact on student behavior and safety concerns. Architects should refer to Crime Prevention Thru Environmental Design (CPTED).

All school locations should include a double perimeter approach where every visitor is guided through a secure exterior door into a secure holding vestibule prior to gaining access to the main office. Visual access from the

main office to the exterior vestibule is mandatory and every entrance to the school should have a CCTV IP camera. Consult with ACPS on the most current keying policy.

Family and Community Engagement Centers //

ACPS serves a diverse community of families who have immigrated to the DC metropolitan area from all over the world. It is understandable that for cultural reasons or due to language barriers newcomers to the school may be hesitant to engage staff and need additional support. The Division wants to establish Family and Community Education Centers (FACE) at each school to welcome families and provide the additional resources to help them succeed.

A typical FACE center would ideally be located near the main office and include:

- a reception area with both comfortable seating for individual conversations and table seating for meetings and classes
- private office
- storage

The inclusion of a FACE center will be decided when the site- specific educational specification and program are developed.

Parent Teacher Associations //

Provide flexible use space to accommodate the mission and program offerings of the PTA group should be provided. PTAs meet on a monthly schedule, typically during the evening, and have 30 to 35 participants in attendance.

PTA meetings including school board members, parents, and- on occasion the superintendent. PTAs offer volunteer after-school programs that require access to standard, flexible classrooms, the gymnasium, the library, and the cafeteria. Consider co-locating the PTA with other partnership functions like the FACE center. PTA functions require dedicated storage space and direct interaction with the school’s main office suite and staff.

Energy and Environmental Performance //

ACPS is dedicated to renovating existing, or building new, facilities that meet or exceed Eco-City standards and City of Alexandria environmental performance standards. ACPS desires to offer schools that teach faculty, staff, students, and the community the importance of environmental stewardship. ACPS believes quality architecture and high energy performance facilities positively impact the education of students and increase retention of staff and students. At this time, city development standards require compliance with LEED Silver certification standards for major construction projects. ACPS seeks to exceed these minimum standards.

Materials and Finishes //

ACPS believes high quality architectural materials and finishes create an atmosphere that supports and inspires learning. All spaces should be conducive to teaching, provide a warm and welcoming feeling and meet the principles of Evidence-Based Design (lighting, environmental / air quality, and acoustics). All materials must be highly durable and resilient yet support a creative learning environment. ACPS is cognizant that materials

should be reasonable in cost and not exorbitant when considering budget and life-cycle costs to maintain and upkeep. A sensible balance is necessary to maintain budget and achieve ACPS' facility standards.

Operations and Mechanical //

Mechanical systems that are climate-appropriate and responsive to the life cycle, maintenance, and efficiency expectations of ACPS should be provided. Passive systems that pair with active systems should be provided and coordinated to achieve maximum efficiencies while coordinating with the users to determine the location of universal and dedicated systems. ACPS requires individual facilities to operate under 20 kw/hr per square foot by the year 2026.

THIS PAGE IS LEFT BLANK INTENTIONALLY

the 360 student prototype

The remainder of this document is meant to be illustrative of a typical 360 student Pre-Kindergarten Center in the Alexandria City Public Schools. The basis for the capacity and the number of classrooms per grade was previously described on page 17. The number and size of support spaces and labs are driven by staffing formulas and national benchmarks. For new schools or the modernization/ addition to an existing school, this information would inform a 'site-specific' educational specification.

It is assumed that architects should be required to bring an existing school up to new school standards within reasonable limits. Designs for spaces may vary from recommended sizing by +/- 10% to minimize the unnecessary movement of walls or preserve the integrity of an historic building.

The net square foot requirements include the classrooms, support spaces, and large core areas. The net/gross calculation includes corridors, bathrooms, mechanical spaces, etc. The proposed ratio listed in this specification assumes a new, highly-efficient school. It is expected that existing schools will be less efficient and the actual final (wall-to-wall) building will be larger than what is listed.

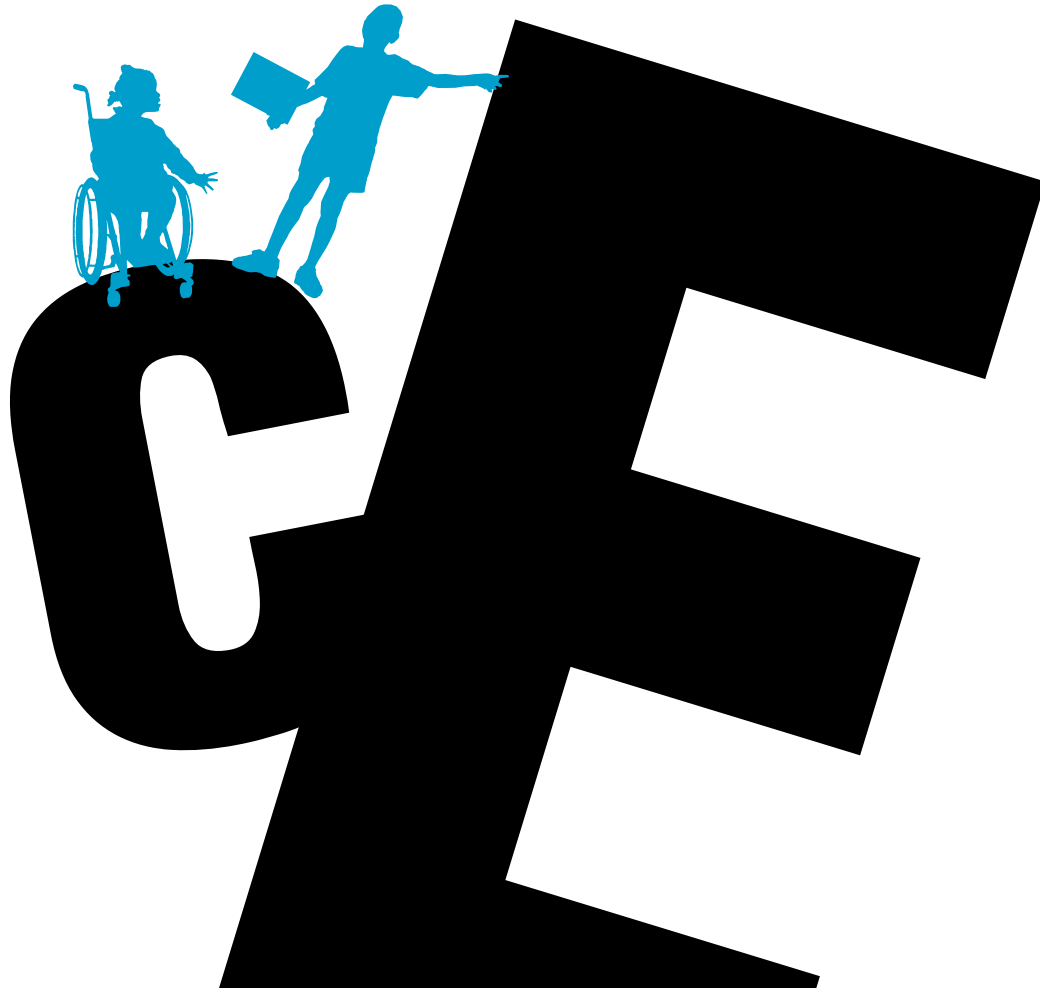
| | | |
|-----------------------------|---|--------------|
| REQUIRED | CORE ACADEMIC | 25,900 |
| | LIBRARY | 2,200 |
| | PHYSICAL EDUCATION | 2,800 |
| | ADMINISTRATION | 3,305 |
| | HEALTH SUITE | 475 |
| | STUDENT DINING | 2,525 |
| | BEFORE/AFTER SCHOOL PROGRAM | 500 |
| | MAINTAINENCE AND CUSTODIAL SERVICES | 1,000 |
| | BUILDING SUPPORT | 480 |
| | SUBTOTAL | 39,185 |
| GROSS | 13,715 | |
| BUILDING TOTAL | 52,900 | |
| OPTIONAL | CHILD FIND (SITE-SPECIFIC) | 2,940 |
| | GROSS | 1,029 |
| | BUILDING TOTAL | 3,969 |

FIG. 5.0 // **BUILDING SPACE SUMMARY**



p

A



PKC-ACA /// **CORE ACADEMIC**

SHARED CLASSROOM TOILET
SHARED CLASSROOM STORAGE
SHARED STUDENT PROJECT STORAGE
RESOURCE CLASSROOM
SENSORY CLASSROOM
WORKROOM/TEACHER OFFICE
STAFF LOUNGE
PRE-KINDERGARTEN CLASSROOM
MULTIPURPOSE/ELA

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|--------------------------------|-----------------|-----------|---------------|------------------------|
| CORE ACADEMIC | | | | |
| Outdoor Area (when available) | 1 | -- | -- | |
| Shared Classroom Toilet | 12 | 50 | 600 | |
| Shared Classroom Storage | 12 | 100 | 1,200 | |
| Shared Student Project Storage | 4 | 150 | 600 | |
| Resource Classroom | 3 | 260 | 750 | |
| Sensory Classroom | 1 | 250 | 250 | |
| Workroom/Teacher Office | 2 | 300 | 600 | |
| Staff Lounge | 1 | 300 | 300 | |
| Pre-Kindergarten Classroom | 20 | 1,000 | 20,000 | capacity driving space |
| Multipurpose/ELA | 2 | 800 | 1,600 | |
| Total | | | 25,900 | |

Comments //

During facility renovations, the architect should be expected to minimize the movement of 'hard' walls and fit the proposed programmed spaces into the existing building. Tolerances of +/- 10% are acceptable as is the combination of spaces within a suite. Adjacencies as specified are desirable, but options may be considered and should be reviewed with the planning team.

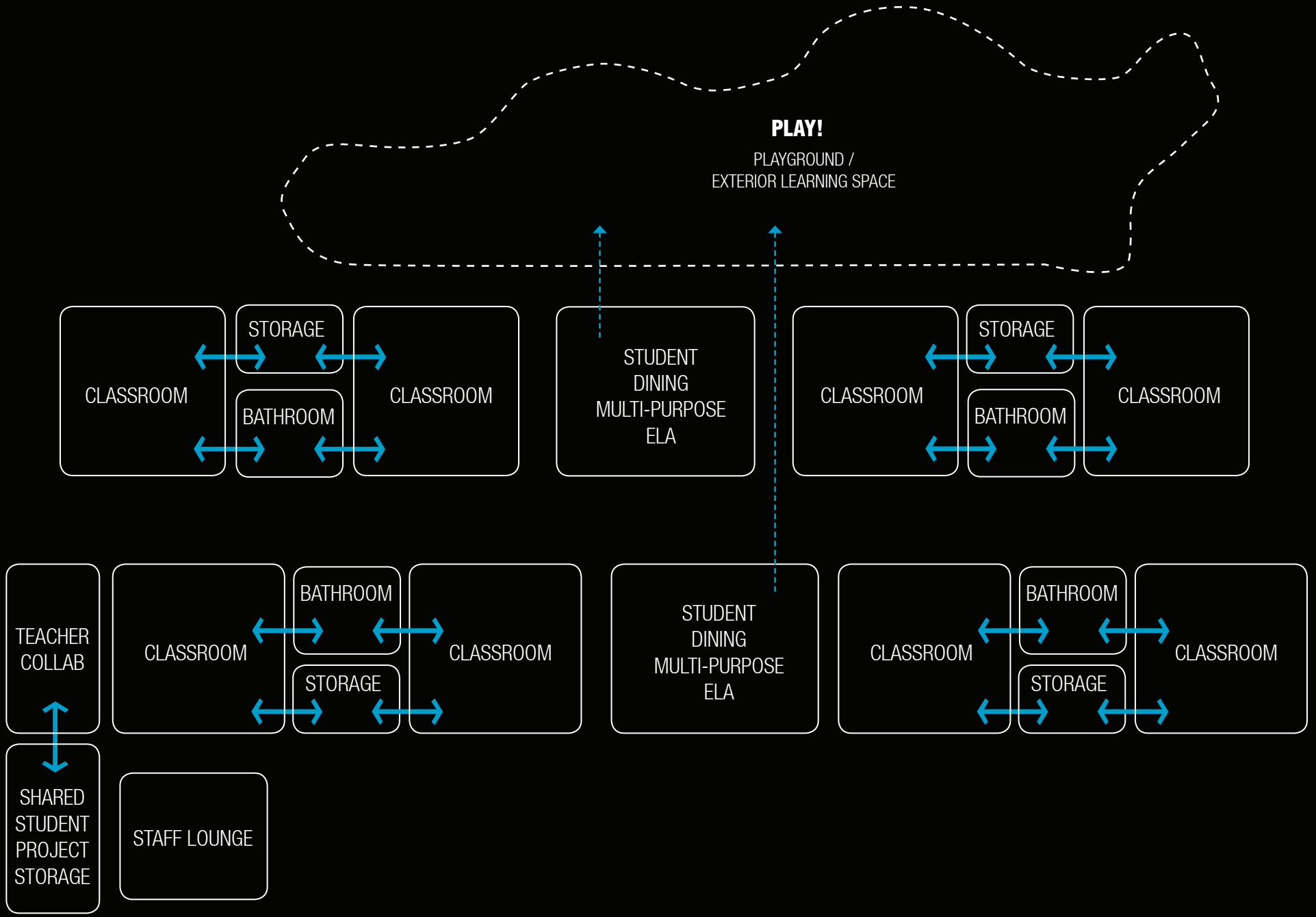
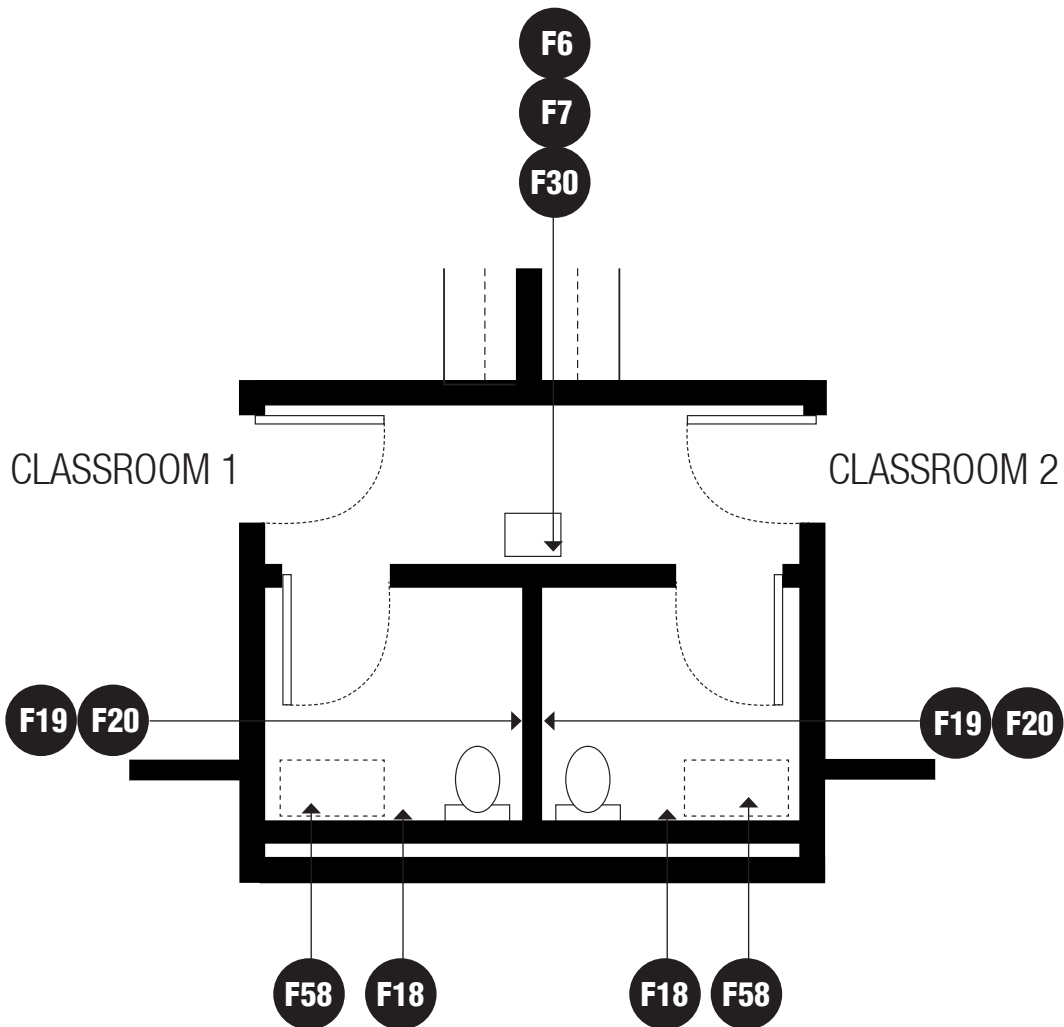


FIG. 6.0 // CORE ACADEMIC ADJACENCY DIAGRAM



size

50 SF

capacity

2 students

ancillary spaces

1-5 classrooms

spatial relationships

shared by two adjacent classrooms

plumbing

sink connection

toilet connection

LEGEND ///



fixed equipment

F6 soap dispenser

F7 towel dispenser

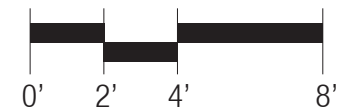
F18 mirror

F19 toilet tissue holder

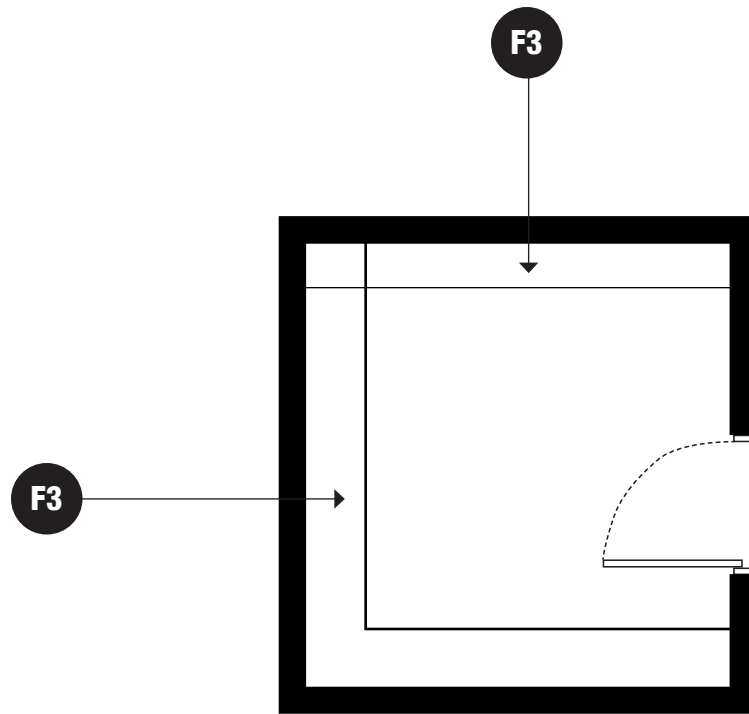
F20 bathroom accessories

F30 bathroom sink

F58 changing table



THIS PAGE IS LEFT BLANK INTENTIONALLY



size

100 SF

capacity

n/a

ancillary spaces

computer storage

spatial relationships

adjacent and access to technology storage

program activities

materials storage

environmental considerations

uniform lighting

security of door

finishes

flooring:

resilient tile flooring

base:

resilient base

ceiling:

exposed structure

walls:

painted concrete masonry units

fire suppression

fire suppression system

HVAC

supply/return air system

electrical

single level switching

fluorescent lighting

duplex receptacles

electronic safety and security

life safety devices per code

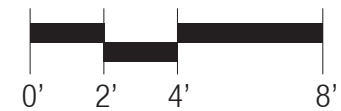
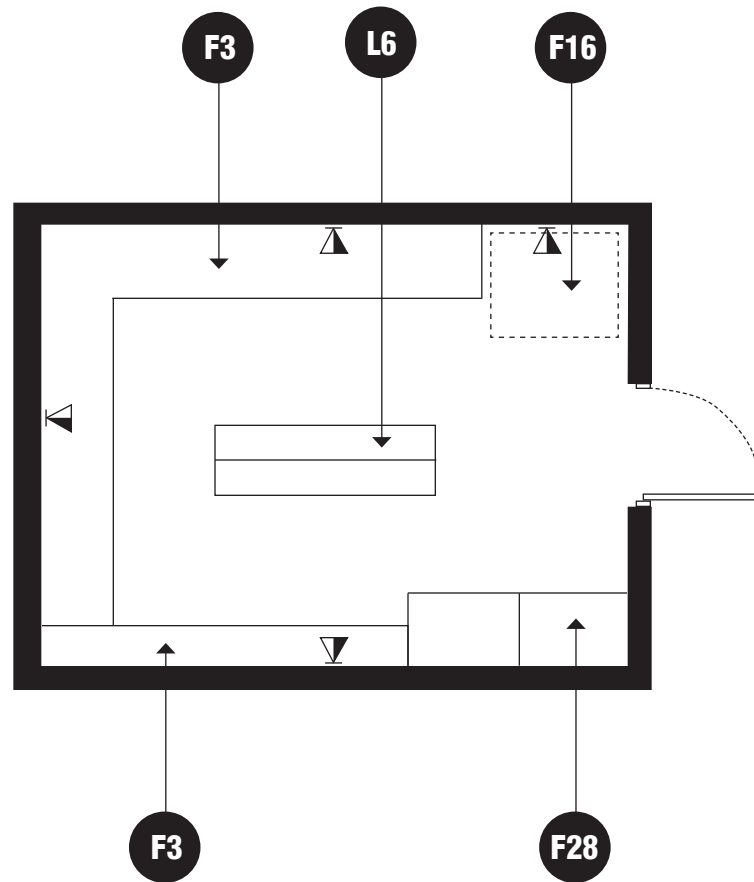
LEGEND ///

● **fixed equipment**

F3 wall shelving (12" and 18" deep)

NOTES //

1. Finishes/features: refer to _____ for specification references.
2. Loose furnishings and features shown represent one of many possible solutions.



PKC-ACA /// SHARED STUDENT PROJECT STORAGE

size

150 SF

capacity

staff members

ancillary spaces

n/a

spatial relationships

one per floor

centrally located to the academic pods
with easy access for teachers

program activities

storing and retrieving books/supplies

plumbing

washer connection

general information

When able, ACPS will provide space for a laundry facility or incorporate into an existing space when necessary. Laundry facilities should be easily accessible from the classrooms. If a multiple-story model is pursued, ACPS will consider the inclusion of a laundry facility on each floor.

LEGEND ///

● **fixed equipment**

F3 wall shelving (12” and 24” deep)

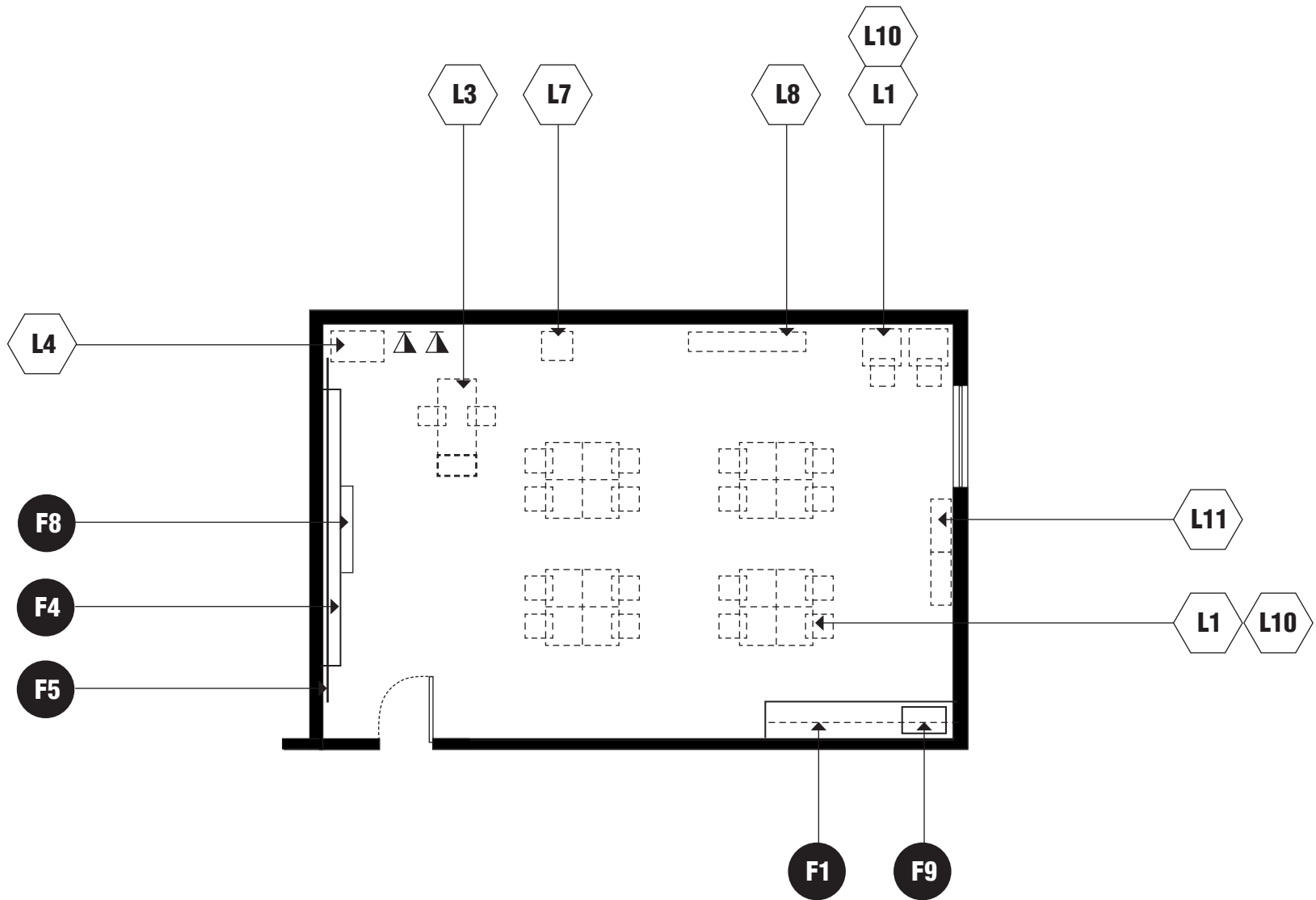
F16 stacked washer/dyer

F28 base cabinets

⬡ **loose furnishings**

L6 mobile shelving

▶ **data drop**



PKC-ACA /// RESOURCE CLASSROOM



size

250 SF

capacity

up to 15 students
2 or more staff members

ancillary spaces

n/a

spatial relationships

located within academic core areas

program activities

small group work
independent instruction and work
reading, math, speech, etc.

LEGEND ///

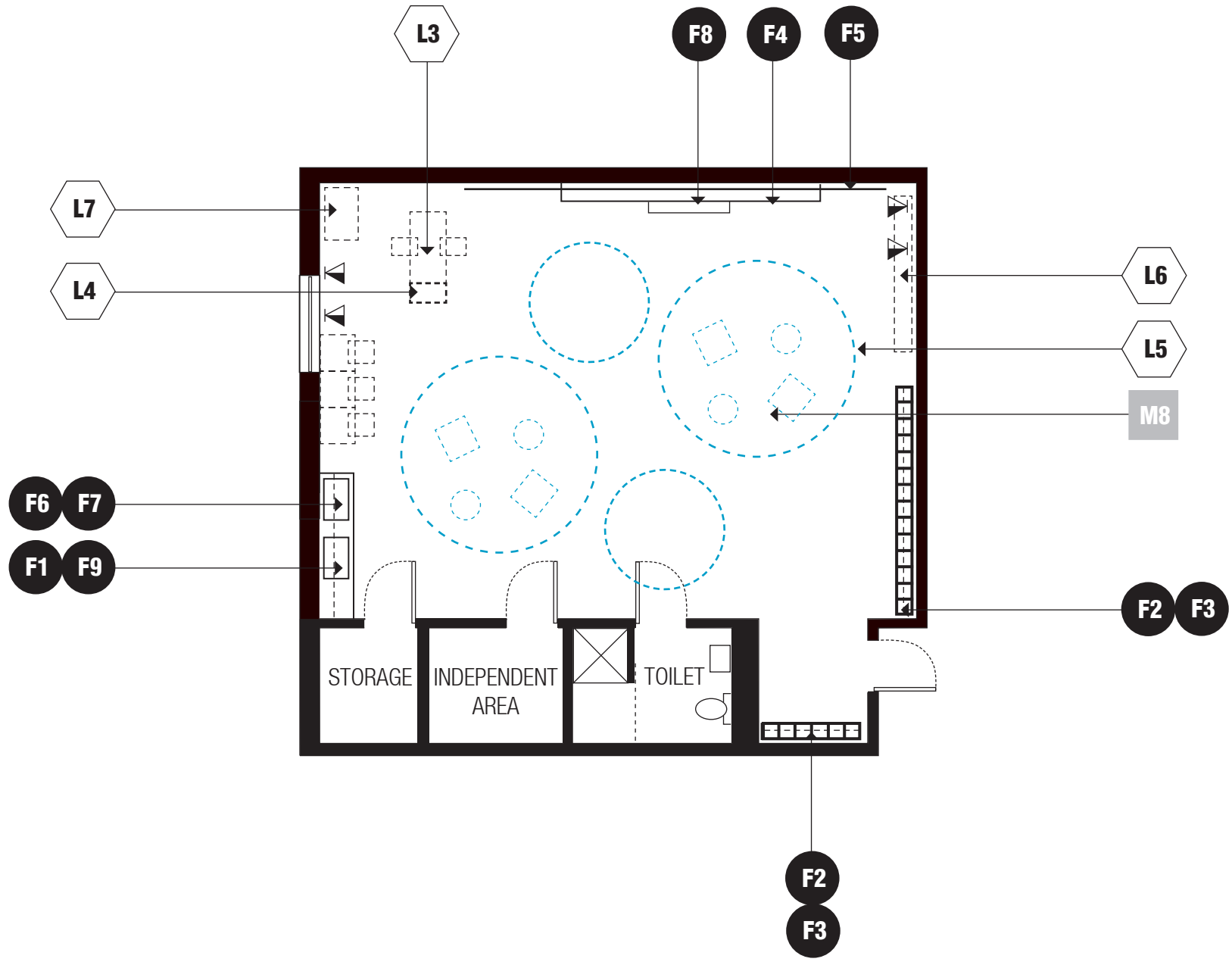
● **fixed equipment**

- F1 base/wall cabinets and shelving
- F3 wall shelving (over cubbies)
- F4 marker board (8 LF)
- F5 tackable/magnet wall surface
- F8 wall mounted interactive electronic presentation device
- F9 classroom sink

⬡ **loose furnishings**

- L1 stackable/nesting chairs (15-18)
- L3 teacher work surface with mobile storage and two chairs
- L4 four drawer lateral file cabinet
- L7 teacher's lockable wardrobe (18"X18")
- L8 tall cabinet with shelves
- L10 student desks (15-18)
- L11 adjustable height bookshelves

▶ **data drop**



PKC-ACA /// SENSORY CLASSROOM



size

250 SF

capacity

10-12 students

2 or more staff members

ancillary spaces

classroom toilet

storage closet

independent area

spatial relationships

elevator access

toilet access

ground floor, accessible

paired in groups of two

near the nursing suite

located within academic core

program activities

small group work

independent work

individual instruction

support for city wide programs such as

autism and multiple disability

plumbing

sink with drinking fountain

plumbing connections

wall-mounted water closet

wall-mounted lavatory

ADA shower controls and head

Floor drain

LEGEND ///

● **fixed equipment**

F1 base/wall cabinets and shelving

F2 student cubbies (20)

F3 wall shelving (over cubbies)

F4 marker board (8 LF)

F5 tackable/magnet wall surface

F6 soap dispenser

F7 towel dispenser

F8 wall mounted interactive electronic

presentation device

F9 classroom sink

⬡ **loose furnishings**

L3 teacher work surface with mobile

storage and two chairs

L4 four drawer lateral file cabinet

L5 bound rugs

L6 mobile shelving (various)

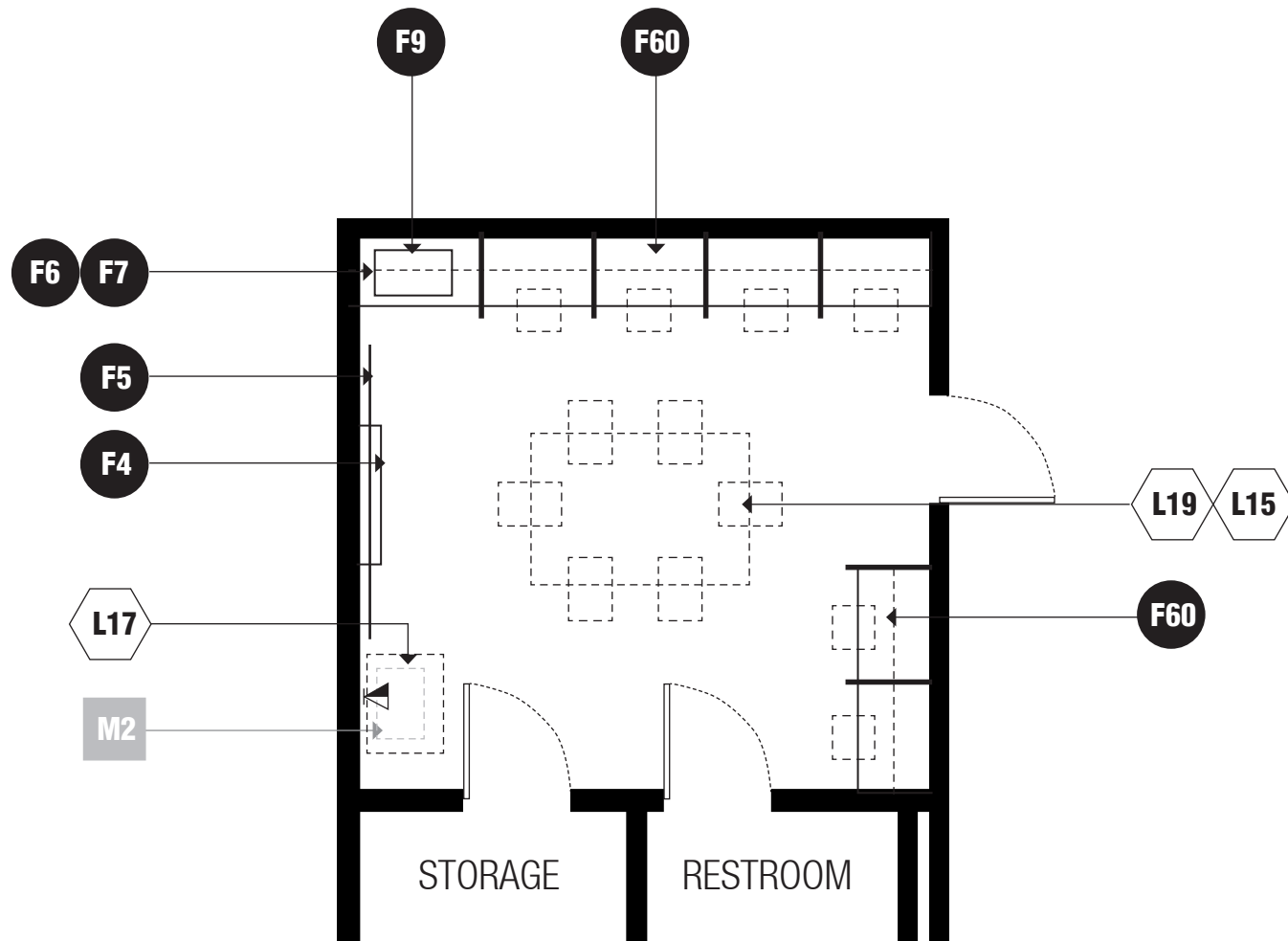
L7 teacher's lockable wardrobe (18"X18")

L8 tall cabinet with shelves

■ **miscellaneous**

M8 child's play area

▶ **data drop**



PKC-ACA /// WORKROOM/TEACHER OFFICE



size

300 SF

capacity

teachers

teachers' assistants

parents/volunteers

ancillary spaces

staff restroom

storage

spatial relationships

near academic core classrooms

access to staff restroom(s) from within

access to storage from within

program activities

team staff meetings

lesson planning and grading

scheduling appointments

record keeping

develop and review teacher materials

plumbing

sink connection

LEGEND ///

● **fixed equipment**

F4 marker board

F5 tackable/magnet wall surface

F6 soap dispenser

F7 towel dispenser

F9 classroom sink

F57 kitchenette

F60 itinerant hotel spaces

⬡ **loose furnishings**

L15 task chair (6)

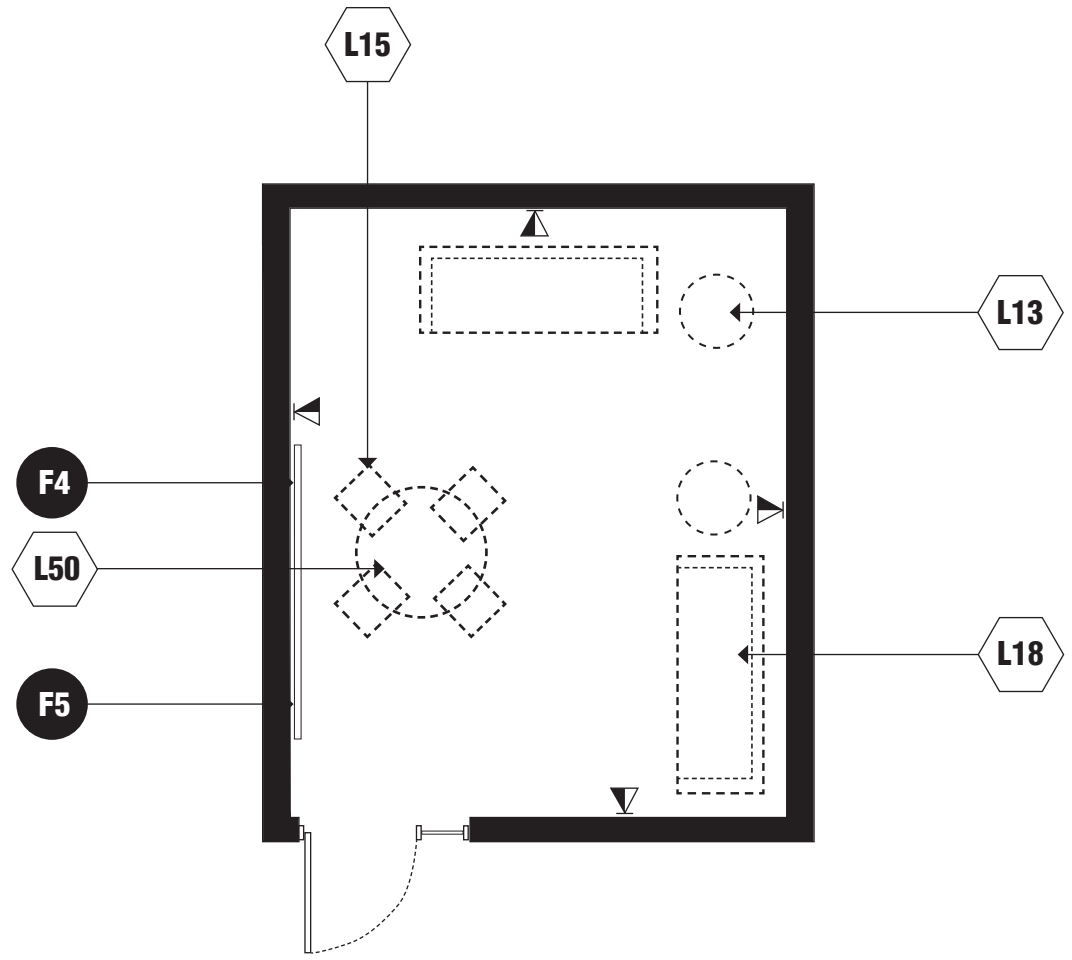
L17 printer station

L19 conference table

■ **miscellaneous**

M2 color printer

▶ **data drop**



PKC-ACA /// STAFF LOUNGE



size

300 SF

capacity

staff

7-10 teachers

ancillary spaces

n/a

spatial relationships

near teacher office/workroom

program activities

staff gathering

LEGEND ///

● **fixed equipment**

F4 marker board (8 LF)

F5 tackable/magnet wall surface (8LF)

⬡ **loose furnishings**

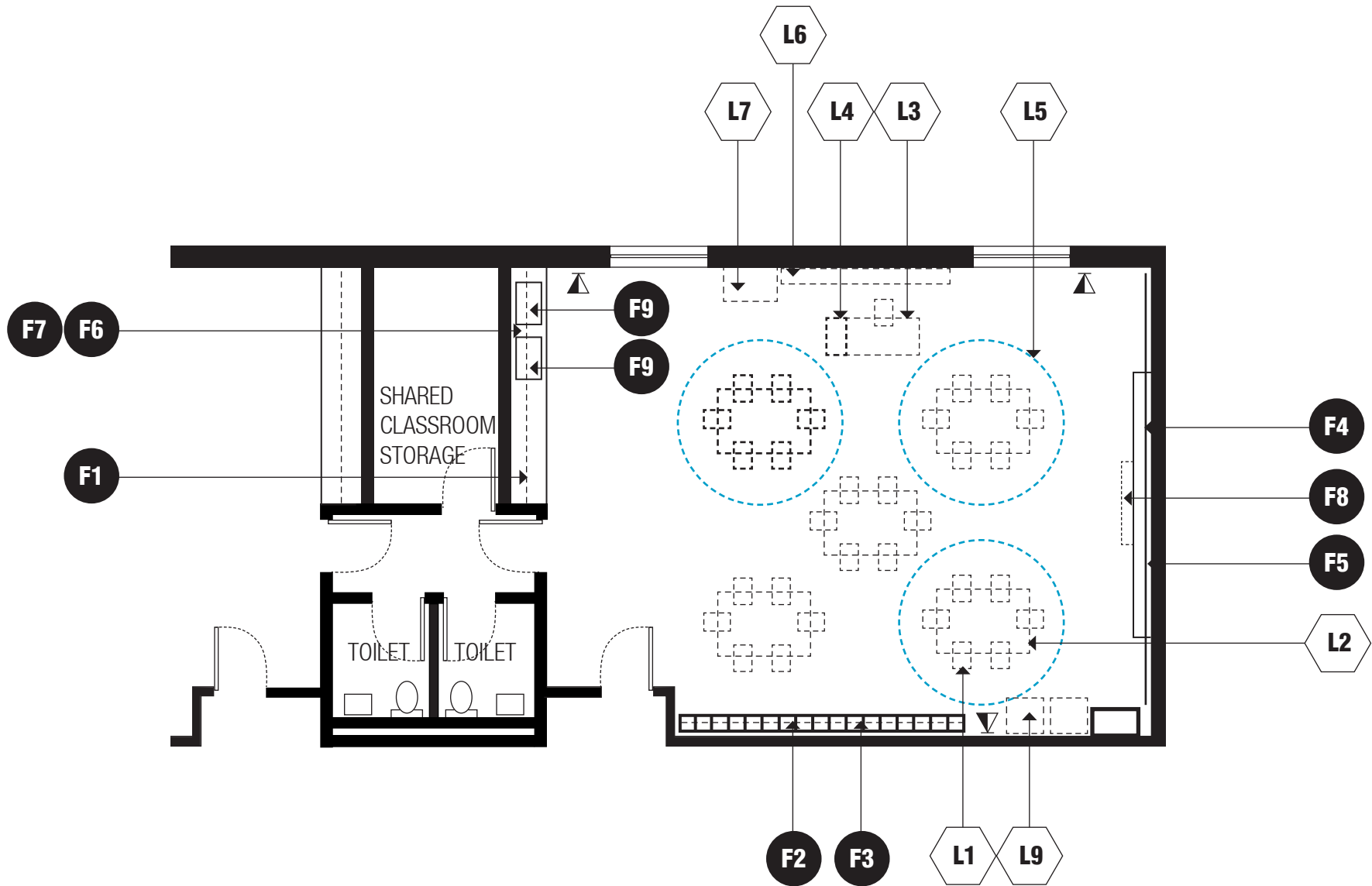
L13 small table

L15 task chair (4-6)

L18 lounge chair and/or couch

L50 small conference table

▶ data drop



PKC-ACA /// PKC CLASSROOM



size

1,000 SF

capacity

16-20 students

2 or more staff members

ancillary spaces

classroom toilet

storage closet

spatial relationships

located within academic core areas

locate coat cubbies near door

locate at first floor for emergency

prefer door to outside from classroom

program activities

small group work

whole group work

teacher directed

one on one instruction

cooperative learning

discovery

language arts

inquiry

plumbing

double sink at two heights

with drinking fountain and sink at
child height

with deep well at adult height

wall mounted watercloset

wall mounted lavatory

LEGEND ///**● fixed equipment**

F1 base/wall cabinets and shelving

F2 student cubbies (20)

F3 wall shelving (over cubbies)

F4 marker board (8 LF)

F5 tackable/magnet wall surface

F6 soap dispenser

F7 towel dispenser

F8 wall mounted interactive electronic
presentation device

F9 classroom sink

◻ loose furnishings

L1 stackable/nesting chairs (18-20)

L2 tables (4-5)

L3 teacher work surface with mobile
storage and two chairs

L4 four drawer lateral file cabinet

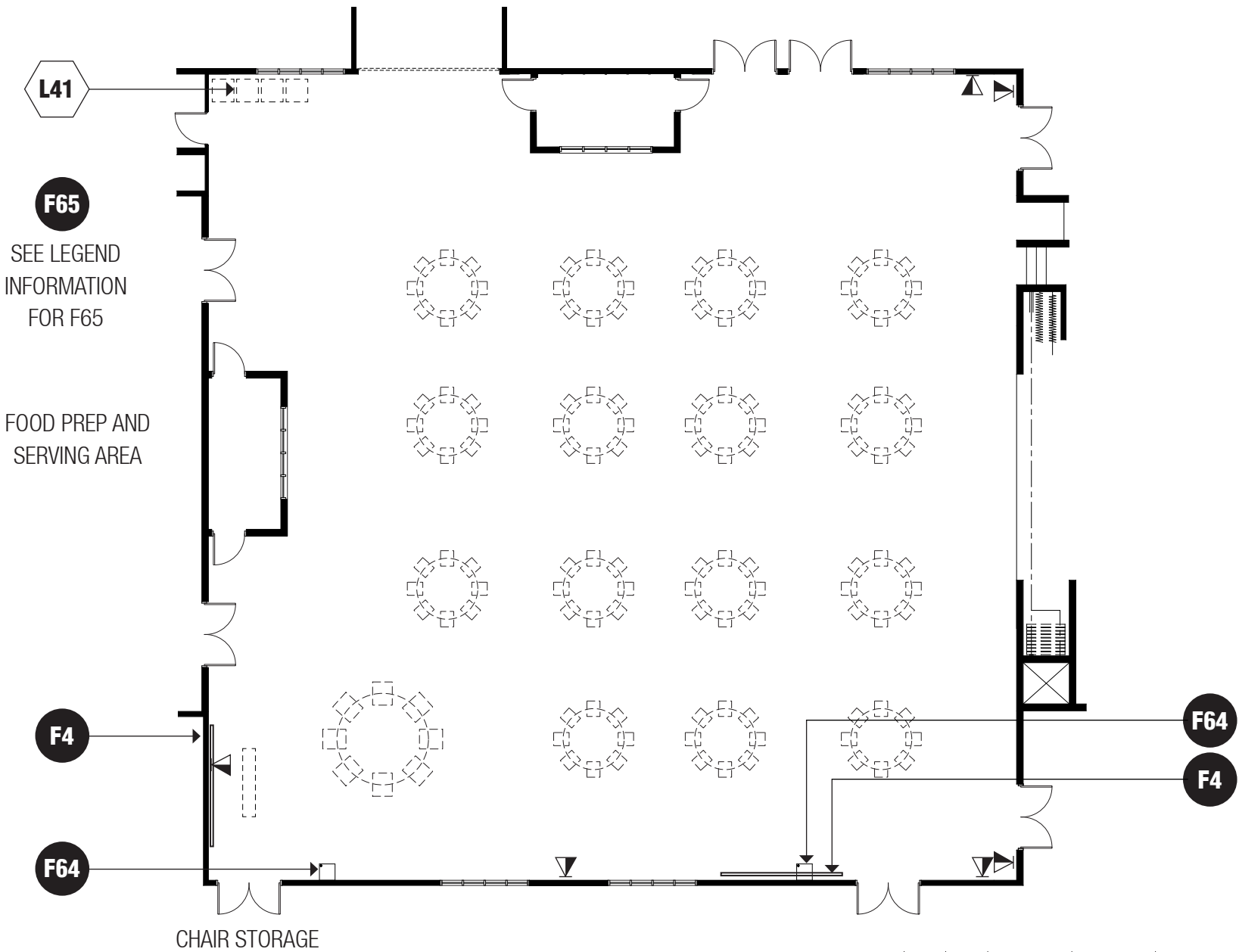
L5 bound rugs (3)

L6 mobile shelving (various)

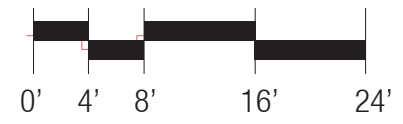
L7 teacher's lockable wardrobe (18"X18")

L9 learning center sets (sand/water table,
kitchen, art cart, etc.)

▶ data drop



PKC-SD /// MULTIPURPOSE / ELA



size

800 SF

capacity

18-24 students

configuration

consider a flexible wall between the two multipurpose/ela spaces that allows the space to open into one large multipurpose/ela space

ancillary spaces

stage (optional)

spatial relationships

centrally located to office area, classrooms, and media center near parking and entry to building near food lab classroom (consider overhead rolling door)

program activities

school and community programs meetings and activities

environmental considerations

electrical outlets for student use provide a sound system provide large motorized projection screen with ceiling mounted projector configure larger spaces to manage sound and for multiple users higher than normal ceiling height if feasible, provide patio for outside seating options cleanable building surfaces

windows to provide ample natural light good sight lines to all areas of the room for supervision window treatment to darken room for AV presentation; this is required if the stage is located in this area

LEGEND ///**● fixed equipment**

- F4 marker board (on two walls - 16 LF each with electric outlet below)
- F64 filtered water fountain w/ bubbler and goose neck bottle filler
- F65 recycling center (work with food service staff on location and design)

⬡ loose furnishings

- L41 chair dollies

▶ data drop**NOTES //**

1. Provide age-appropriate furniture with tables and chairs of various heights.
2. Horseshoe or oblong tables with clear sightlines to the adult are preferable.

PKC-MC /// **LIBRARY**

READING / LEARNING / CIRCULATION
COMBINED OFFICE/WORKROOM
DEVICE-CHARGING ROOM
STORAGE
SMALL GROUP ROOM

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|------------------------------|-----------------|-----------|--------------|--------------|
| MEDIA CENTER | | | | |
| Reading/Learning/Circulation | 1 | 1,600 | 1,600 | |
| Combined Office/Workroom | 1 | 200 | 200 | |
| Device-Charging Room | 1 | 100 | 100 | |
| Storage | 1 | 150 | 150 | |
| Small Group Room | 1 | 150 | 150 | |
| Total | | | 2,200 | |

Comments //

Spaces within the Media Center may vary up to 15% and may be combined to facilitate circulation and supervision. The overall square footage may be +/- 10%.

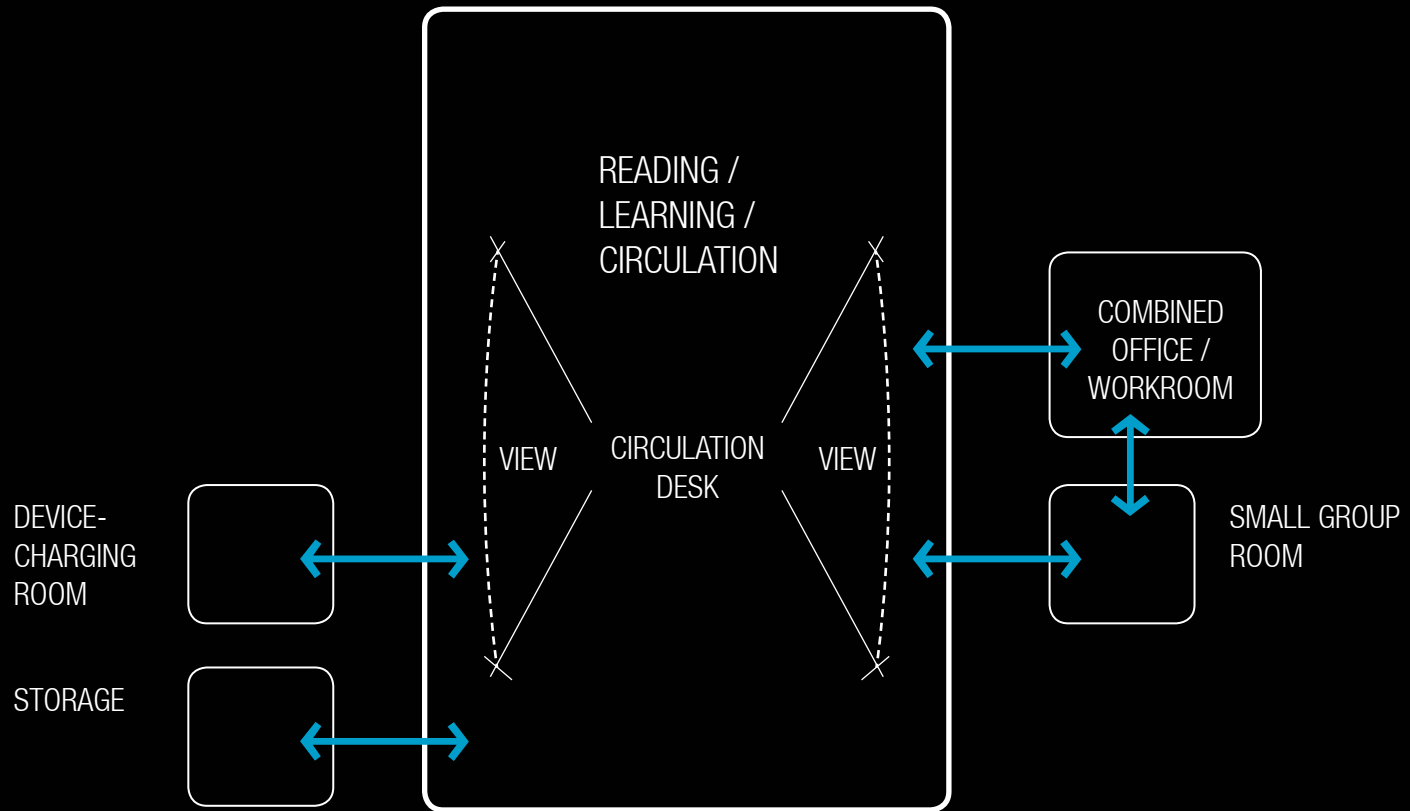
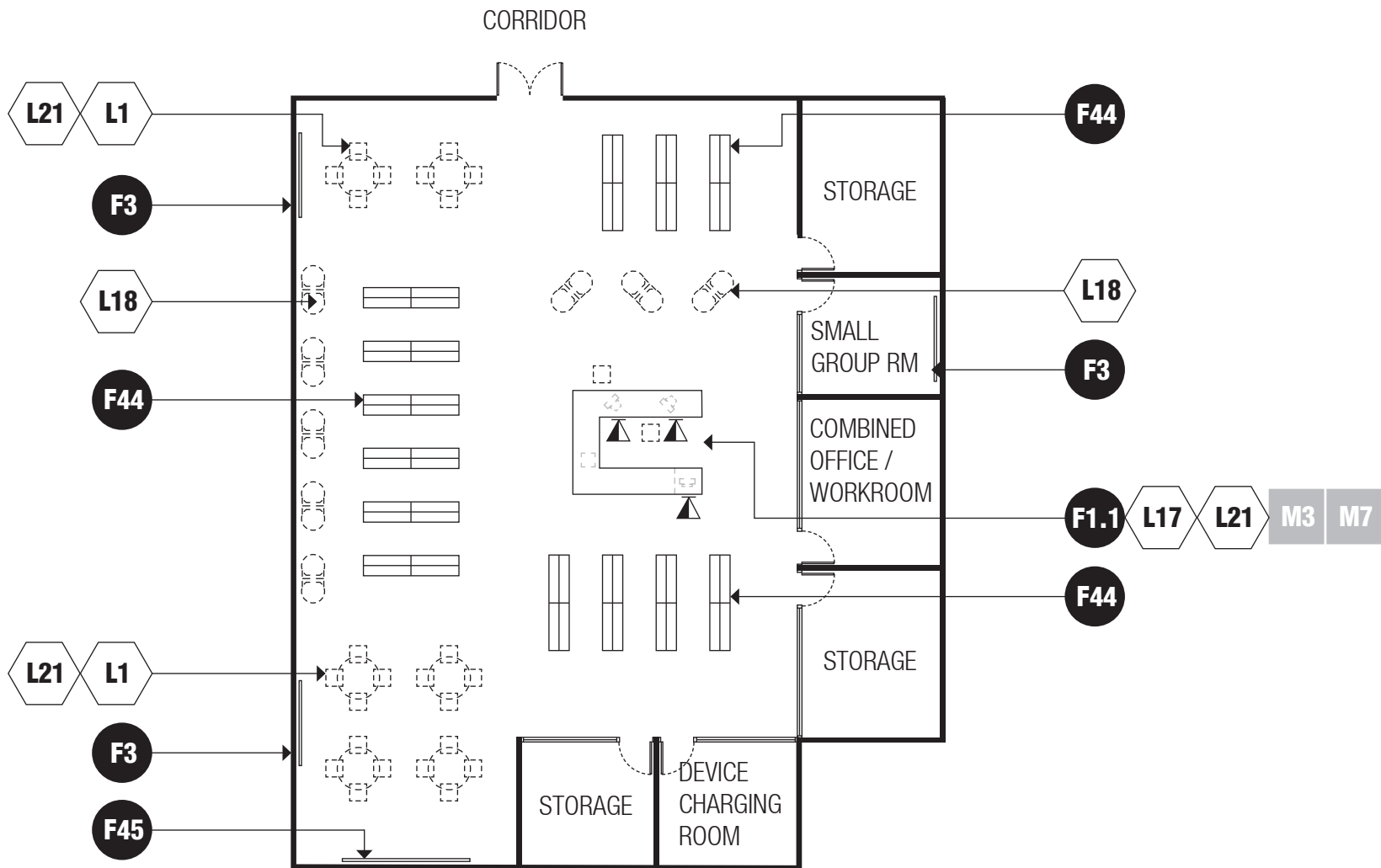
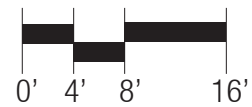


FIG. 7.0 // MEDIA CENTER ADJACENCY DIAGRAM



PKC-L /// READING / LEARNING / CIRCULATION



size

2,200 SF

capacity

75 students

1 media specialist

community patrons after school hours

ancillary spaces

technical processing room

device charging room

combined office/workroom

storage

small group room

spatial relationships

circulation area located close to
entrance / exit

program activities

reading and research

circulation of materials and resources

including online catalogs

large group and small group instruction

provide meeting areas for community,

staff, and parents

dramatic reading and storytelling

informal small group interaction

environmental considerations

recessed floor outlets at tables

adequate ventilation

lighting appropriate to task with switches

to dim separate zones of media

center

environmental sound control:

wall minimum: STC 45

ceiling minimum: CAC35

electrical outlets at entrance for future

security system

electrical outlets at column locations

windows to provide natural sunlight

security of school when center is in use

during after school hours

ceiling height in proportion to room

dimensions

open flow for traffic in reference/

professional/periodical areas

electrical outlets in toe space of wall

shelving

window treatment to darken room for AV

presentation

mix of lounge furniture

finishes

flooring: carpet

LEGEND ///**● fixed equipment**

F1.1 casework (circulation desk)

F3 marker board (in two locations, 8 LF ea)

F44 library case work*

F45 motorized projection screen

⬡ loose furnishings

L1 stackable/nesting chairs (32-55

per student enrollment)

L17 printer station

L18 lounge chairs

L21 work table (6-10 with various
heights)

■ miscellaneous

M3 bar code reader

M7 desktop computer (2)

▶ data drop***shelving calculations per 3' shelves**

Picture thin: 20 books per foot /

60 books per shelf

Standard size: 9 books per foot /

30 books per shelf

Reference books: 6 books per

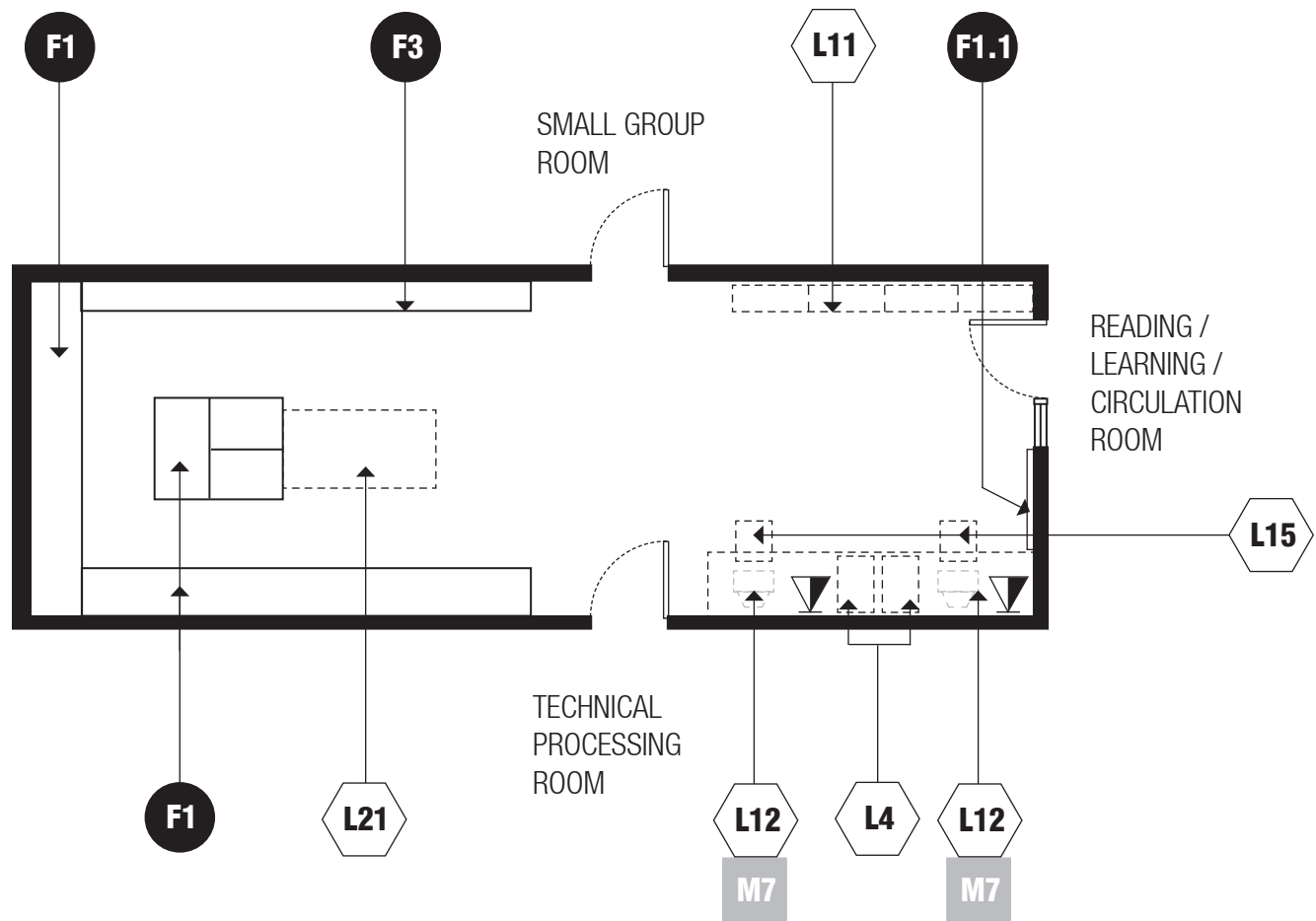
foot / 18 books per shelf

Periodicals: 1 per foot for display

purposes

to calculate how many linear feet of shelving are required for a collection, take the total number of volumes and divide by the number of books per foot. For example, a primary collection of 5,000 volumes consisting of picture and thin books would require a total of 250 linear feet of shelving. shelves should only be two-thirds full. to allow for this, multiply the number of linear feet required by 1.33. example: 250 x 1.33=332.5 or 333 linear feet of shelving.

*VA guidelines recommend free standing shelving 36" in height or less.



PKC-L /// COMBINED OFFICE / WORKROOM



size

200 SF

capacity

media specialists

ancillary spaces

reading/learning/circulation

small group room

spatial relationships

adjacent and access to reading/
learning/circulation

adjacent to and access to office

adjacent to access to technical
processing room

located behind circulation desk and
wholeclass zone

program activities

storage of materials

storage of a/v materials and videotapes

scanning

digitizing

LEGEND ///

● fixed equipment

F1 base/wall cabinets and shelving (base
cabinets with power)

F1.1 casework (poster/map storage)

F3 wall shelving

⬡ loose furnishings

L4 four drawer lateral file cabinet (1-2)

L11 adjustable height bookshelves

L12 admin workstation (2)

L15 task chair (2)

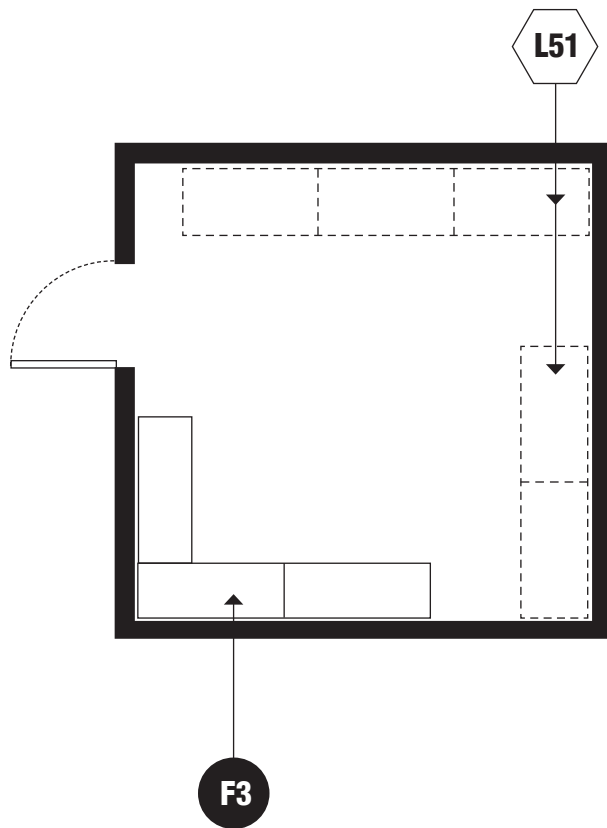
L21 work table

■ miscellaneous

M7 desktop computer (2)

▶ data drop

READING /
LEARNING /
CIRCULATION



size

100 SF

capacity

staff

ancillary spaces

n/a

spatial relationships

adjacent and access to reading/learning
/circulation

program activities

overnight secure charging area for
laptops/tablets

environmental requirements

secure metal door
electrical outlets designed around a
'parking' strategy for 5-6 laptop
charging carts

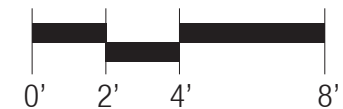
LEGEND ///

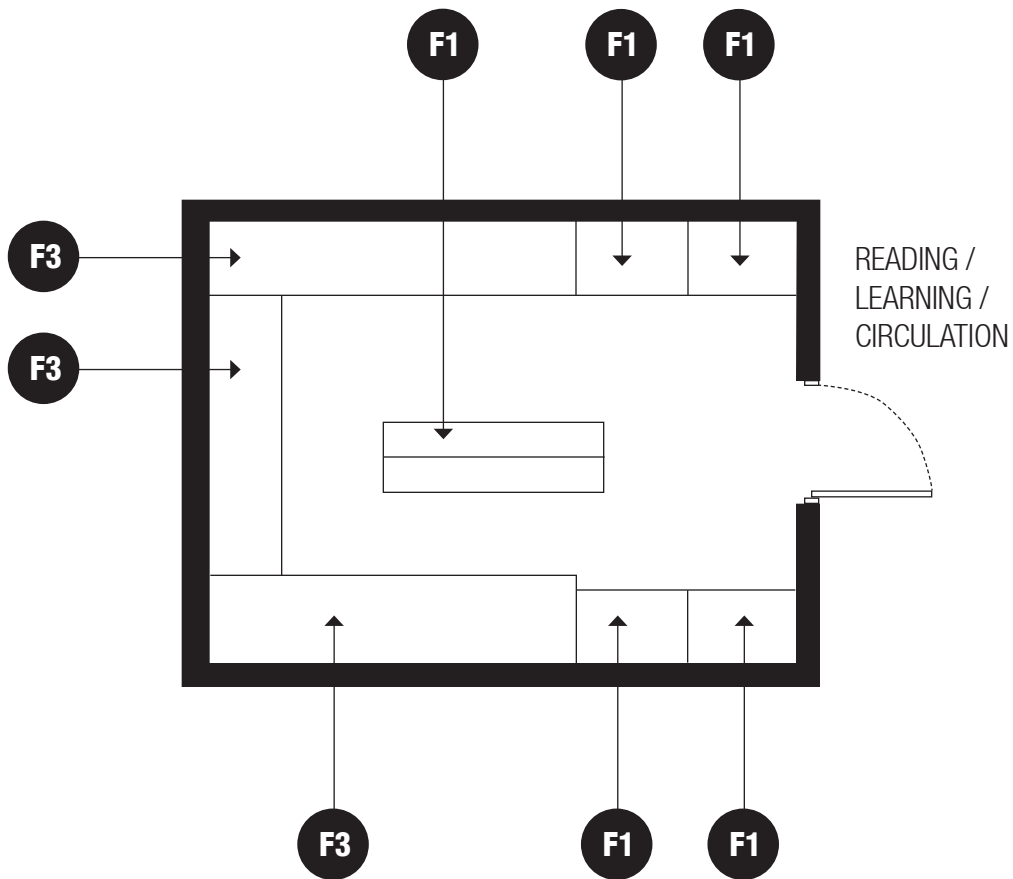
● **fixed equipment**

F3 wall shelving (no lower shelves)

⬡ **loose furnishings**

L51 laptop charging cart (5-6)





size

150 SF

capacity

staff

ancillary spaces

n/a

spatial relationships

near core classrooms

program activities

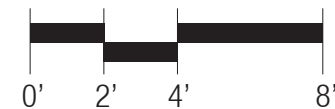
storing and retrieving books/supplies

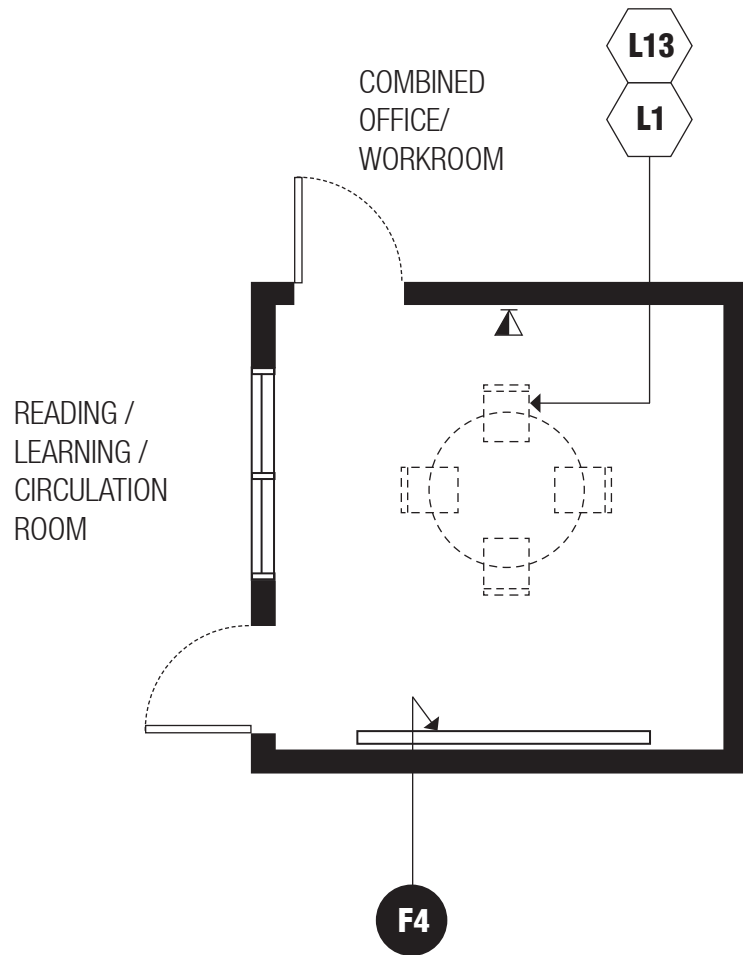
LEGEND ///

● **fixed equipment**

F1 base/wall cabinets and shelving

F3 wall shelving (variety of 12" and 24" deep shelving)





size

150 SF

capacity

up to 8 persons

ancillary spaces

n/a

spatial relationships

adjacent and access to reading/learning/
circulation area

program activities

group research projects
meetings
listening and viewing

LEGEND ///

● **fixed equipment**

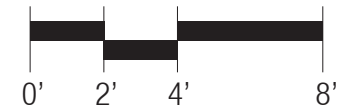
F4 marker board (8 LF)

⬡ **loose furnishings**

L1 stackable/nesting chairs (4)

L13 small table

▶ data drop



PKC-L /// **SMALL GROUP ROOM**

THIS PAGE IS LEFT BLANK INTENTIONALLY

PKC-PE /// **PHYSICAL EDUCATION**

MULTI-PURPOSE SPACE
STAGE

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|---------------------------|-----------------|-----------|--------------|--------------|
| PHYSICAL EDUCATION | | | | |
| Multi-Purpose Space | 1 | 2,000 | 2,000 | |
| Stage | 1 | 800 | 800 | |
| Playgrounds | -- | | | |
| Total | | | 2,800 | |

Comments //

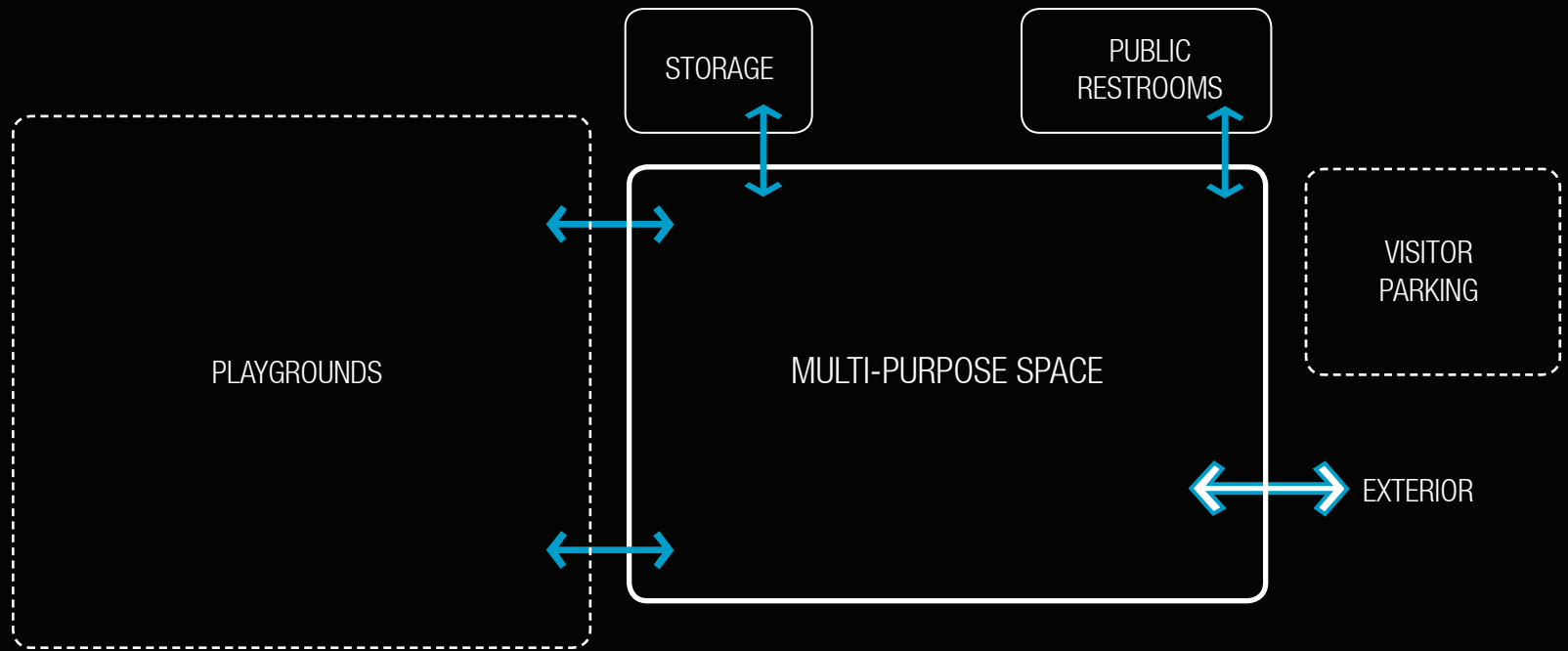
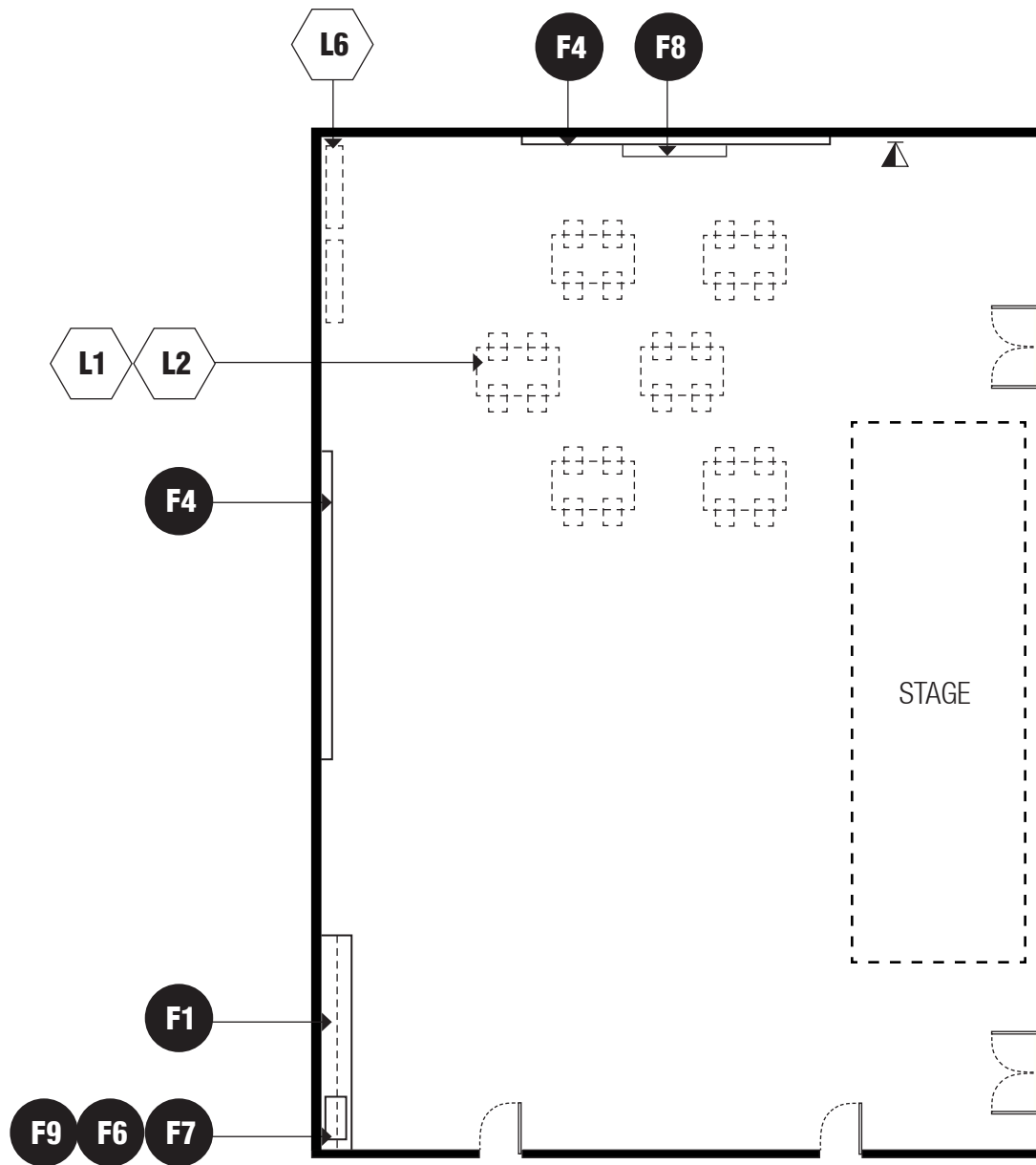
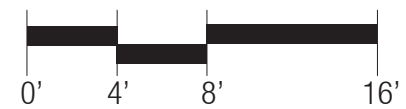


FIG. 8.0 // **PHYSICAL EDUCATION ADJACENCY DIAGRAM**



PKC-PE /// MULTI-PURPOSE SPACE



size

2,000 SF

capacity

students
teachers and staff
after school staff
community

finishes

flooring: resilient athletic flooring

spatial relationships

near after school entrance to building
near parking area
adjacent and access to after-school
storage area

program activities

back-up physical education teaching
wellness area
after school staff to tutor and counsel
students
quiet area for students to play cards, work
on homework, read
office space for after-school staff

plumbing

connections for sink with gooseneck
faucet

environmental considerations

elevated ceiling, +/- 18 LF
uniform lighting
flexibility of space
adequate ventilation and ceiling fans
electrical outlets for equipment

must be able to isolate from the rest of
the school after hours
drinking fountain in adjacent corridor
windows to provide natural light

● LEGEND ///

fixed equipment

- F1 base/wall cabinets and shelving
- F4 marker board (on 2 walls, 16 LF each)
- F6 soap dispenser
- F7 towel dispenser
- F8 wall mounted interactive electronic
presentation device
- F9 classroom sink

⬡ **loose furnishings**

- L1 stackable/nesting chairs (22-26)
- L2 stackable/nesting tables (6)
- L6 mobile shelving

- loose furnishings for after-school staff TBD

▶ data drop

pre-kindergarten requirements

Engaging outdoor play areas are essential to the growth and education of pre-k students. The model pre-k center should have several small play areas, which are easily accessible to the classrooms. Smaller play spaces enable teachers to engage with children outdoors and to facilitate learning. Small spaces can also be more comfortable for children, easing their transition from inside to the outdoors and giving a better sense of control in their environment. Play spaces should include opportunities for children to move and manipulate parts (this can include outdoor blocks, logs, tree slices, sand, and water) and be engaging for both the students and the teachers. They should also include interaction with the natural world, to aid in creating calm and increasing attention spans. Model play spaces should provide for multiple sensory experiences for children.

Each play area should be able to accommodate two classrooms worth of students (up to 40 students) and be safely supervised by two teachers. Surfacing of the play spaces should consider the age of the students and avoid hard surfaces. Designers should also consider elements such as shade and creative seating space to promote comfortable use of the playgrounds.

Small, easy to access storage areas should be included with each play space. Play areas should comply with playground safety standards, city code and ADA requirements.

accessibility standards (figure 7.0)

- plan for ramps and/or transfer points on composite play structures for access to play components on elevated decks.
- meet the Americans with Disabilities Act guidelines for percentage of components that are to be accessible by ramp and by transfer deck.
- provide table and benches along accessible route.
- provide upper-body strengthening devices as appropriate for age group and amount of supervision.

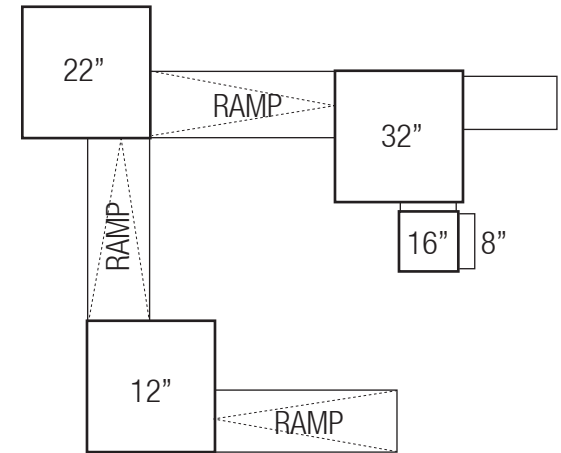


FIG. 7.0 // **TYPICAL RAMP AND TRANSFER DECK**

PKC-AD /// **ADMINISTRATION**

LOBBY/GATHERING AREA
WELCOME CENTER
CONFERENCE ROOM
PRINCIPAL'S OFFICE
ADMINISTRATIVE ASSISTANT DESK
OFFICE - BUSINESS MANAGER
OFFICE - SOCIAL WORKER/PSYCHOLOGIST
OFFICE - REGISTRAR
OFFICE - OCCUPATIONAL THERAPIST
OFFICE - SPEECH PATHOLOGIST
OFFICE - PHYSICAL THERAPIST
ADMINISTRATIVE WORKROOM (OPTIONAL)
MAILROOM (OPTIONAL)
FAMILY CENTER (OPTIONAL)
RECORDS ROOM
SECURE STORAGE
STAFF TOILET
STUDENT SERVICES CONFERENCE ROOM
TEACHER'S LOUNGE
HEAD START FAMILY SERVICES OFFICE

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|-------------------------------------|-----------------|-----------|--------------|--------------|
| ADMINISTRATION | | | | |
| Lobby/Gathering area | 1 | 400 | 400 | |
| Welcome Center | 1 | 400 | 400 | |
| Conference Room | 1 | 200 | 200 | |
| Principial's Office | 1 | 180 | 180 | |
| Administrative Assistant Desk | 1 | 50 | 50 | |
| Office - Business Manager | 1 | 120 | 120 | |
| Office - Social Worker/Psychologist | 1 | 180 | 180 | |
| Office - Registrar | 1 | 120 | 120 | |
| Office - Occupational Therapist | 1 | 120 | 120 | |
| Office - Speech Pathologist | 1 | 120 | 120 | |
| Office - Physical Therapist | 1 | 120 | 120 | |
| Administrative Workroom (OPTIONAL) | -- | 150 | -- | |
| Mailroom (OPTIONAL) | -- | 100 | -- | |
| Records Room | 1 | 120 | 120 | |
| Family Center (OPTIONAL) | -- | 200 | -- | |
| Secure Storage | 1 | 150 | 150 | |
| Staff Toilet | 1 | 50 | 50 | |
| Student Services Conference Room | 1 | 150 | 150 | |
| Teacher's Lounge | 1 | 300 | 300 | |
| Head Start Family Services Office | 1 | 525 | 525 | |
| Total | | | 3,305 | |

Comments //

The overall total for the administration area may be + or - 10%. Some areas may be combined to facilitate circulation. Some areas (*) may be located outside of the suite to make the best use of the existing building.

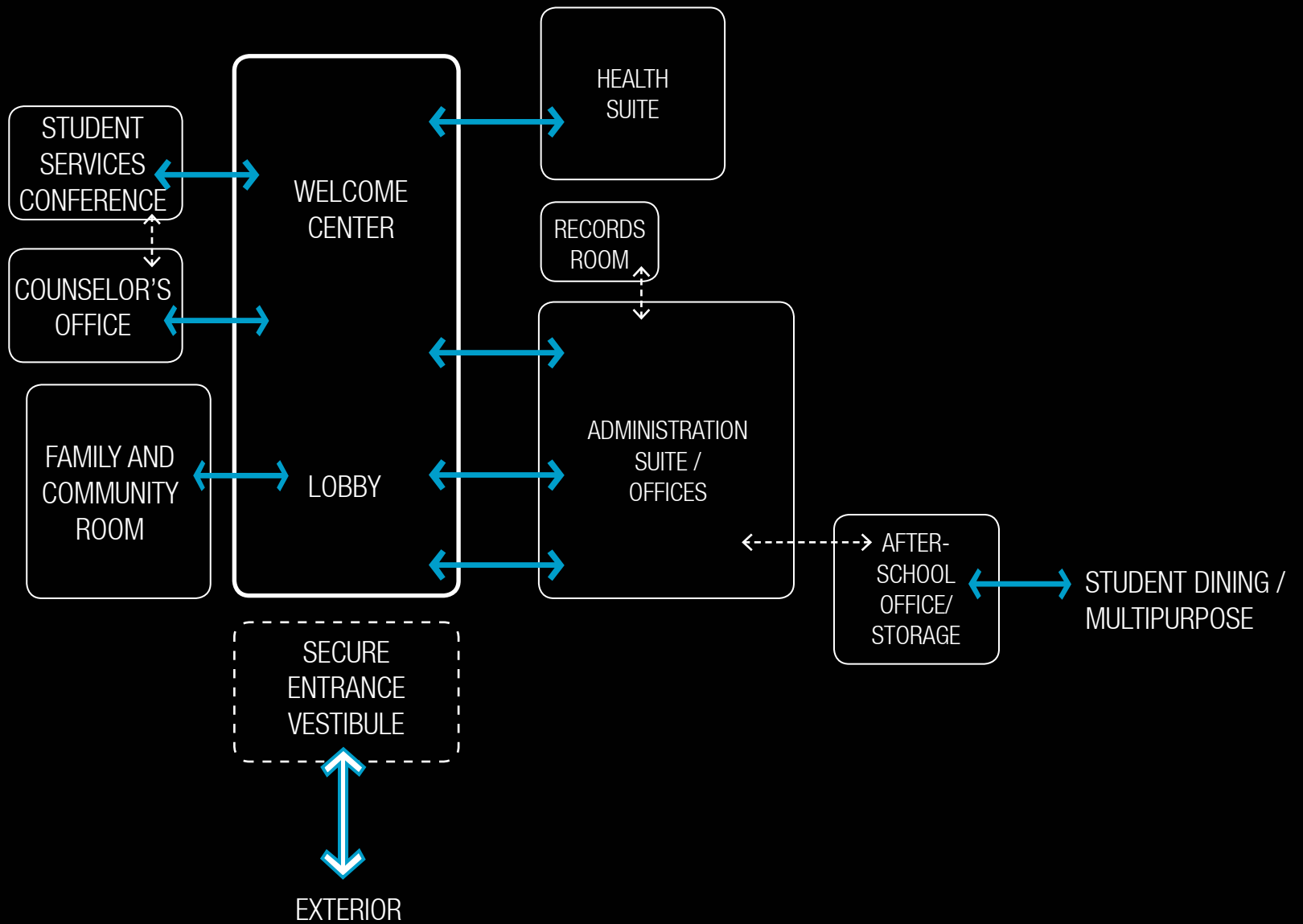
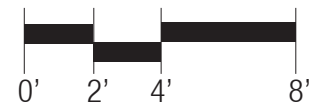
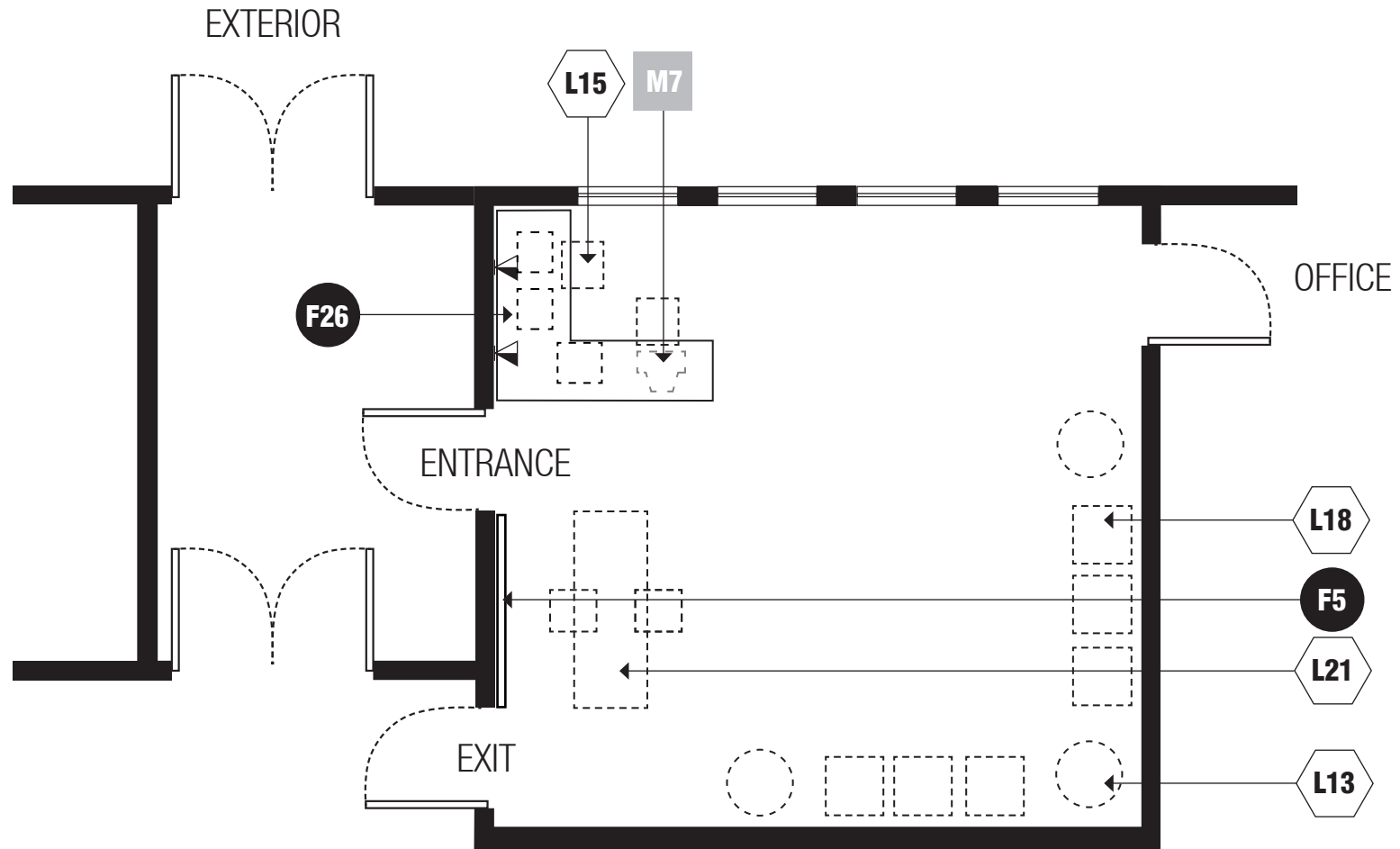


FIG. 9.0 // ADMINISTRATION ADJACENCY DIAGRAM



size

400 SF

capacity

administrative assistants
visitors/parents
students

spatial relationships

see illustration opposite page
located inside the main administrative
area directly accessible from entry
vestibule
near public restrooms
maximize views to exterior and main entry
public address alcove
closet (lockable)

program activities

greeting visitors
student waiting/pick up area
workstation for administrative assistant
second and final access control point
prior to accessing the main school
security check-point

LEGEND ///

● **fixed equipment**

F5 tackable/magnet wall surface (8 LF)
F26 reception counter (Finish carpentry)

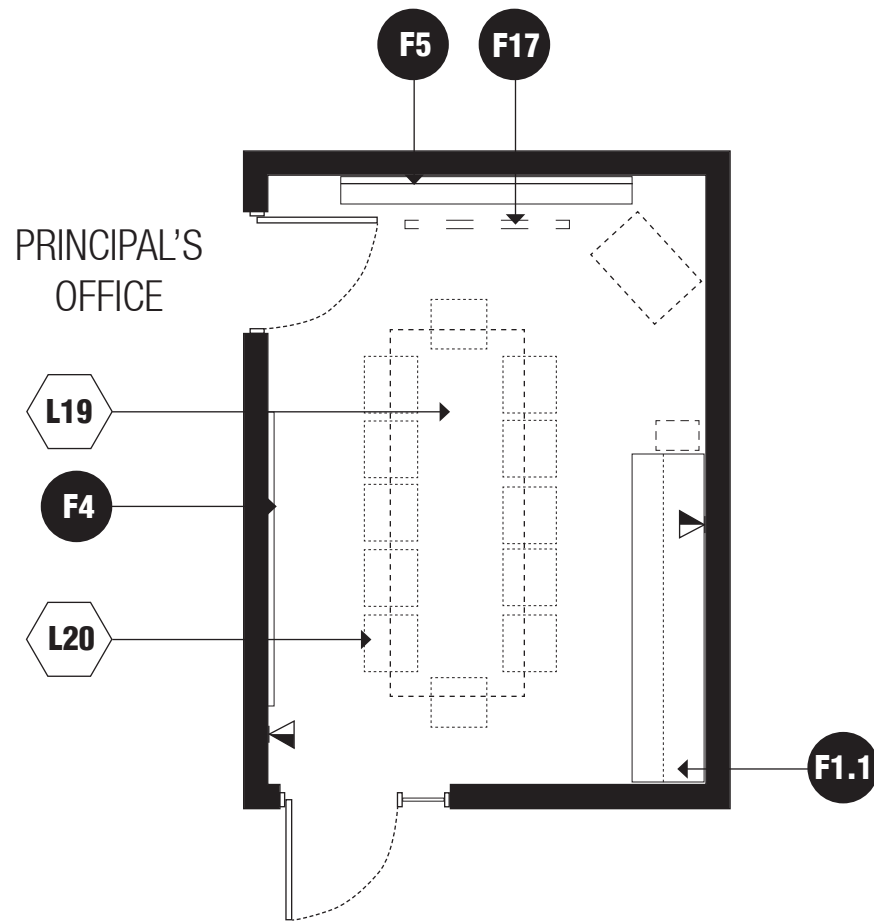
⬡ **loose furnishings**

L13 small table (3)
L15 task chair (2)
L18 lounge chairs (4-6)
L21 work table for check-in station

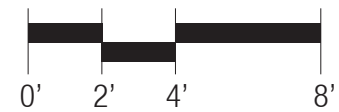
■ **miscellaneous**

M7 desktop computer

▶ data drop



PKC-AD /// CONFERENCE ROOM



size

200 SF

capacity

staff

ancillary spaces

n/a

spatial relationships

near welcome center

centrally located within administrative area

adjacent and access to principal's offices

program activities

conferences with staff, students, parents, and visitors

LEGEND ///

● **fixed equipment**

F1.1 casework (6 LF)

F4 marker board (8 LF)

F5 tackable/magnet wall surface (8LF)

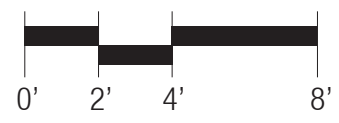
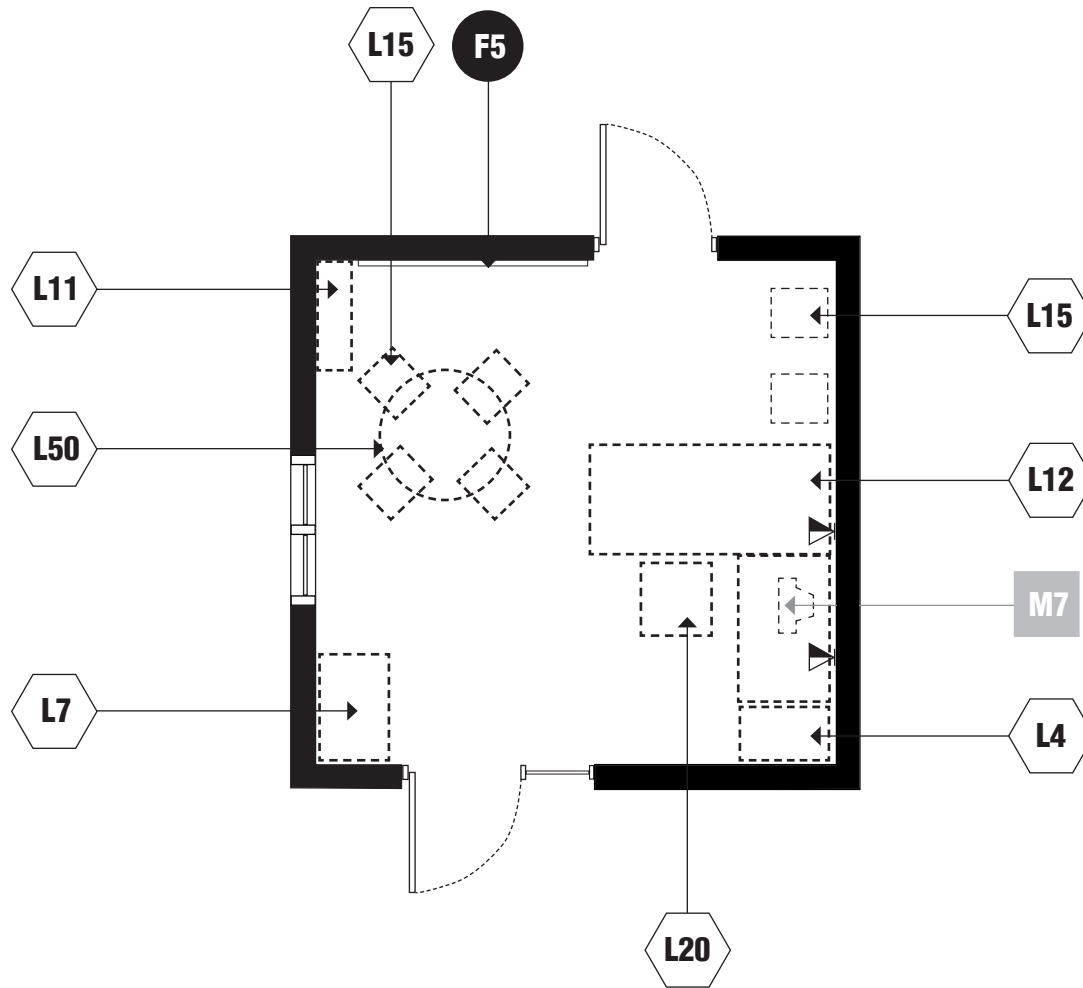
F17 audio/video recording and playback equipment

⬡ **loose furnishings**

L19 conference table (with table technology installations-VGA jacks, data outlets, power outlets, etc.)

L20 executive chairs (12)

▶ data drop



PKC-AD /// PRINCIPAL'S OFFICE

size

180 SF

capacity

principal

ancillary spaces

conference Room

spatial relationships

near main entry

near administrative assistant

adjacent and access to conference room

back door to secondary corridor, desirable

program activities

conferences with students, parents,

teachers, staff, and visitors

curriculum development

research and planning

telephone communications

dealing with personnel issues

coordination of school and support

services

LEGEND ///

● **fixed equipment**

F5 tackable/magnet wall surface

⬡ **loose furnishings**

L4 four-drawer file cabinet

L7 teacher's lockable wardrobe

L11 adjustable height bookshelves (12 LF)

L12 admin workstation

L15 task chair (4-6)

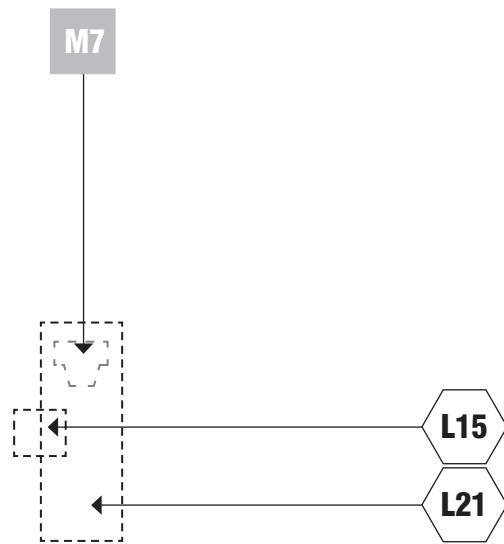
L20 executive chair

L50 small conference table

■ **miscellaneous**

M7 desktop computer

▶ data drop



size

50 SF

capacity

administrative assistants

spatial relationships

see illustration opposite page

located inside the main administrative area directly accessible from entry vestibule

near public restrooms

program activities

workstation for administrative assistant
 second and final access control point prior to accessing the main school security check-point

LEGEND ///

● **fixed equipment**

⬡ **loose furnishings**

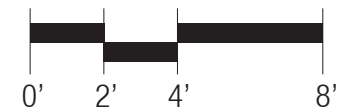
L15 task chair (2)

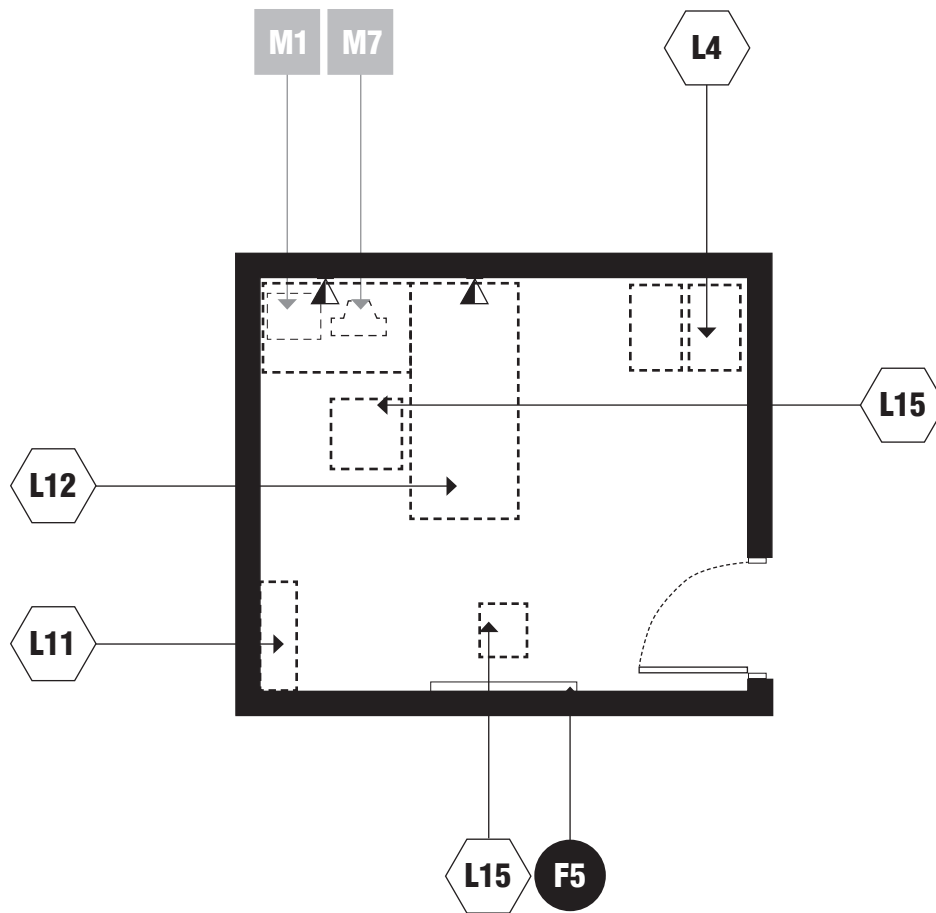
L21 work table for check-in station

miscellaneous

■ M7 desktop computer

▶ data drop





size

120-150 SF

capacity

administrative staff

ancillary spaces

N/A

spatial relationships

adjacent to Welcome Center

adjacent to Records Room

program activities

typing

collating

sorting of Filing

preparing communications for mailing

telephone communications

LEGEND ///

● **fixed equipment**

F5 whiteboard

◻ **loose furnishings**

L11 adjustable height bookshelves

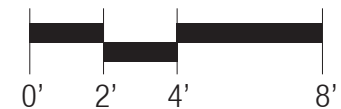
L12 admin work station

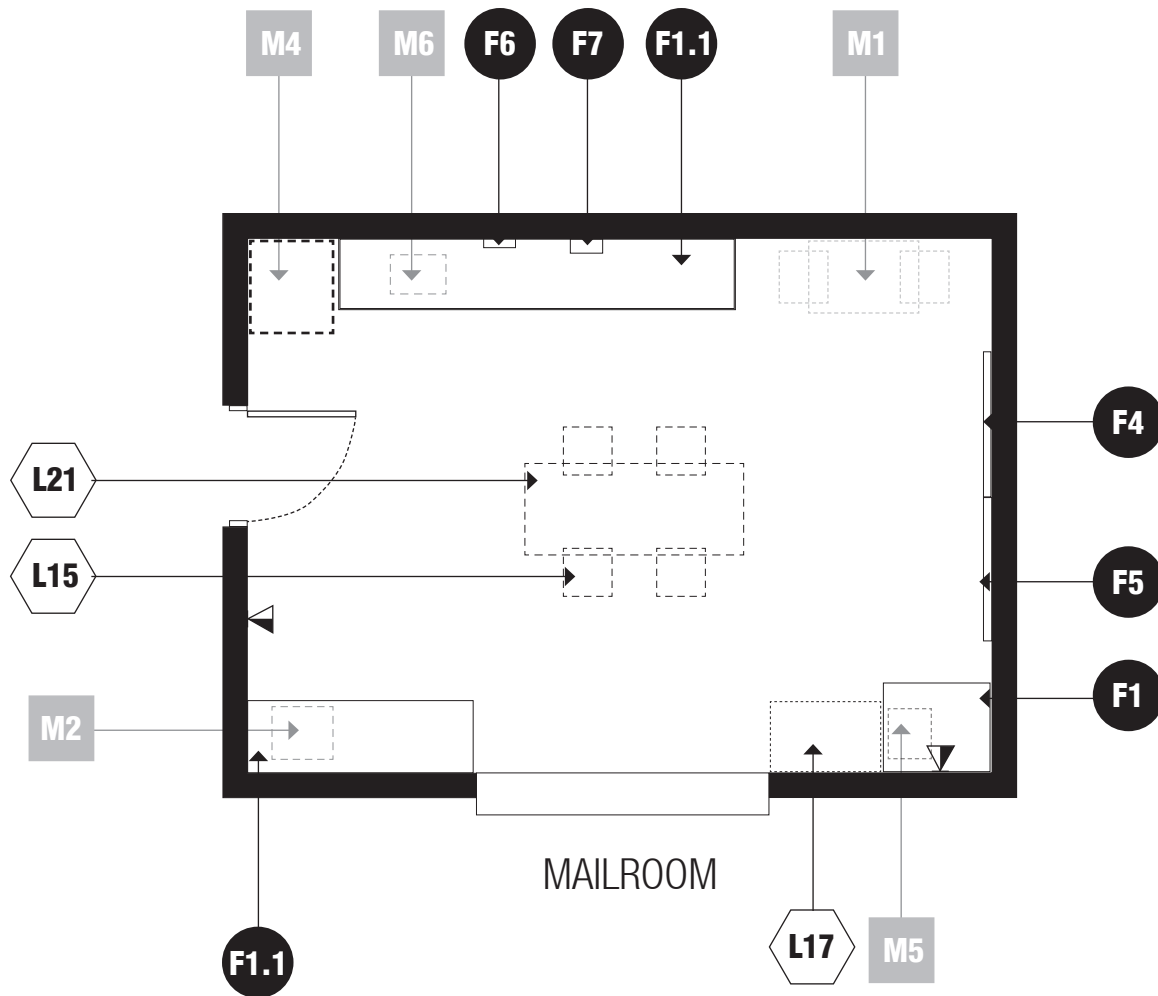
L4 four-drawer file cabinet

L15 ergonomic task chair

L15 guest chair

▶ data drop





PKC-AD /// ADMINISTRATIVE WORKROOM

size

150 SF

capacity

secretaries and administrators
volunteers
staff

ancillary spaces

n/a

spatial relationships

near welcome center
adjacent to mail room

program activities

copying
collating
sorting of files
preparing communications for mailing
binding reports
telephone communications

plumbing

plumbing connections
sink, single/deep bowl

LEGEND ///

● **fixed equipment**

- F1 base/wall cabinets and shelving
- F1.1 casework (base/wall cabinets and shelving)
- F4 marker board (4 LF)
- F5 tackable/magnet wall surface (4 LF)
- F6 soap dispenser
- F7 towel dispenser

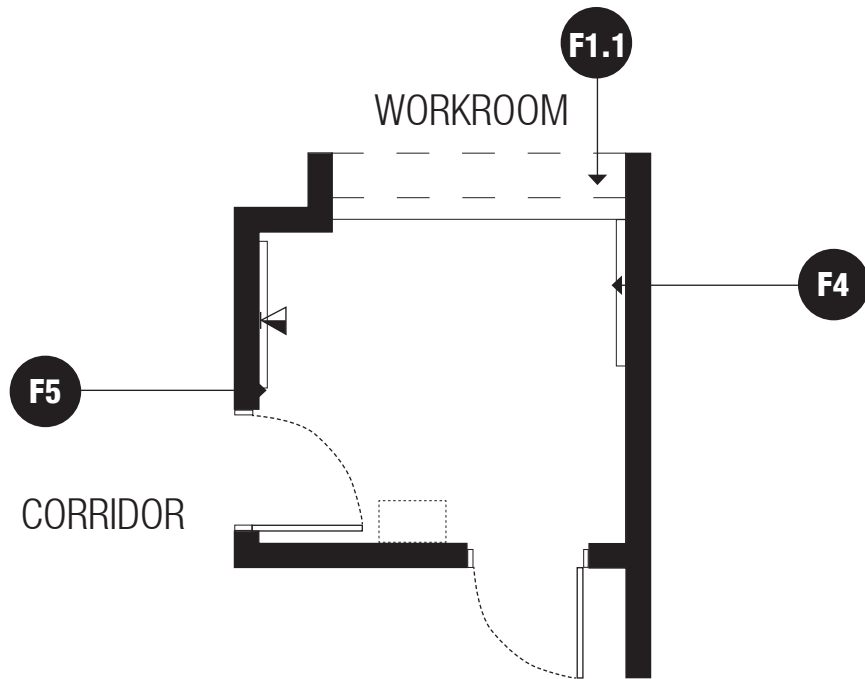
⬡ **loose furnishings**

- L15 task chair (4)
- L17 printer station
- L21 work table

■ **miscellaneous**

- M1 high speed and/or Large format printers
- M2 color printers
- M4 photocopy machine
- M5 digital scanner
- M6 laminator

▶ data drop



size

100 SF

capacity

staff

faculty

ancillary spaces

n/a

spatial relationships

adjacent to administrative workroom

located in administrative area

accessible from main corridor

program activities

delivery of general mail

LEGEND ///

● **fixed equipment**

F1.1 casework - mail slots

12" wide x 6" high x 15" deep

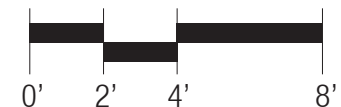
(65, 80, 95 total slots) pass-through

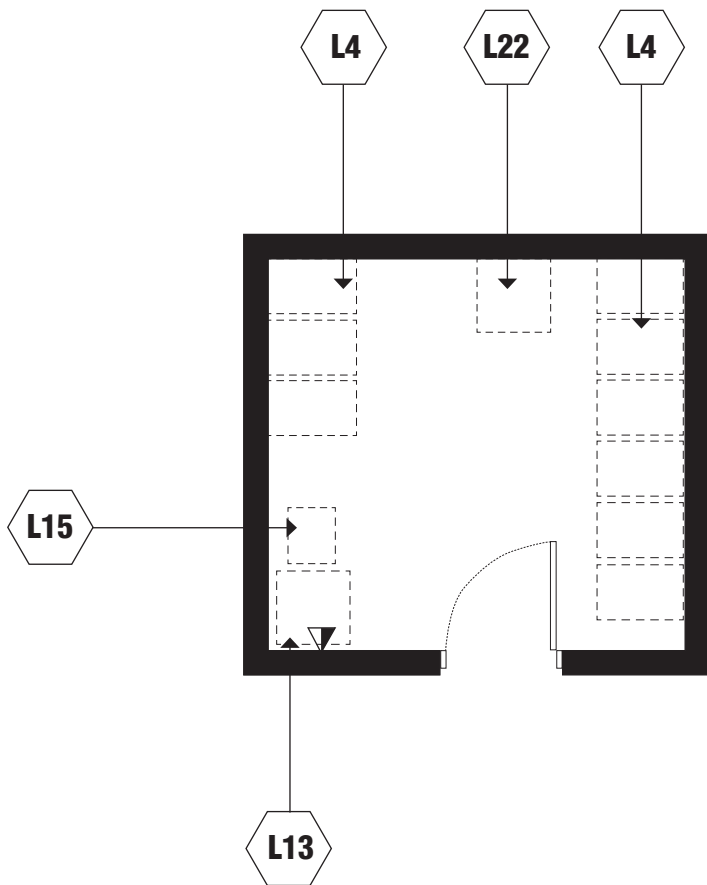
cabinets below

F4 marker board (4 LF)

F5 tackable/magnet wall surface (4 LF)

▶ data drop





PKC-AD /// RECORDS ROOM

size

120 SF

capacity

secretaries
staff

ancillary spaces

n/a

spatial relationships

near main office

program activities

storing of money and other valuable
items

storage of files and records

accessible to administration staff

LEGEND ///



loose furnishings

L4 four-drawer file cabinet (8-10 fireproof
file cabinets)

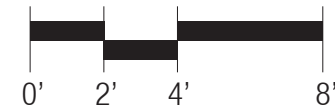
L13 small table

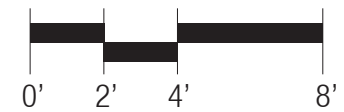
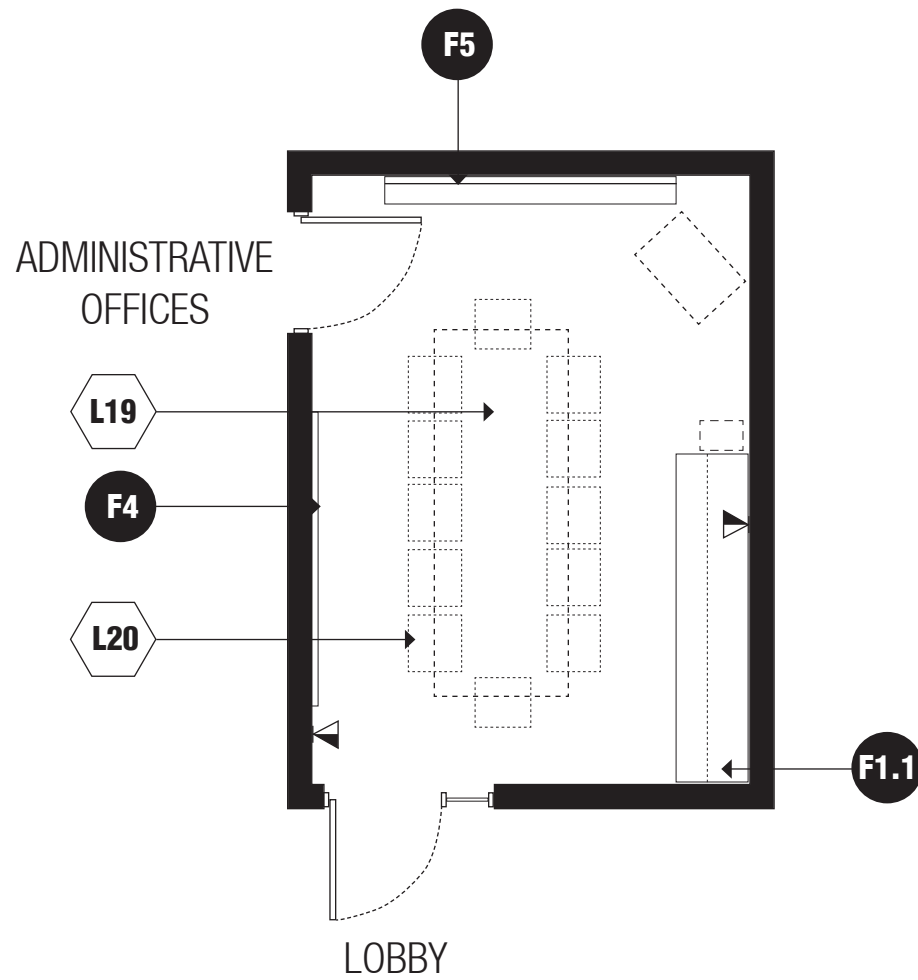
L15 chair

L22 safe



data drop





size

200 SF

capacity

staff

family and students

ancillary spaces

n/a

spatial relationships

near welcome center

centrally located within administrative

area

program activities

conferences with staff, students, parents,

and visitors

LEGEND ///

● **fixed equipment**

F1.1 casework (6 LF)

F4 marker board (8 LF)

F5 tackable/magnet wall surface (8LF)

◡ **loose furnishings**

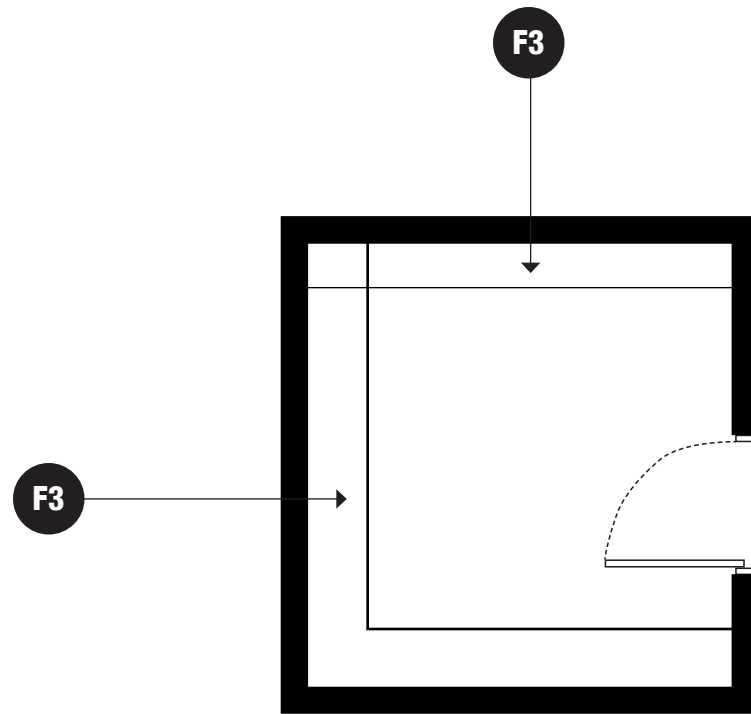
L19 conference table (with table technology

installations-VGA jacks, data outlets,

power outlets, etc.)

L20 executive chairs (12)

▶ data drop



size

150 SF

capacity

n/a

ancillary spaces

n/a

spatial relationships

adjacent and access to administrative offices

program activities

secure storage

environmental considerations

uniform lighting

security of door

finishes

flooring:

resilient tile flooring

base:

resilient base

ceiling:

exposed structure

walls:

painted concrete masonry units

fire suppression

fire suppression system

HVAC

supply/return air system

electrical

single level switching

fluorescent lighting

duplex receptacles

electronic safety and security

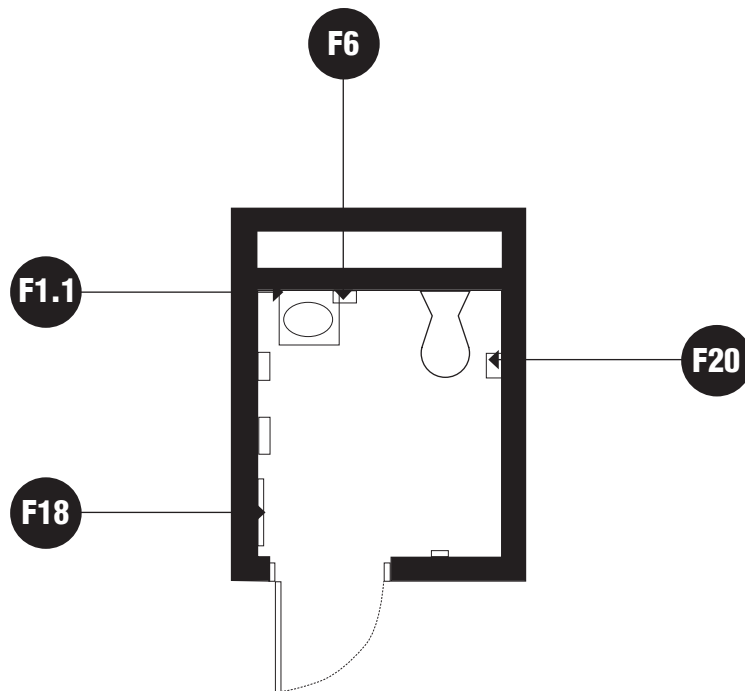
life safety devices per code

LEGEND ///**● fixed equipment**

F3 wall shelving (12" and 18" deep)

NOTES //

1. Finishes/features: refer to _____ for specification references.
2. Loose furnishings and features shown represent one of many possible solutions.



size

50 SF

capacity

staff

spatial relationships

near welcome center

near principal's office

plumbing

wall-mounted water closet

wall-mounted lavatory

plumbing connections

floor drain

LEGEND ///

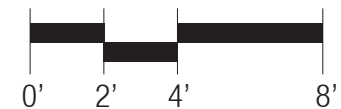
● **fixed equipment**

F1.1 casework (wall cabinet)

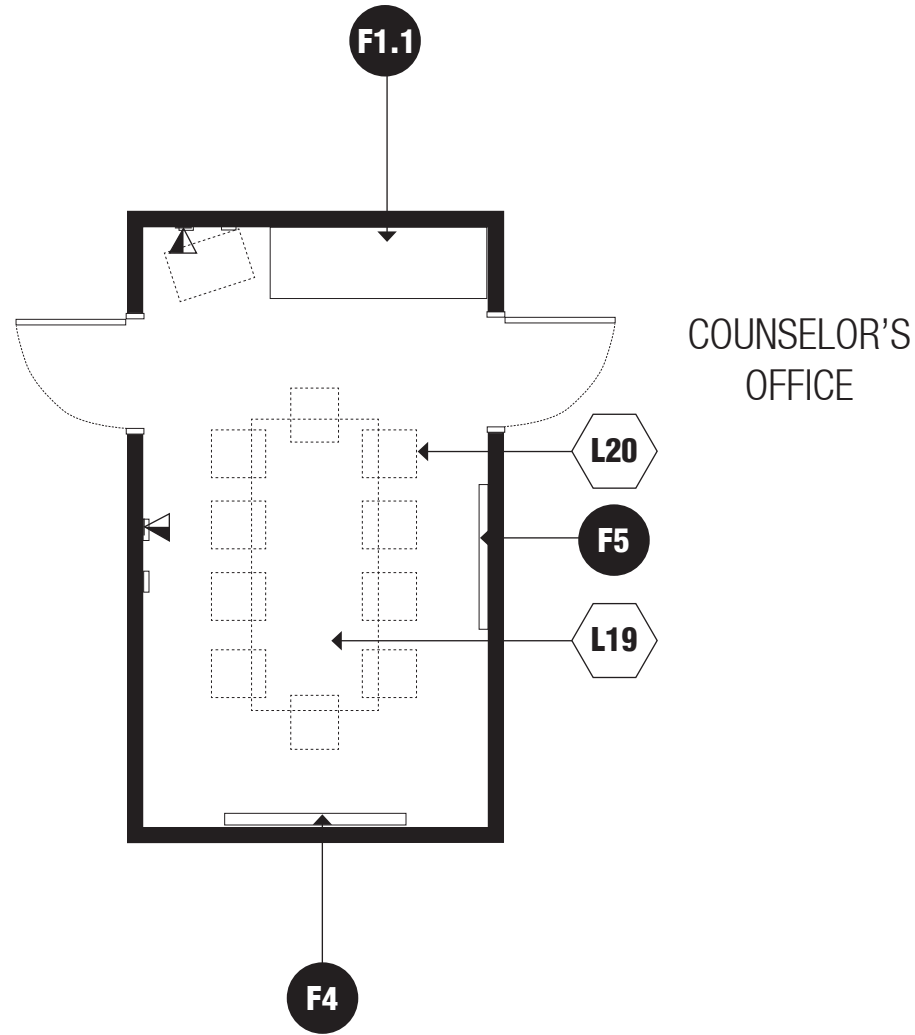
F7 towel dispenser

F18 mirror

F20 bathroom accessories



THIS PAGE IS LEFT BLANK INTENTIONALLY



size

150 SF

capacity

staff

students

parents

visitors

ancillary spaces

n/a

spatial relationships

adjacent and access to counselor's office

adjacent to parent or welcome space

program activities

conferences with staff, students, parents,
and visitors

IEP meetings

LEGEND ///

● **fixed equipment**

F1.1 casework (6 LF)

F4 marker board (8 LF)

F5 tackable/magnet wall surface (4 LF)

⬡ **loose furnishings**

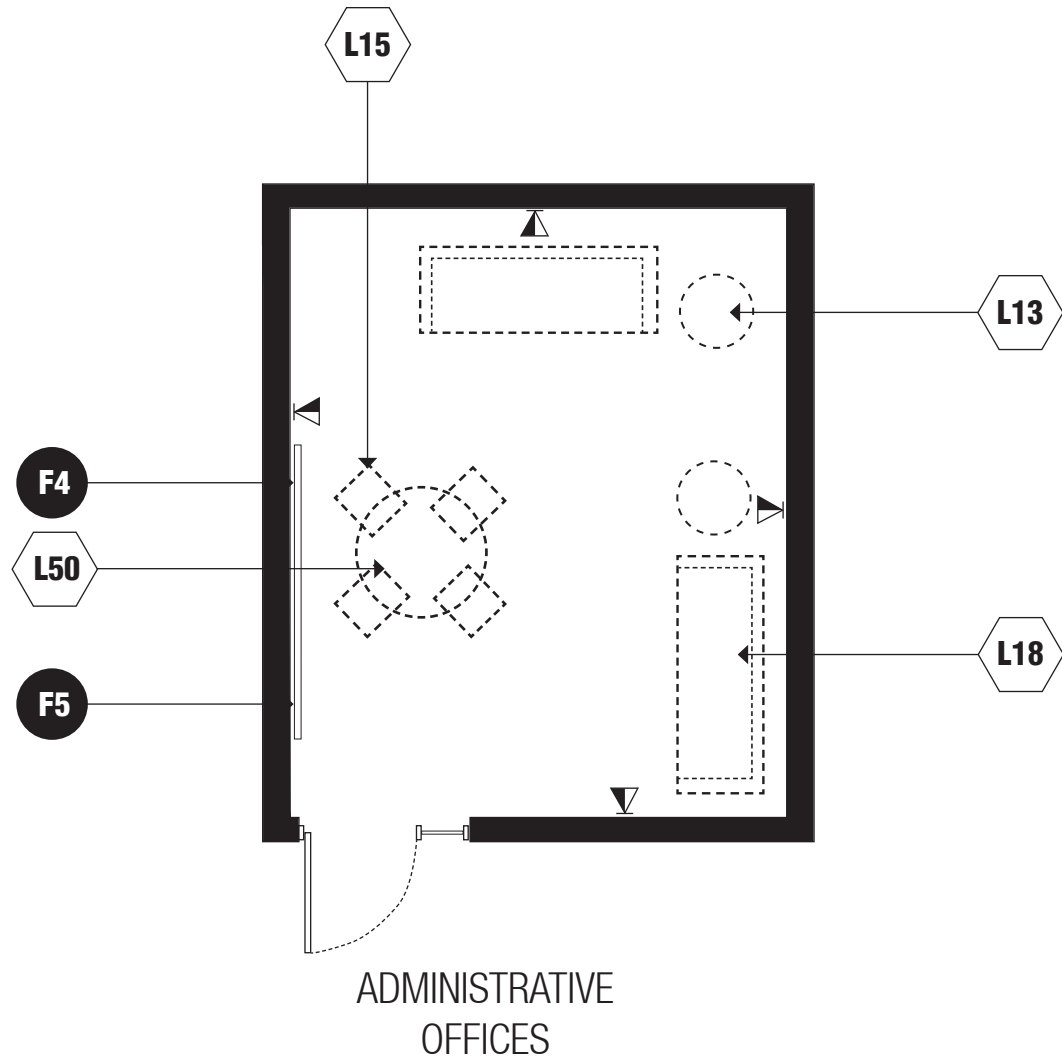
L19 conference table (with table technology

installations- VGA jacks, data outlets,

power outlets, etc.)

L20 executive chairs (10)

▶ data drop



PKC-AD /// TEACHER'S LOUNGE

size

300 SF

capacity

staff

7-10 teachers

ancillary spaces

n/a

spatial relationships

near welcome center

centrally located within administrative area

program activities

teacher gathering

LEGEND ///

● **fixed equipment**

F4 marker board (8 LF)

F5 tackable/magnet wall surface (8LF)

⬡ **loose furnishings**

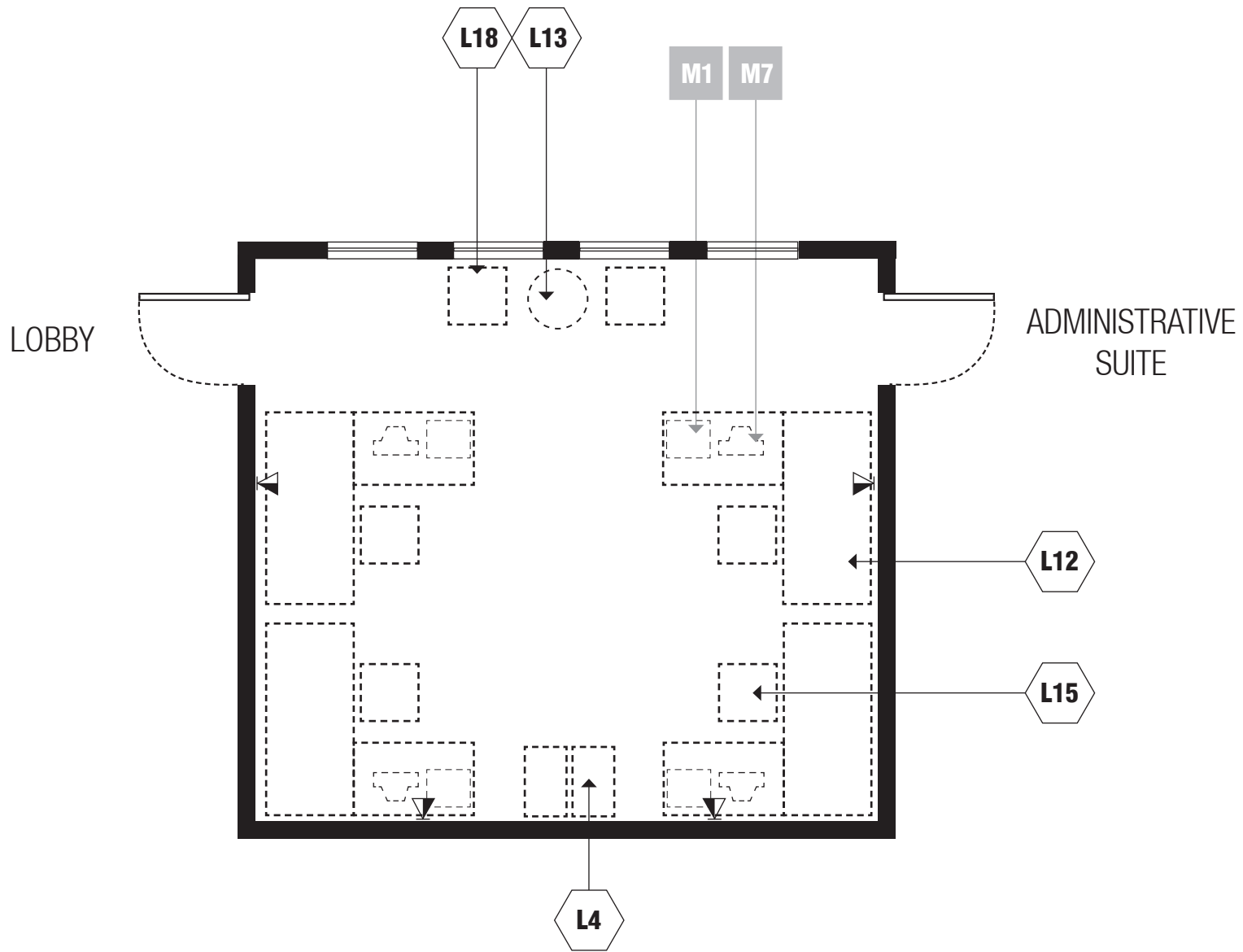
L13 small table

L15 task chair (4-6)

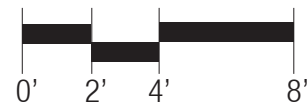
L18 lounge chair and/or couch

L50 small conference table

▶ data drop



PKC-AD /// HEAD START FAMILY SERVICES OFFICE



size

525 SF

capacity

administrative staff
4-6 workstations
visitors/parents

spatial relationships

see illustration opposite page
located inside the main administrative
area
located near lobby

program activities

typing
collating
sorting of Filing
preparing communications for mailing
telephone communications

LEGEND ///

● **fixed equipment**

⬡ **loose furnishings**

- L4 four-drawer file cabinet
- L12 admin work station
- L13 small table
- L15 ergonomic task chair
- L18 lounge chair

■ **miscellaneous**

- M1 high speed and/or large format printers
- M7 desktop computer

▶ data drop

PKC-CF /// **CHILD FIND**

CHILD FIND SPECIALIST OFFICE
SPEECH PATHOLOGIST OFFICE
PSYCHOLOGIST OFFICE
SPED COORDINATOR OFFICE
EDUCATIONAL EVALUATORS OFFICE
RECEPTIONIST
SOCIAL WORKER
WAITING AREA
OBSERVATION ROOM
SCREENING ROOM
RESTROOM
FAMILY RESTROOM
CONFERENCE ROOM
STORAGE ROOM

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|-------------------------------|-----------------|-----------|--------------|--------------|
| ADMINISTRATION | | | | |
| Child Find Specialist Office | 1 | 120 | 120 | |
| Speech Pathologist Office | 1 | 120 | 120 | |
| Psychologist Office | 1 | 120 | 120 | |
| SPED Coordinator Office | 1 | 150 | 150 | |
| Educational Evaluators Office | 2 | 120 | 240 | |
| Receptionist | 1 | 100 | 100 | |
| Social Worker | 1 | 120 | 120 | |
| Waiting Area | 1 | 300 | 300 | |
| Observation Room | 1 | 400 | 400 | |
| Screening Room | 1 | 400 | 400 | |
| Restroom | 2 | 50 | 100 | |
| Family Restroom | 2 | 160 | 320 | |
| Conference Room | 1 | 400 | 400 | |
| Storage Room | 1 | 50 | 50 | |
| Total | | | 2,940 | |

Comments //

NOTE: Child Find is optional and site-specific.

The overall total for the administration area may be + or - 10%. Some areas may be combined to facilitate circulation. Some areas (*) may be located outside of the suite to make the best use of the existing building.

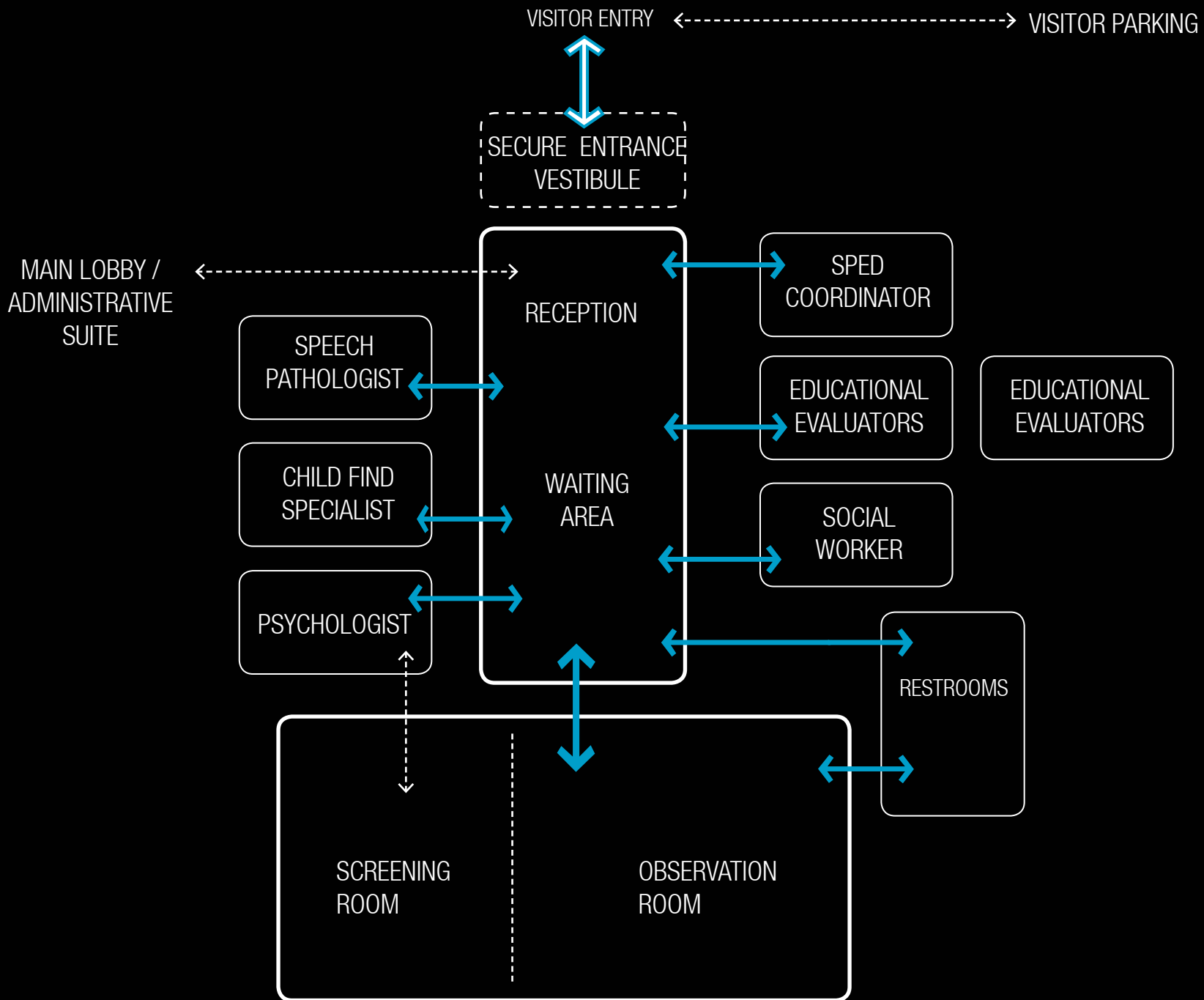
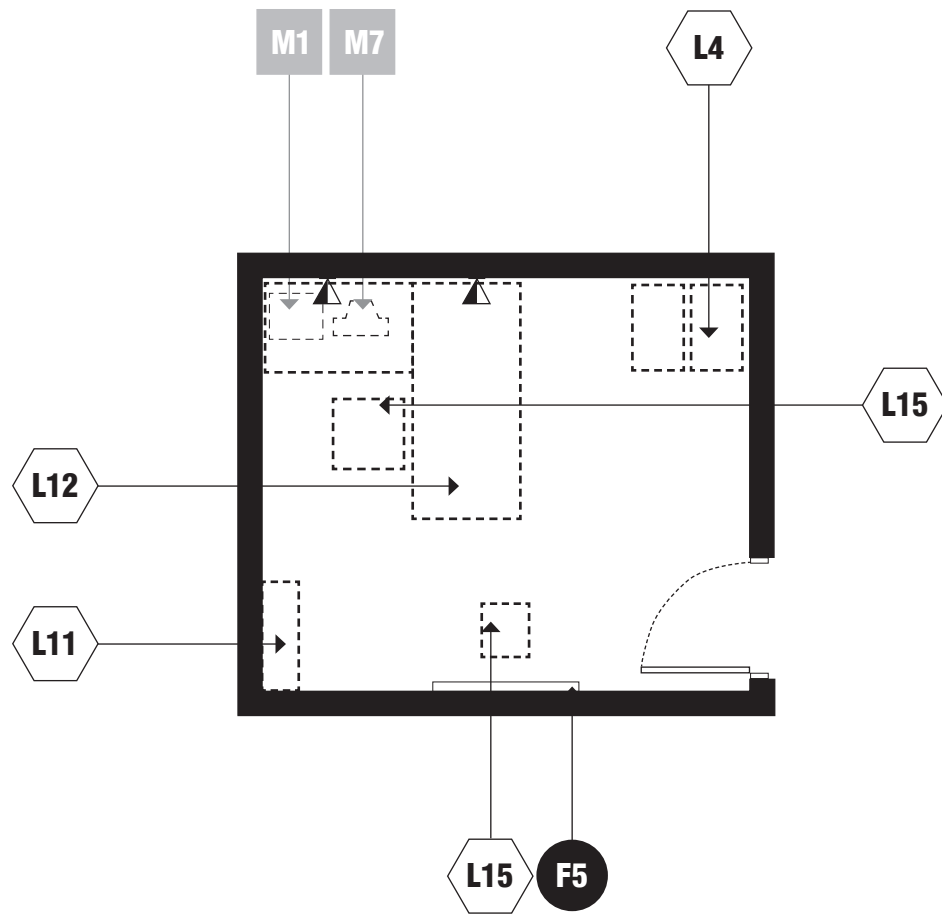


FIG. 10.0 // CHILD FIND ADJACENCY DIAGRAM



PKC-CF /// OFFICE, TYPICAL



size

150 SF

capacity

administrative staff

ancillary spaces

n/a

spatial relationships

adjacent to Welcome Center

adjacent to Records Room

program activities

typing

collating

sorting of Filing

preparing communications for mailing

telephone communications

LEGEND ///

● **fixed equipment**

F5 whiteboard

⬡ **loose furnishings**

L11 adjustable height bookshelves

L12 admin work station

L4 four-drawer file cabinets

L15 ergonomic task chair

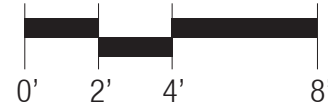
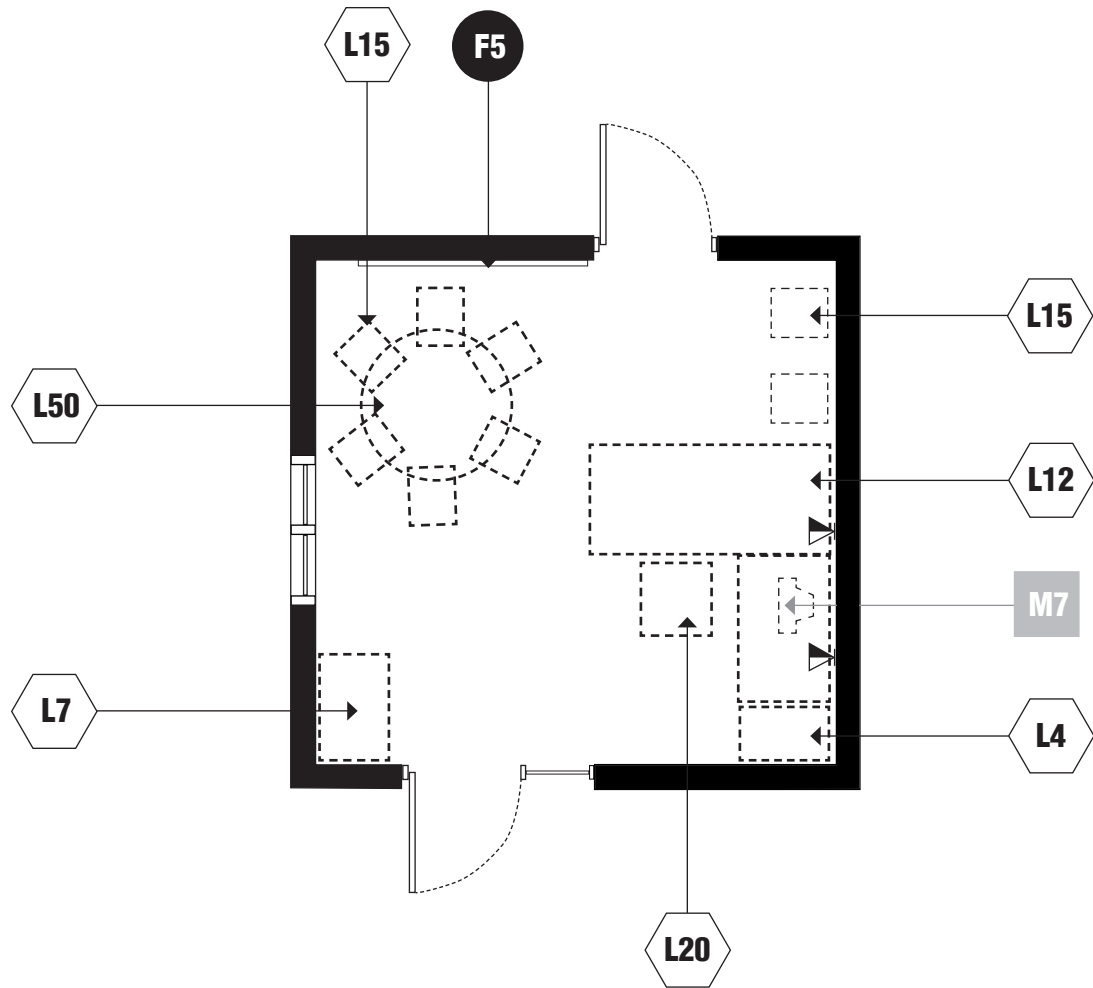
L15 guest chair

■ **miscellaneous**

M1 high speed and/or large format
printers

M7 desktop computer

▶ **data drop**



PKC-CF /// OFFICE SPED COORDINATOR

size

150 SF

capacity

SPED coordinator
parents and teachers

ancillary spaces

conference Room

spatial relationships

near main entry
near administrative assistant
adjacent and access to conference room
back door to secondary corridor, desirable

program activities

conferences with students, parents,
teachers, staff, and visitors
curriculum development
research and planning

LEGEND ///

● **fixed equipment**

F5 tackable/magnet wall surface

⬡ **loose furnishings**

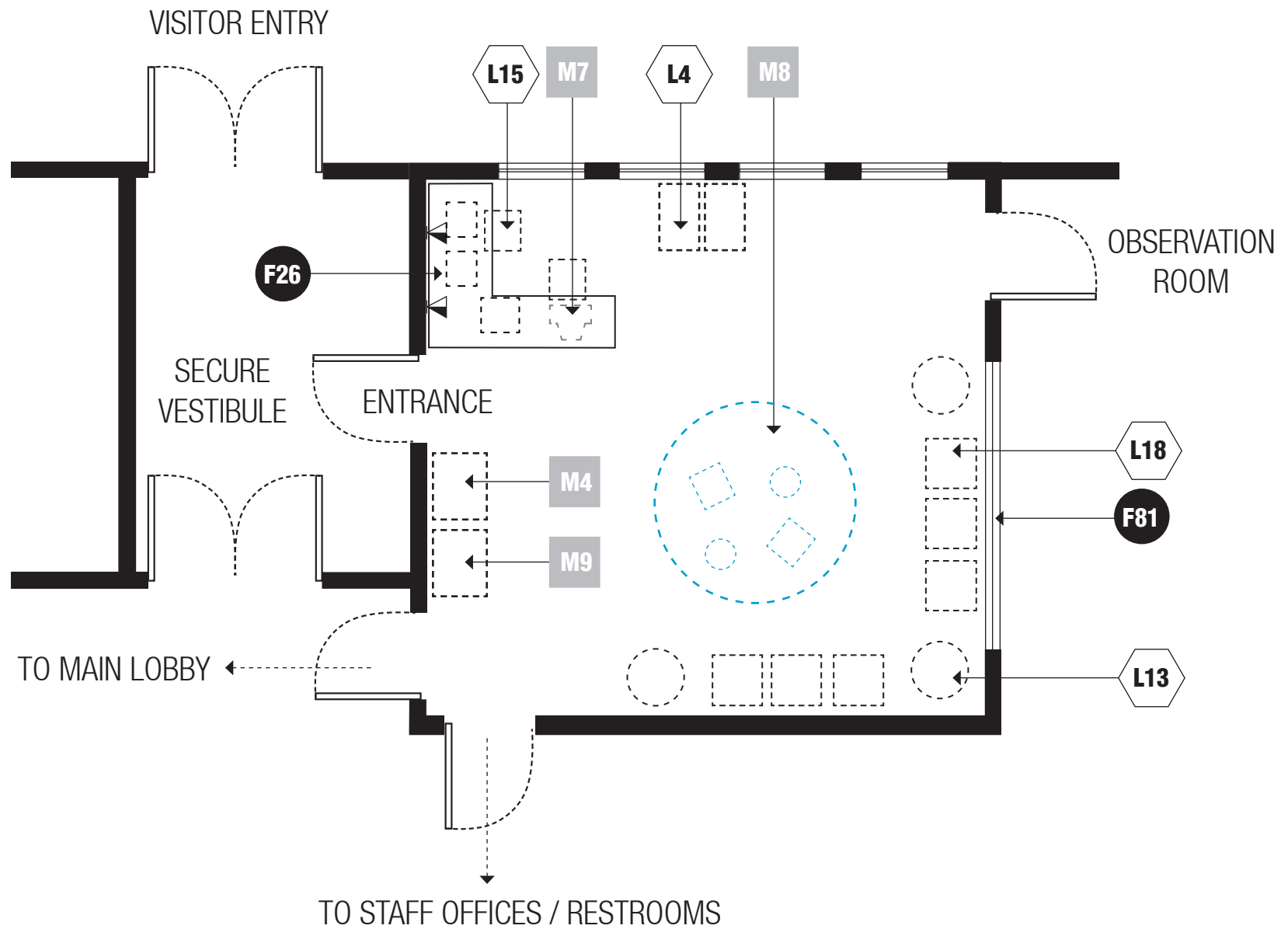
L4 four-drawer file cabinet
L7 teacher's lockable wardrobe
L12 admin workstation
L15 task chair (4-6)
L20 executive chair
L50 small conference table

miscellaneous

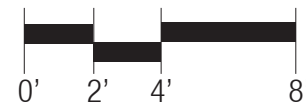
■ M7 desktop computer

data drop





PKC-CF // WAITING AREA



size

300 SF

capacity

administrative assistants
visitors/parents
students

spatial relationships

see illustration opposite page
located near the main administrative
area directly accessible from entry
vestibule
near public restrooms
maximize views to exterior and main entry
separate visitor entry
closet (lockable)
adjacent to observation room

program activities

greeting visitors
student waiting/pick up area
workstation for administrative assistant
second and final access control point
prior to accessing the main school
security check-point

LEGEND ///

● fixed equipment

F5 tackable/magnet wall surface (8 LF)
F26 reception counter (finish carpentry)
F81 two-way mirror

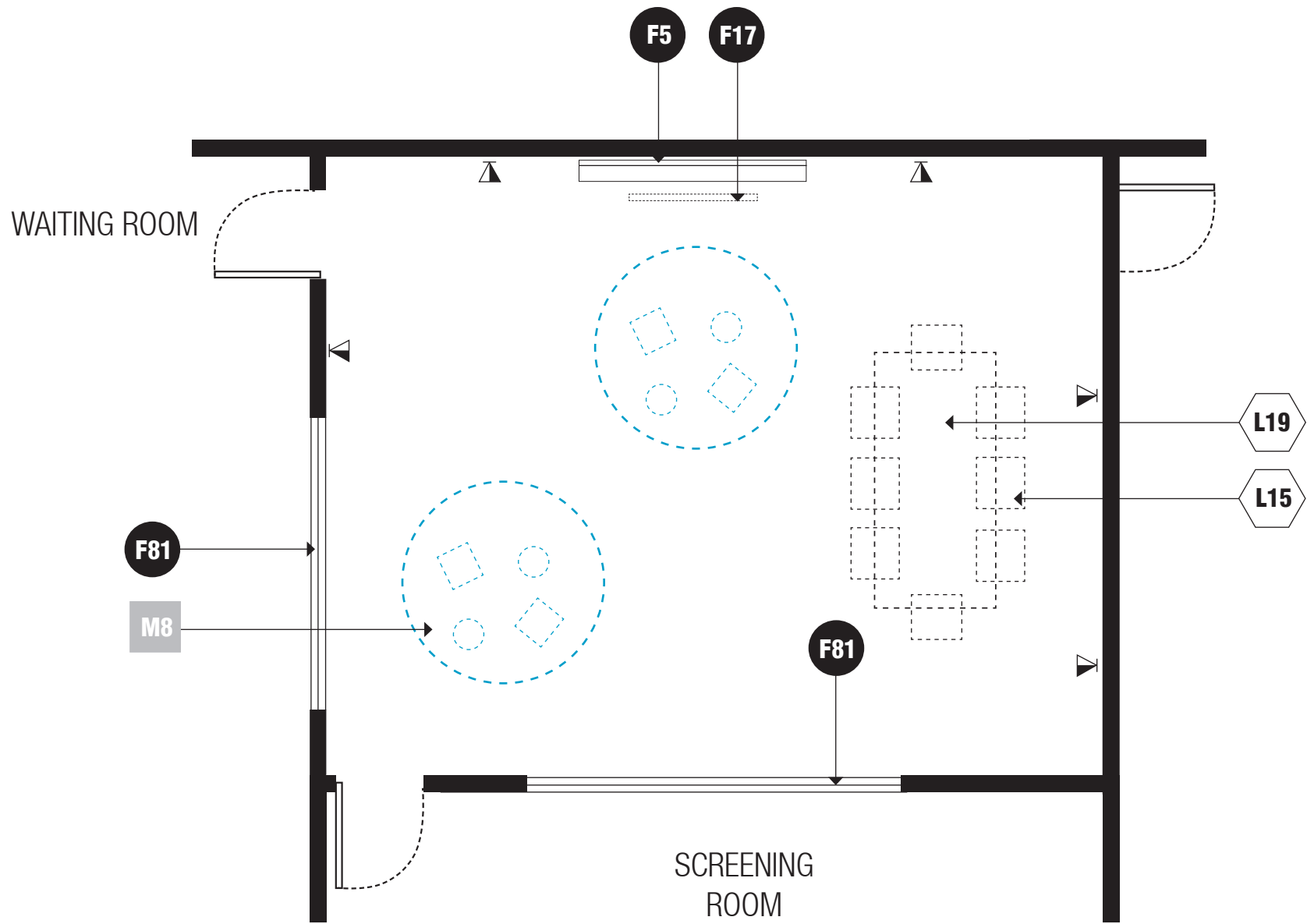
⬡ loose furnishings

L4 four-drawer filing cabinet
L13 small table (3)
L15 task chair (2)
L18 lounge chairs (4-6)
L21 work table for check-in station

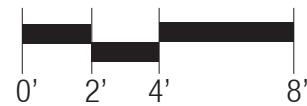
■ miscellaneous

M4 large copier
M7 desktop computer
M8 child's play area
M9 large shredder

▶ data drop



PKC-CF /// OBSERVATION ROOM



size

400 SF

capacity

administrative staff
visitors/parents
students

spatial relationships

see illustration opposite page
located near the main administrative
near public restrooms
adjacent to waiting room and screening
rooms

program activities

evaluating students
gathering point
interaction between students

LEGEND ///

● **fixed equipment**

F5 tackable/magnet wall surface (8 LF)
F17 audio/video recording and playback
equipment
F81 two way mirror

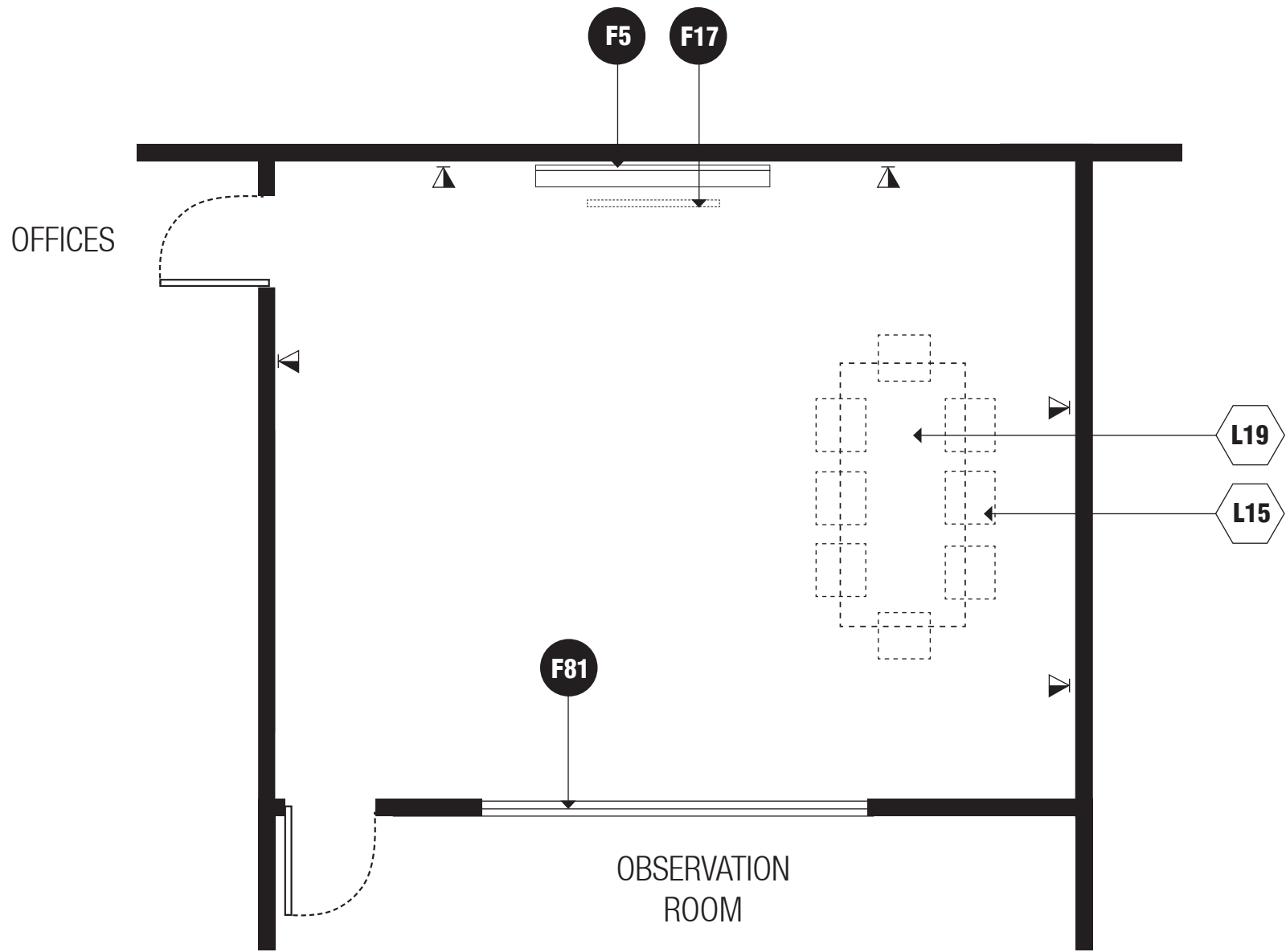
◡ **loose furnishings**

L15 task chair (2)
L19 Conference table (with table technology
installations-VGA jacks, data outlets,
power outlets, etc.)

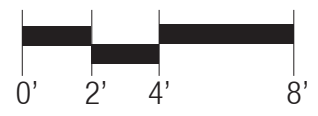
■ **miscellaneous**

M8 childs play area

▶ data drop



PKC-CF /// SCREENING ROOM



size

400 SF

capacity

administrative staff

spatial relationships

see illustration opposite page

located near the main administrative

near public restrooms

adjacent to waiting room and observation
room

program activities

evaluating students

gathering point

LEGEND ///

● **fixed equipment**

F5 tackable/magnet wall surface (8 LF)

F17 audio/video recording and playback
equipment

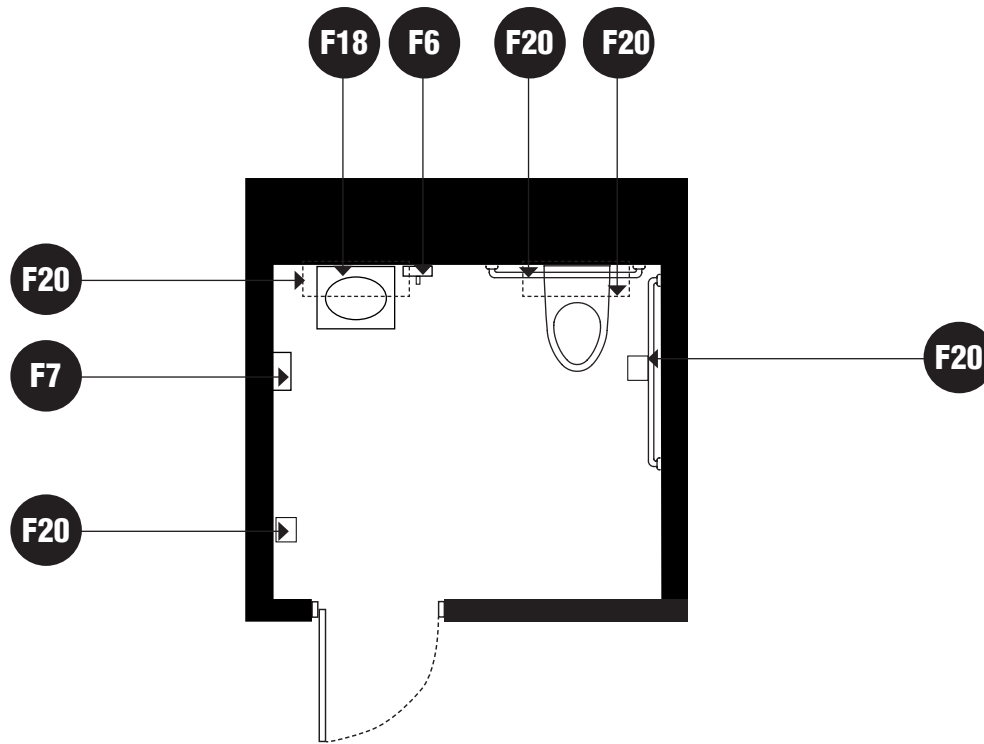
F81 two way mirror

⬡ **loose furnishings**

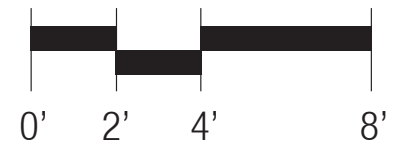
L15 task chair (2)

L19 Conference table (with table technology
installations-VGA jacks, data outlets,
power outlets, etc.)

▶ data drop



PKC-CF /// RESTROOM



size

50 SF

capacity

1 person

spatial relationships

near reception / waiting area
accessible from staff offices

program activities

personal and health needs for teachers,
staff, and other individuals

environmental considerations

uniform lighting
environmental sound control -
wall minimum STC 53
ceiling minimum CAC 35, NRC 0.40
moisture and stain resistant finishes

finishes

flooring:

ceramic tile

base:

resilient base
optional - ceramic mosaic tile or
porcelain tile

ceiling:

suspended, acoustical

walls:

painted concrete masonry units

fire suppression

fire suppression system

plumbing

wall-mounted water closet

wall-mounted lavatory
plumbing connections
floor drain

HVAC

exhaust air system
supplemental heat as required

electrical

single level switching
fluorescent lighting
duplex receptacles
leveler

communications

central sound system

electronic safety and security

life safety devices per code

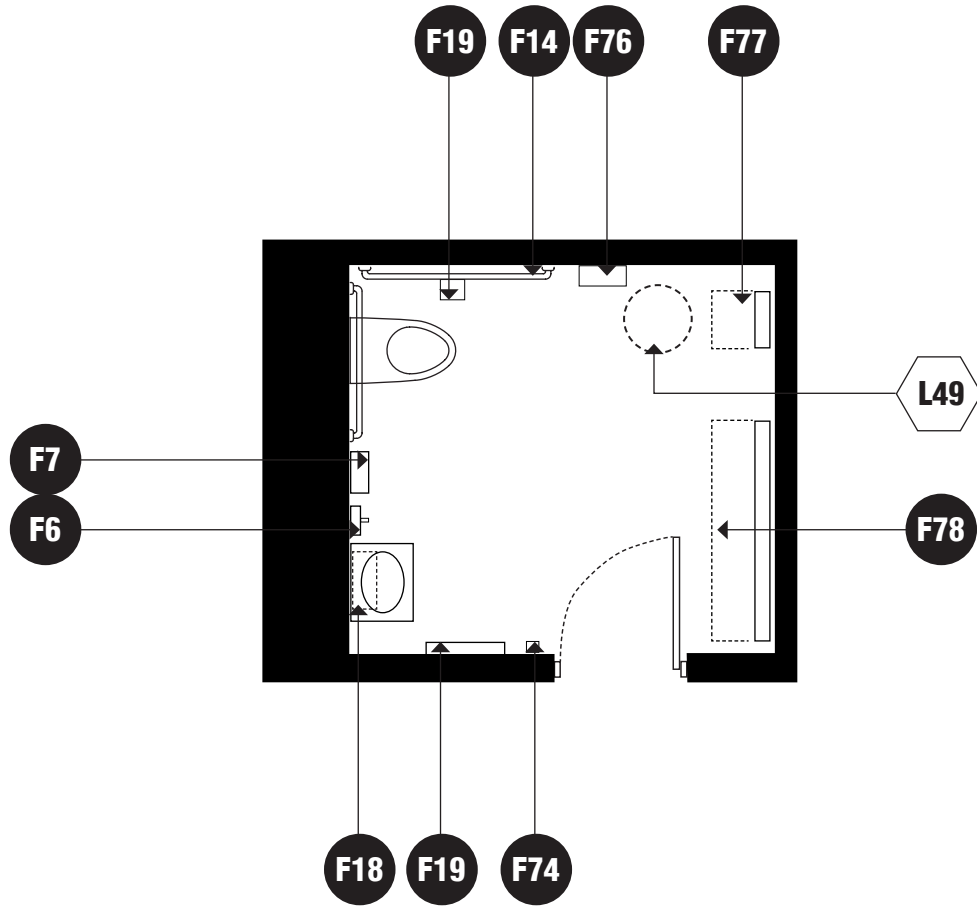
LEGEND ///

● fixed equipment

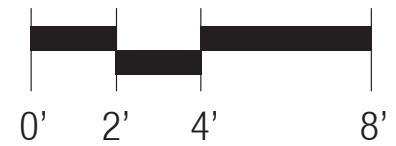
F6 soap dispenser
F7 towel dispenser
F18 mirror (24" x 60")
F20 bathroom accessories

NOTES //

1. Extend walls above ceiling to deck above for security and acoustical reasons.
2. Provide staff restrooms for both men and women.
3. Each pair of staff restrooms should be distributed throughout the building at appropriate locations.



PKC-CF /// FAMILY RESTROOM



size

160 SF

capacity

2 people

spatial relationships

located in the administrative area, but accessible to all building occupants

program activities

personal, health, and handicap needs for all building occupants

environmental considerations

uniform lighting
environmental sound control - wall minimum STC 53
ceiling minimum CAC 35, NRC 0.40
moisture and stain resistant finishes

finishes

flooring

ceramic tile

base

resilient base
optional - ceramic mosaic tile or porcelain tile or resinous flooring

ceiling

suspended, acoustical

walls

painted concrete masonry units

fire suppression

fire suppression system

plumbing

wall-mounted water closet
wall-mounted lavatory
plumbing connections
floor drain

HVAC

exhaust air system
supplemental heat as required

electrical

single level switching
fluorescent lighting
illumination level: See Table 7600-16
(1) duplex receptacle

communications

central sound system

electronic safety and security

life safety devices per code

LEGEND ///

● **fixed equipment**

- F7 towel dispenser
- F18 24" x 60" mirror
- F19 toilet tissue holder
- F14 (36" and 42") grab bar
- F6 soap dispenser
- F76 sanitary napkin dispenser/disposal
- F55 folding utility shelf
- F77 mounted child seat

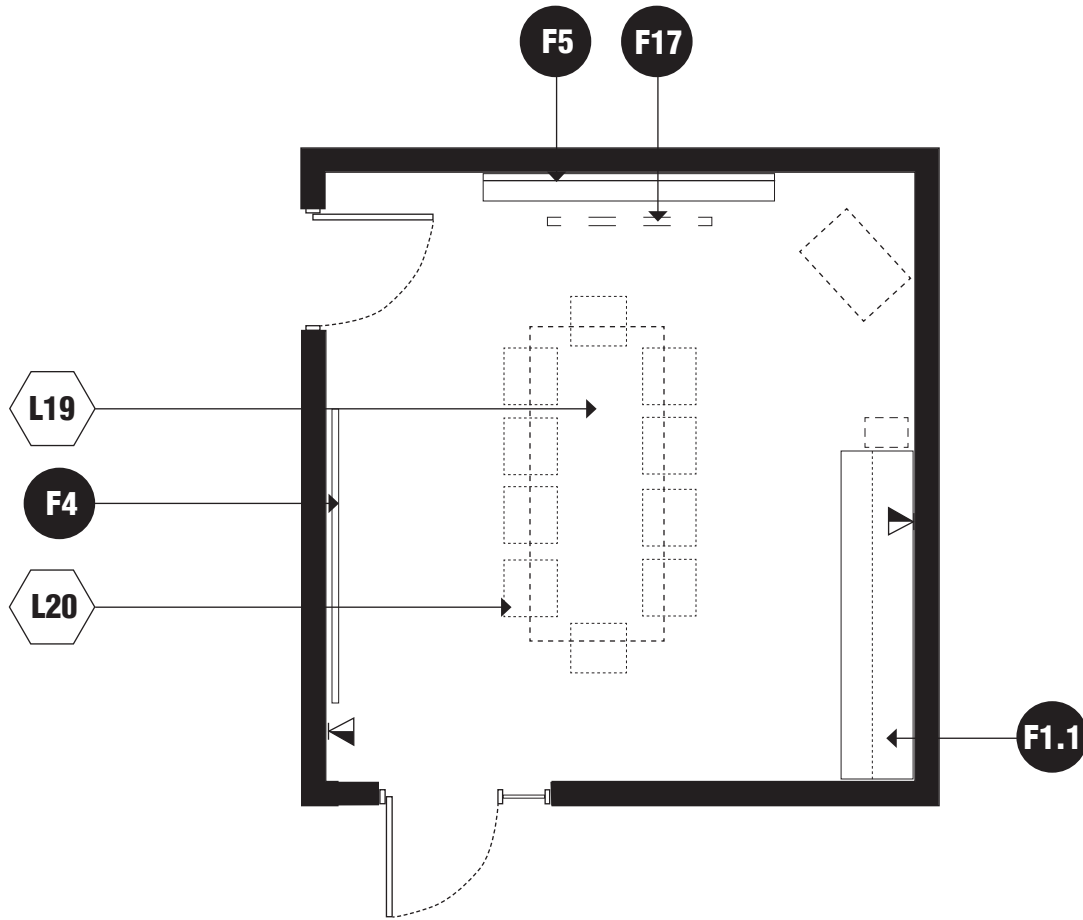
- F78 adult/child changing station
- F18 (16" x 24") mirror with shelf
- F74 coat hooks

⬡ **loose furnishings**

- L49 wastebasket

NOTES //

1. Finishes/features: refer to _____ for specification references.



PKC-CF /// CONFERENCE ROOM



size

400 SF

capacity

staff

ancillary spaces

n/a

spatial relationships

near welcome center

centrally located within administrative
child find area

program activities

conferences with staff, students, parents,
and visitors

LEGEND ///

● **fixed equipment**

F1.1 casework (6 LF)

F4 marker board (8 LF)

F5 tackable/magnet wall surface (8LF)

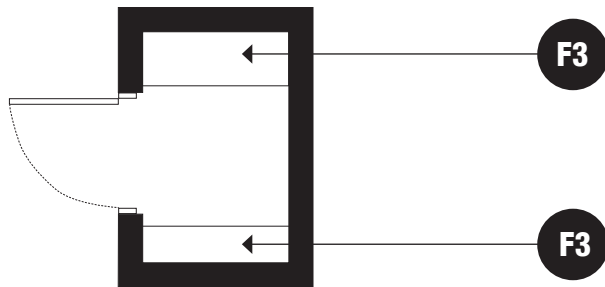
F17 audio/video recording and playback
equipment

◡ **loose furnishings**

L19 Conference table (with table technology
installations-VGA jacks, data outlets,
power outlets, etc.)

L20 Executive chairs (12)

▶ data drop



size

50 SF

capacity

n/a

ancillary spaces

office/waiting area

program activities

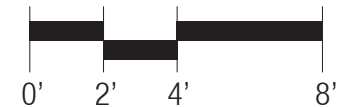
storing of testing protocol and office supplies
security of door

LEGEND ///

● **fixed equipment**

F3 wall shelving (12" deep)

F3 wall shelving (18" deep)



PKC-CF /// **STORAGE ROOM**

THIS PAGE IS LEFT BLANK INTENTIONALLY

PKC-HS /// **HEALTH SUITE**

STORAGE

TOILET

COTS

OFFICE

EXAM ROOM

WAITING AREA

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|-----------------------|-----------------|-----------|--------------|--------------|
| ADMINISTRATION | | | | |
| Storage | 1 | 25 | 25 | |
| Toilet | 1 | 50 | 50 | |
| Cots | 1 | 100 | 100 | |
| Office | 1 | 100 | 100 | |
| Exam Room | 1 | 100 | 100 | |
| Waiting Area | 1 | 100 | 100 | |
| Total | | | 475 | |

Comments //

The overall total for the health suite area may be + or - 10%. Some areas may be combined to facilitate circulation.

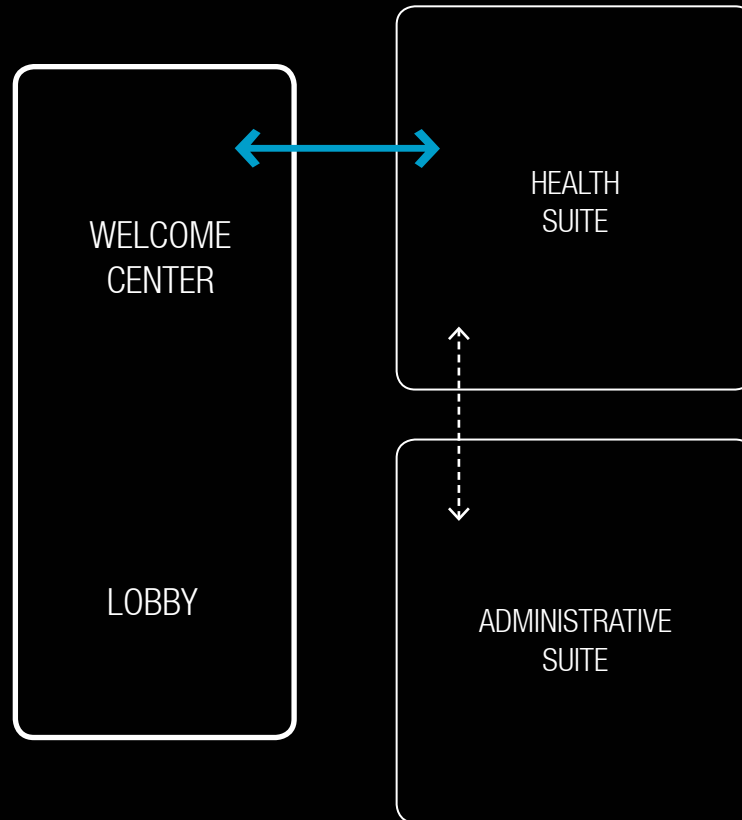
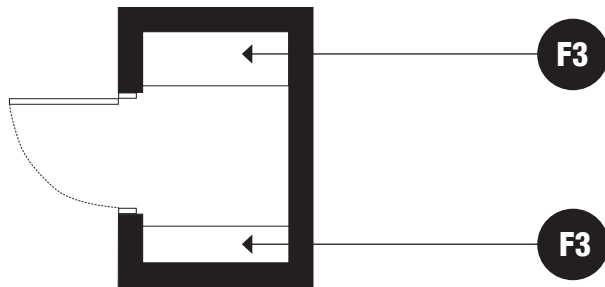


FIG. 11.0 // HEALTH SUITE ADJACENCY DIAGRAM



size

25 SF

capacity

staff

ancillary spaces

office/waiting area (E-AD-15)

program activities

storing chemicals, equipment, and supplies

environmental conditions

security of equipment, supplies, and

medicines

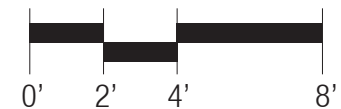
security of door

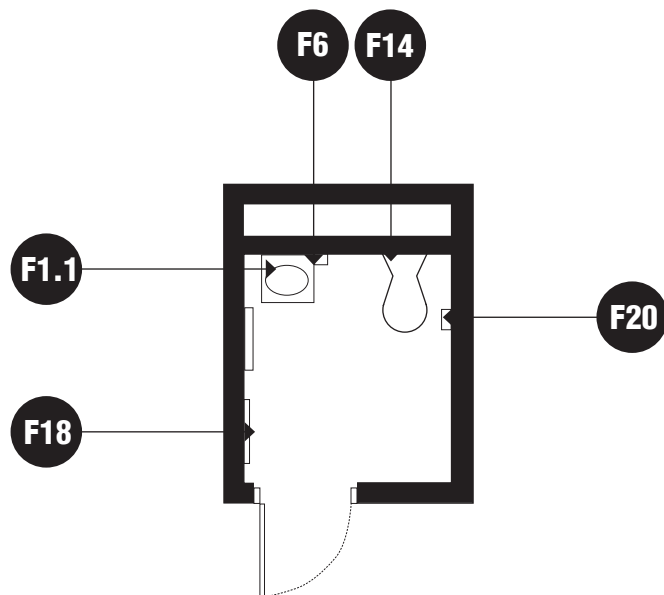
LEGEND ///

● **fixed equipment**

F3 wall shelving (12" deep)

F3 wall shelving (18" deep)





size

50 SF

capacity

staff

students

ancillary spaces

located near the cots within the health suite

plumbing

wall mounted water closet (deep well)

wall mounted lavatory

shower

plumbing connections

floor drain

LEGEND ///

● **fixed equipment**

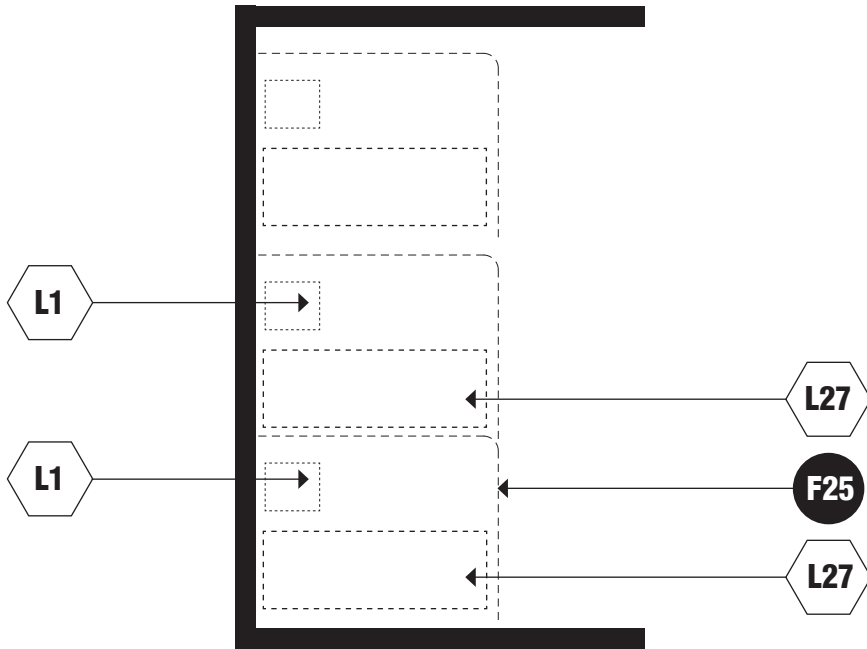
F1.1 casework: wall cabinet

F6 soap dispenser

F18 mirror (24"x60")

F20 bathroom accessories





size

100 SF

capacity

staff
students

ancillary spaces

located near the toilet in the health suite

program activities

a resting place for students and staff
when feeling ill

LEGEND ///

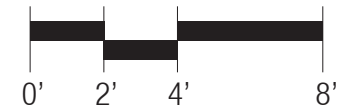
● **fixed equipment**

F25 treatment cubicle curtains

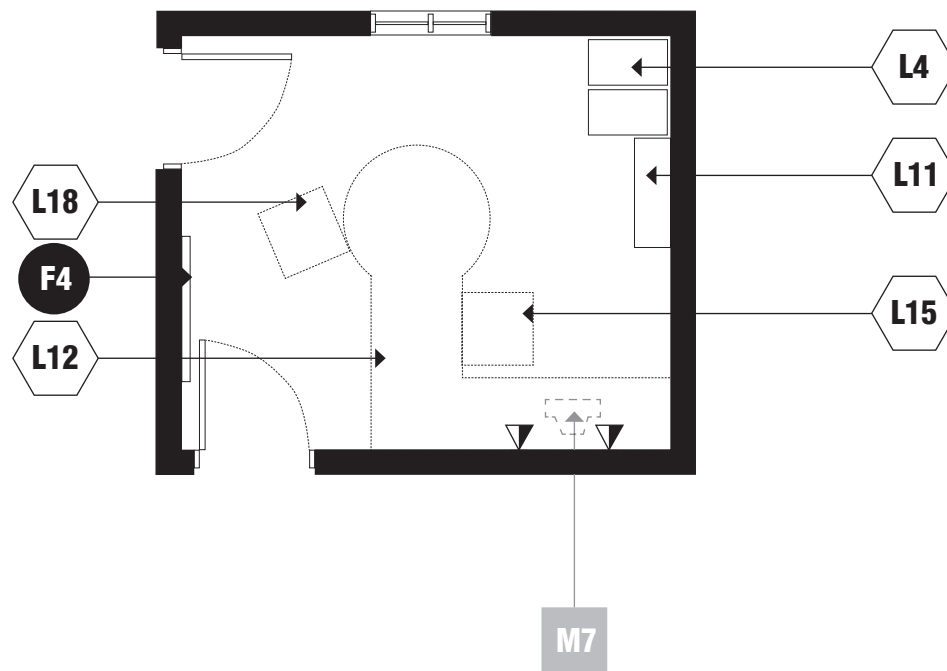
○ **loose furnishings**

L1 stackable/nesting chairs (2)

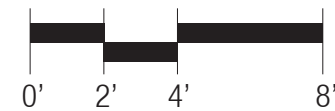
L27 health suite cot (2)



THIS PAGE IS LEFT BLANK INTENTIONALLY



PKC-HS /// OFFICE



size

100 SF

capacity

- staff
- students
- parents
- visitors

ancillary spaces

- exam area
- cots
- storage

program activities

- meeting area for students, parent or guardian
- administrative activities by school nurse
- private conversations

environmental conditions

- independent temperature controls and operable window
- health suites should comply with CDC requirements for number of air exchanges per hour to help prevent spreading illness
- prefer not to have automated or low-flow sinks

LEGEND ///

● **fixed equipment**

F4 marker board

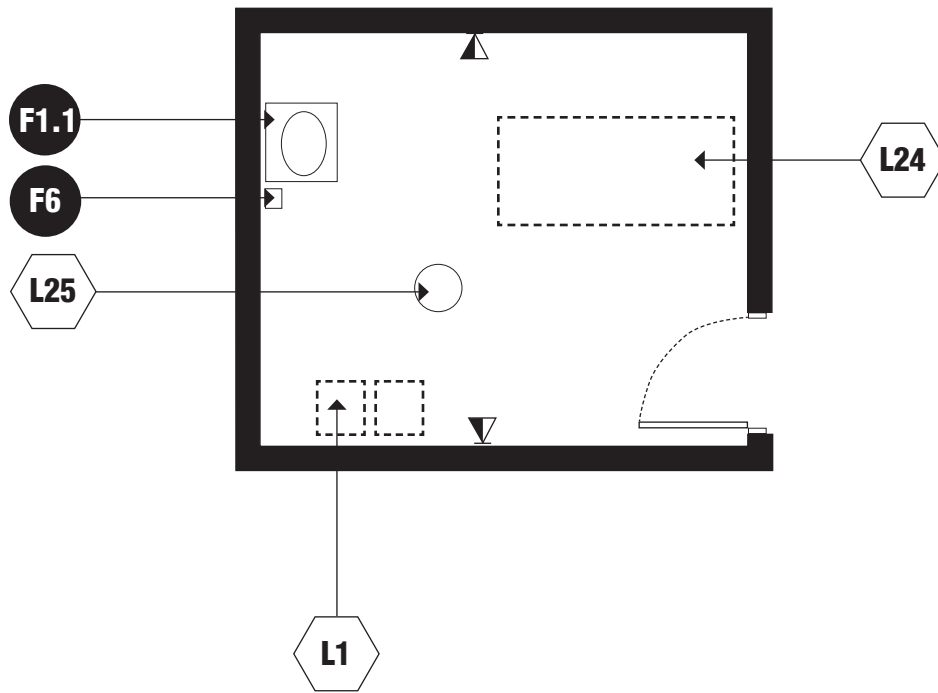
⬡ **loose furnishings**

- L4 four-drawer file cabinet
- L11 adjustable height bookshelves
- L12 admin workstation
- L15 task chair
- L18 lounge chair

■ **miscellaneous**

M7 desktop computer

▶ data drop



PKC-HS /// EXAM ROOM



size

100 SF

capacity

administrative staff
students

ancillary spaces

waiting room
cots
toilet

spatial relationships

adjacent to welcome center
adjacent to administrative suite

program activities

examining

plumbing

plumbing connections:
deep sink with hands-free gooseneck

LEGEND ///



fixed equipment

F1.1 casework: wall cabinet
F6 soap dispenser

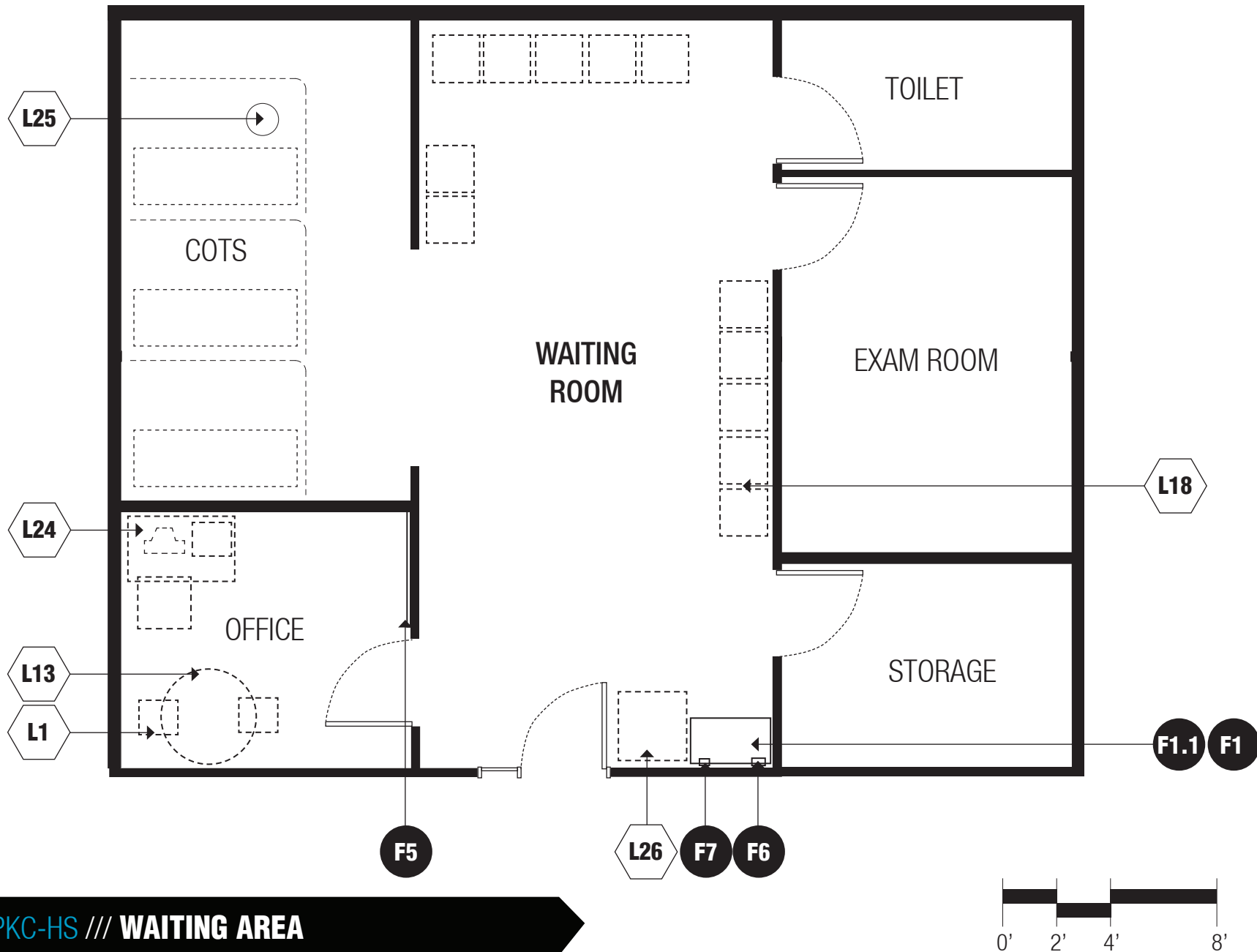


loose furnishings

L1 stackable/nesting chairs
L24 mobile exam table
L25 nurse stool



data drop



PKC-HS /// WAITING AREA

size

100 SF

capacity

1 nurse
students

ancillary spaces

nurse's office
cots
storage
toilet/shower
waiting/area
office for partners

spatial relationships

near welcome center
near lobby entrance

program activities

first aid
consultation with students
health screening
medical treatments
medication administration
student resting while awaiting pick-up by
parent or guardian

environmental conditions

stain-resistant floor covering
sink with hot and cold water
adequate ventilation
visual control to office/waiting or
welcome center

LEGEND ///

● **fixed equipment**

F1 base/wall cabinets and shelving (place for
refrigerator connected to back-up generator)
F1.1 casework (seamless, non-porous counter)
F5 tackable/magnet wall surface
F6 soap dispenser
F7 towel dispenser
F25 treatment cubicle curtain

◻ **loose furnishings**

L1 stackable/nesting chairs (2-3)
L13 small table
L18 lounge chairs
L24 mobile exam table
L25 nurse stool
L26 refrigerator (lockable)

PKC-SD /// **STUDENT DINING**

CHAIR AND TABLE STORAGE
LOCKERS / TOILET
FOOD PREP AREA
FOOD SERVICE OFFICE
SERVING AREA
DRY FOOD STORAGE
FREEZER / COOLER
WARE WASHING
CLEANING STORAGE

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|--|-----------------|-----------|--------------|--------------|
| DINING AND SCHOOL NUTRTION SERVICES | | | | |
| Chair and Table Storage | 1 | 225 | 225 | |
| Lockers / Toilet | 1 | 200 | 200 | |
| Food Prep Area | 1 | 650 | 650 | |
| Food Service Office | 1 | 100 | 100 | |
| Serving area | 1 | 500 | 500 | |
| Dry Food Storage | 1 | 300 | 300 | |
| Freezer / Cooler | 1 | 300 | 300 | |
| Ware Washing | 1 | 200 | 200 | |
| Cleaning Storage | 1 | 50 | 50 | |
| Total | | | 2,525 | |

Comments //

The overall total area may be + or – 10%. The existing dining area and the kitchen are undersized for the proposed capacity. If these spaces are replaced, the school would like to keep the current dining as a multi-purpose area if feasible. If this area is expanded, the room should be dividable.

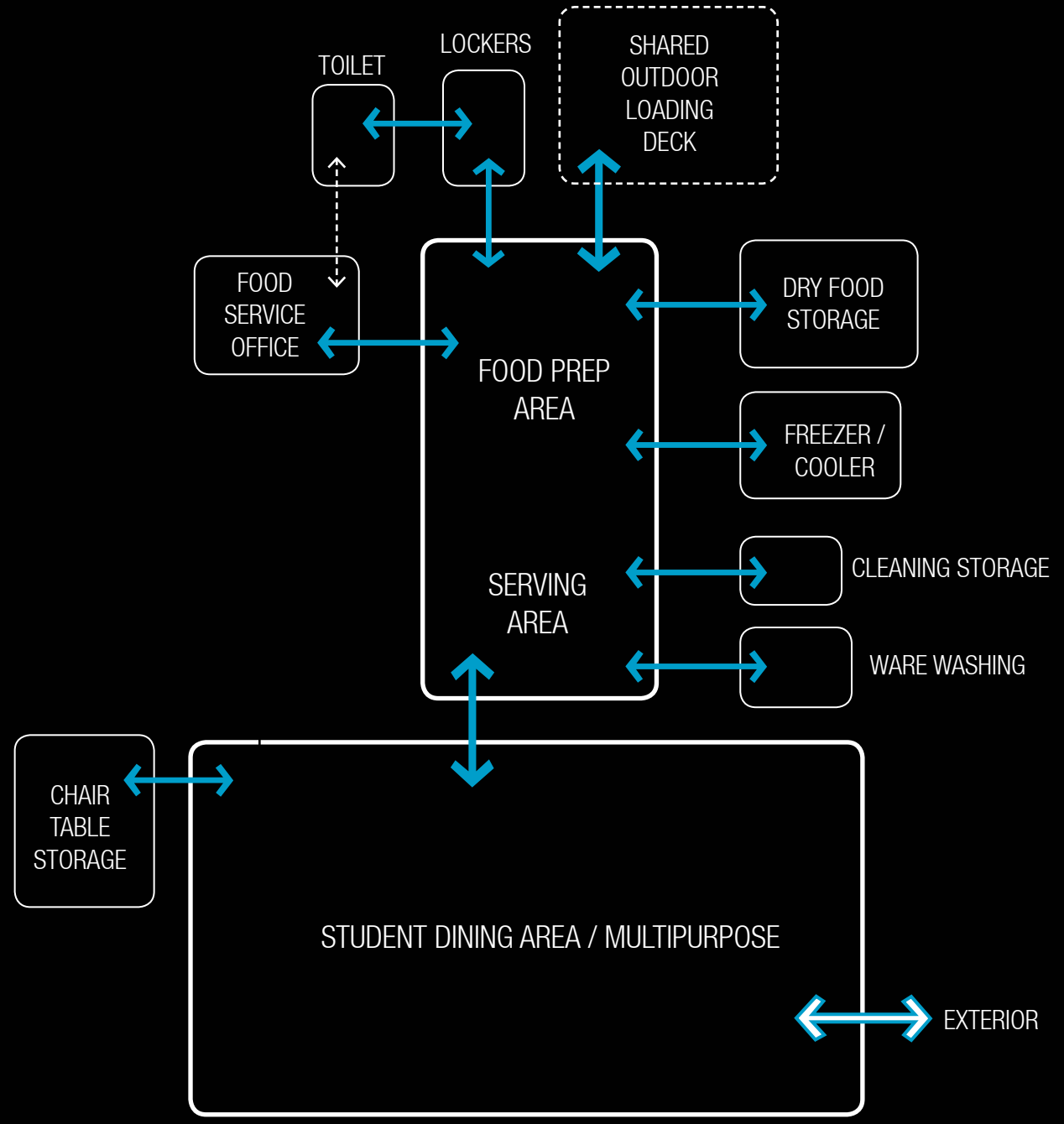
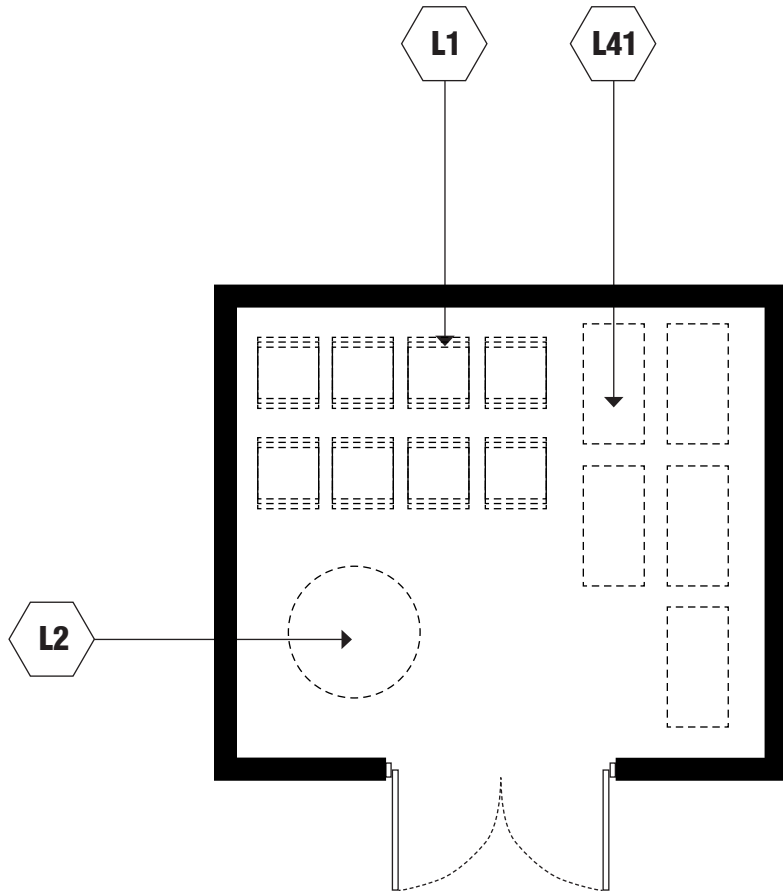


FIG. 12.0 // STUDENT DINING ADJACENCY DIAGRAM



size

50 SF

capacity

n/a

ancillary spaces

student dining area / multipurpose

spatial relationships

adjacent and access to student dining

area / multipurpose

may provide back of stage access

program activities

storage

environmental considerations

uniform lighting

cleanable and resilient building surfaces

accessibility for moving furniture in and

out

LEGEND ///

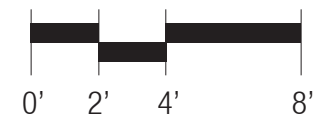


loose furnishings

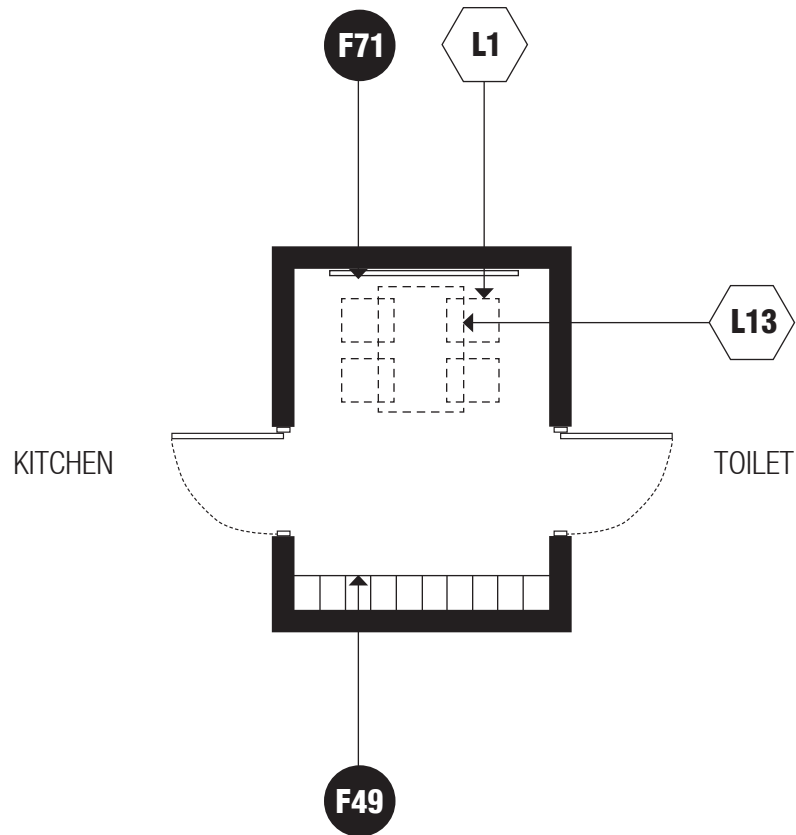
L1 stackable/nesting chairs (stacked)

L2 stackable/nesting tables (stacked)

L41 chair dollies



PKC-SD /// CHAIR AND TABLE STORAGE



size

200 SF

capacity

food service personnel

ancillary spaces

kitchen

program activities

space for the storage of towels, aprons, etc.

space to allow food staff personnel to take breaks

LEGEND ///

● **fixed equipment**

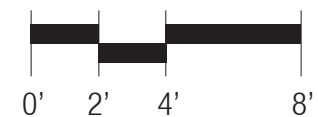
F49 lockers

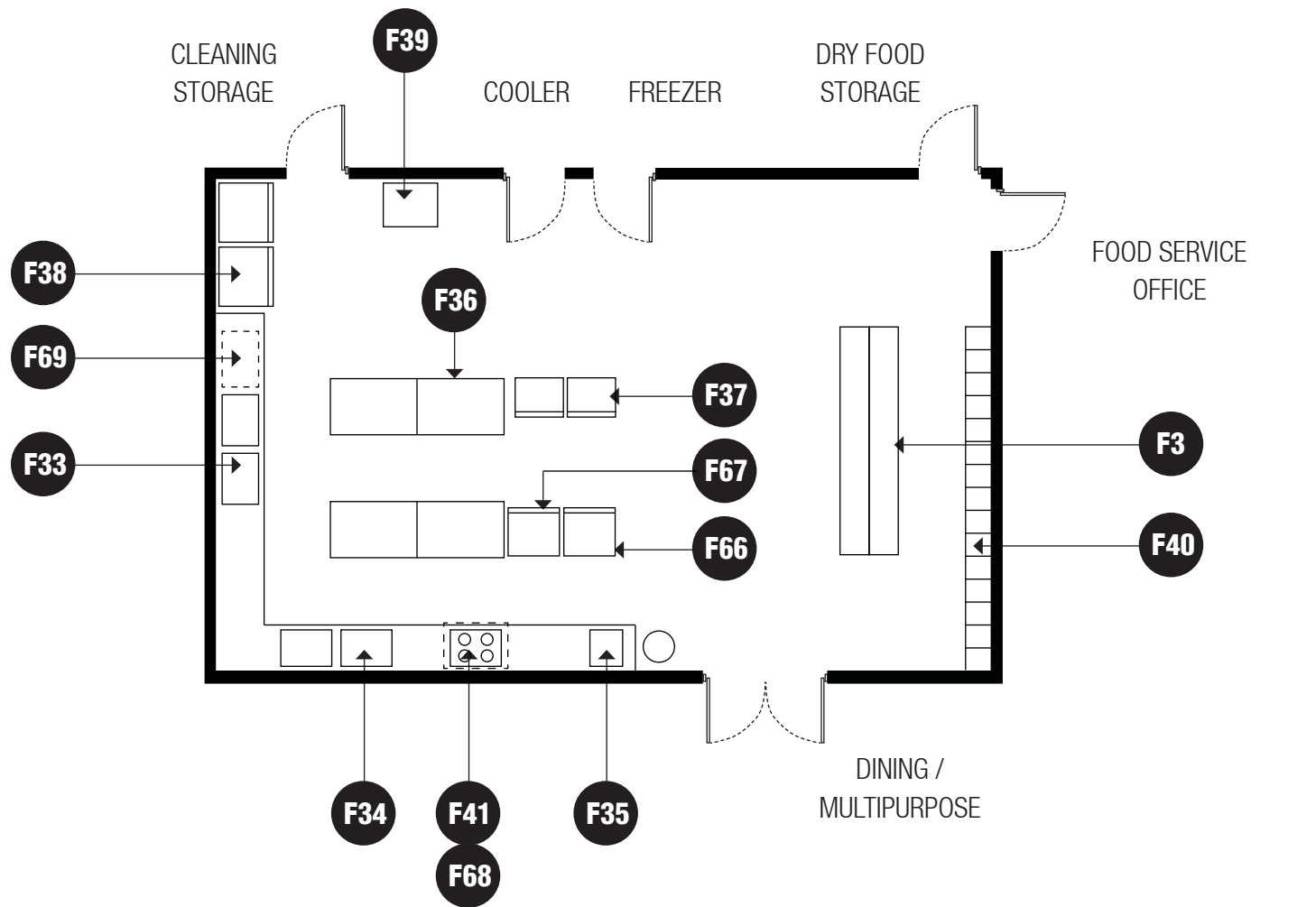
F71 tack board (4 LF)

⬡ **loose furnishings**

L1 stackable/nesting chairs (4-6)

L13 small table





PKC-SD /// FOOD PREP AREA

size

650 SF

capacity

staff

ancillary spaces

kitchen

spatial relationships

adjacent to student dining area

multipurpose

open to serving area

program activities

prepare food

environmental considerations

uniform lighting

proper ventilation of space to remove

cooking odors

cleanable building surfaces

electrical/plumbing / mechanical

connections for food service

equipment

finishes

flooring

easy clean, non-slip flooring - single

surface

poured or rolled flooring

base

resilient base

ceiling

cleanable, suspended, acoustic

walls

epoxy-painted concrete masonry units

plumbing

connections to food service equipment

plumbing and gas connections

hand-washing lavatory

floor drains

food preparation sink with adjacent trash

bin

HVAC

supply/return air system

independent temperature control

kitchen canopy exhaust system

air conditioning

electrical

duplex receptacles

connections to food service equipment

single-level switching

clock

central sound system

LEGEND ///



fixed equipment

F3 storage shelving

F33 pot-washing sinks

F34 food preparation sinks

F35 hand sinks with adjacent trash bin

F36 work tables

F37 warming/holding/cabinets

F38 refrigeration/reach-ins

F39 mop washing sink

F40 lockable chemical storage

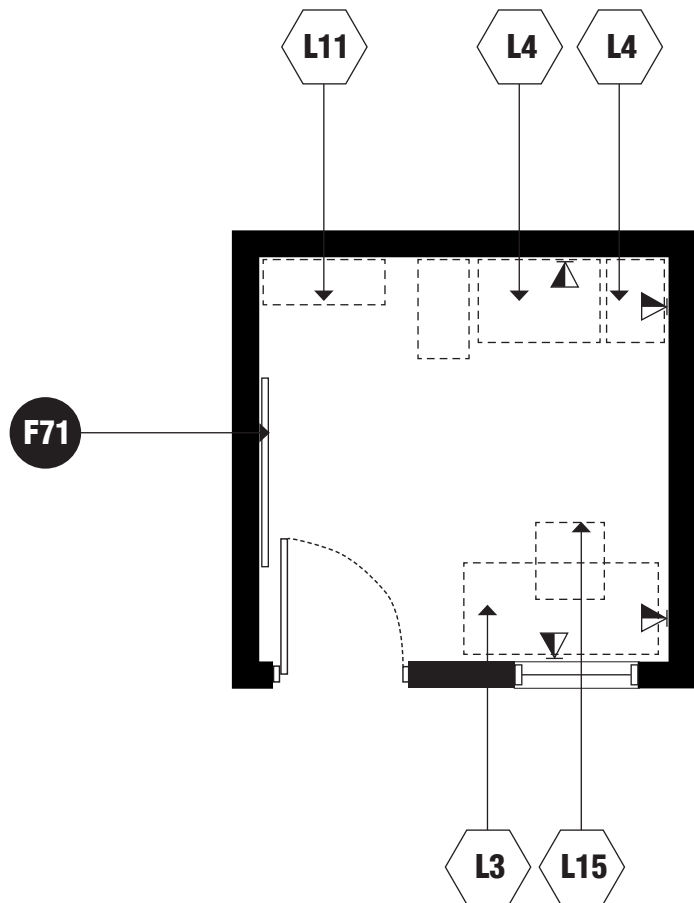
F41 exhaust hood systems, including
fire suppression

F66 combi oven

F67 convection steamer

F68 range, with oven

F69 ware washing machine with
appropriate accessories (tables,
booster heater, disposer, etc.)



size

100 SF

capacity

food service manager
 food service staff

ancillary spaces

kitchen

program activities

scheduling
 staff evaluations/discipline/meetings

LEGEND ///

● **fixed equipment**

F71 tack board (4 LF)

⬡ **loose furnishings**

L3 desk

L4 four-drawer file cabinet

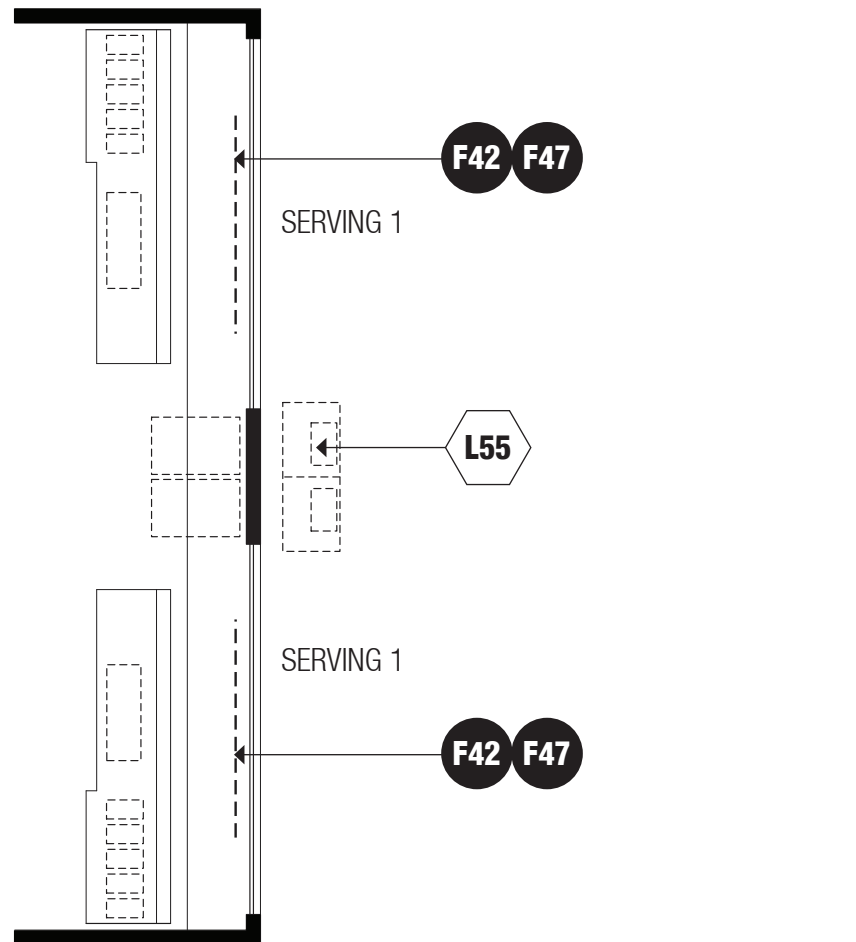
L15 ergonomic task chair

L11 adjustable height bookshelves (12 LF)

▶ data drop



THIS PAGE IS LEFT BLANK INTENTIONALLY



PKC-SD /// SERVING AREA

size

500 SF

capacity

students

staff

community

ancillary spaces

student dining area / multipurpose

kitchen

spatial relationships

within student dining area / multipurpose

or food preparation area

beginning of serving line should be

near entry door of students dining

area / multipurpose

open to food preparation area

program activities

serve food

*serving line configuration and design will be determined in consultation with School Nutrition Services

LEGEND ///

● **fixed equipment**

F42 drop-in individually controlled heated

electric food wells and full service sneeze guard (student height) with over shelf

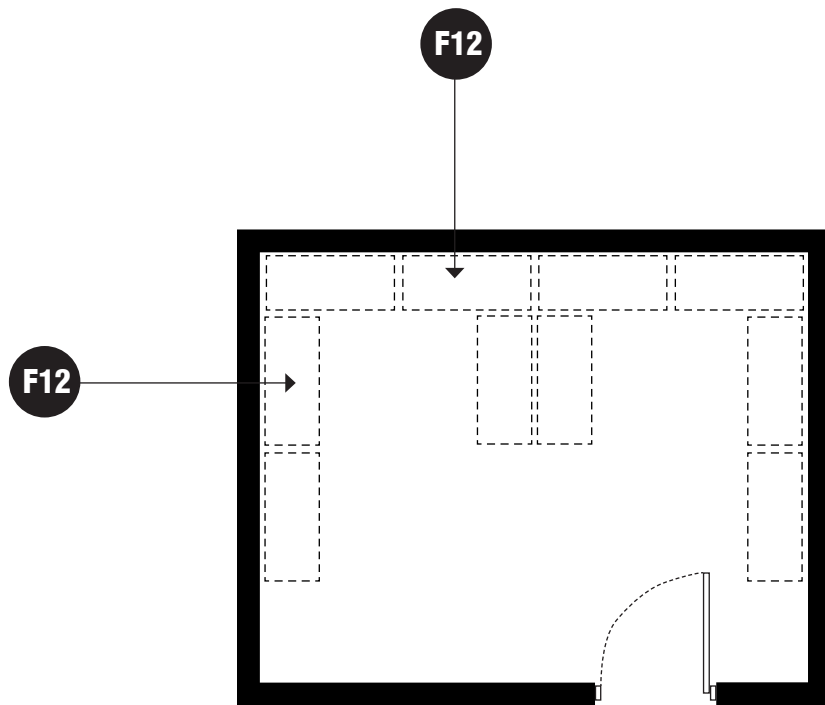
F47 drop-in self-contained refrigerated cold

pan for side items (counter and sneeze guards are lower than normal for better

viewing and service to elementary students)

⬡ **loose furnishings**

L55 milk coolers



size

300 SF

capacity

n/a

spatial relationships

near supply storage/receiving
adjacent and access to food prep area

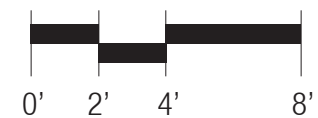
program activities

storage

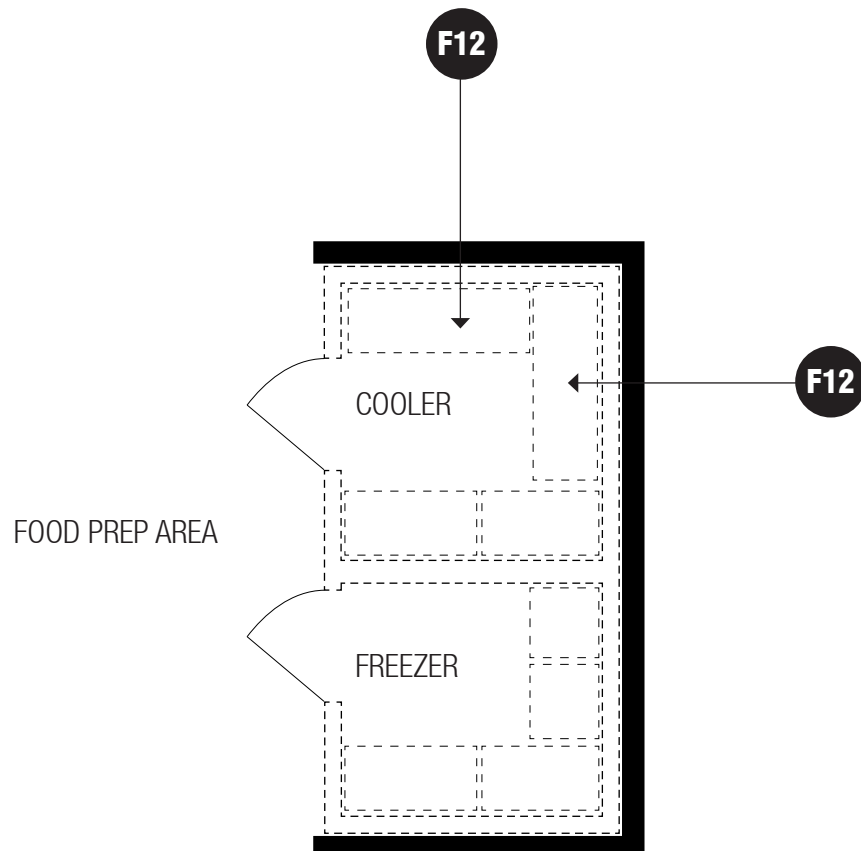
LEGEND ///

● **fixed equipment**

F12 rust-resistant shelving and
dunnage racks (24" deep)



PKC-SD /// DRY FOOD STORAGE



PKC-SD /// FREEZER / COOLER

size

300 SF

capacity

n/a

ancillary spaces

kitchen

spatial relationships

adjacent and access to food prep area

near the supply storage/receiving

environmental considerations

ventilation for refrigeration machinery

equipment

floor to be flush with adjacent kitchen floor

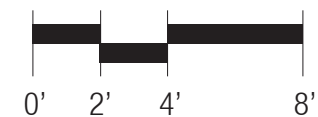
electrical service for refrigeration equipment

LEGEND ///

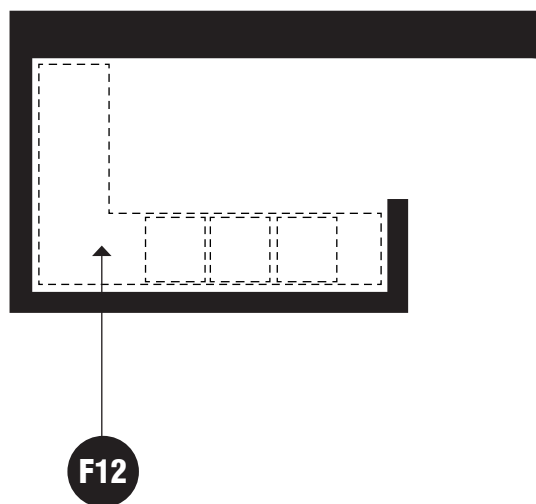
● **fixed equipment**

F12 rust-resistant shelving and

dunnage racks (24" deep)



STUDENT DINING /
MULTIPURPOSE



NOTE //

This is an example of a ware washing area. Food service equipment will vary from school to school; confirm requirements with ACPS Food Service Department.

PKC-SD /// WARE WASHING

size

200 SF

capacity

n/a

ancillary spaces

kitchen

spatial relationships

pass-through into student dining area/

multipurpose for tray drop-off

adjacent and access to food prep area

environmental considerations

proper ventilation of space to remove

steam and condensation

cleanable building surfaces

plumbing

connections to food service equipment

three compartment sink

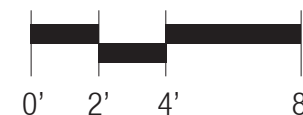
floor drain

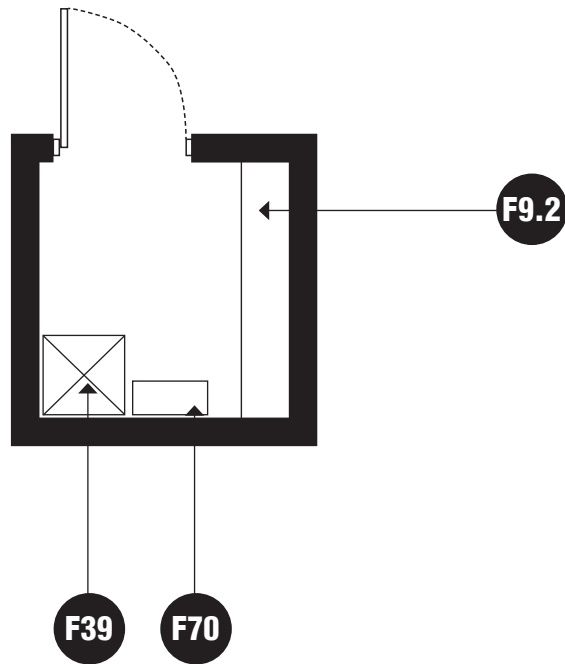
LEGEND ///

● **fixed equipment**

F12 rust resistant shelving and

dunnage racks (24" deep)





size

50 SF

capacity

food service staff

ancillary spaces

kitchen

spatial relationships

adjacent and access to kitchen

program activities

storing chemicals and equipment

environmental considerations

cleanable building surfaces

sensors for spilled chemicals

adequate exhaust/ventilation

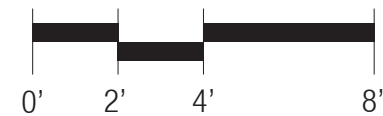
LEGEND ///

● **fixed equipment**

F9.2 rust resistant shelving

F39 mop sink

F70 mop rack



PKC-BA /// **BEFORE-AFTER SCHOOL**

OFFICE/STORAGE (OPTIONAL)
PLAYGROUP SPACE

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|---------------------------|-----------------|-----------|--------------|--------------|
| ADMINISTRATION | | | | |
| Office/Storage (OPTIONAL) | -- | 250 | -- | |
| Play Group Space | 1 | 500 | 500 | |
| Total | | | 500 | |

Comments //

The overall total for the before-after school program area may be + or - 10%.

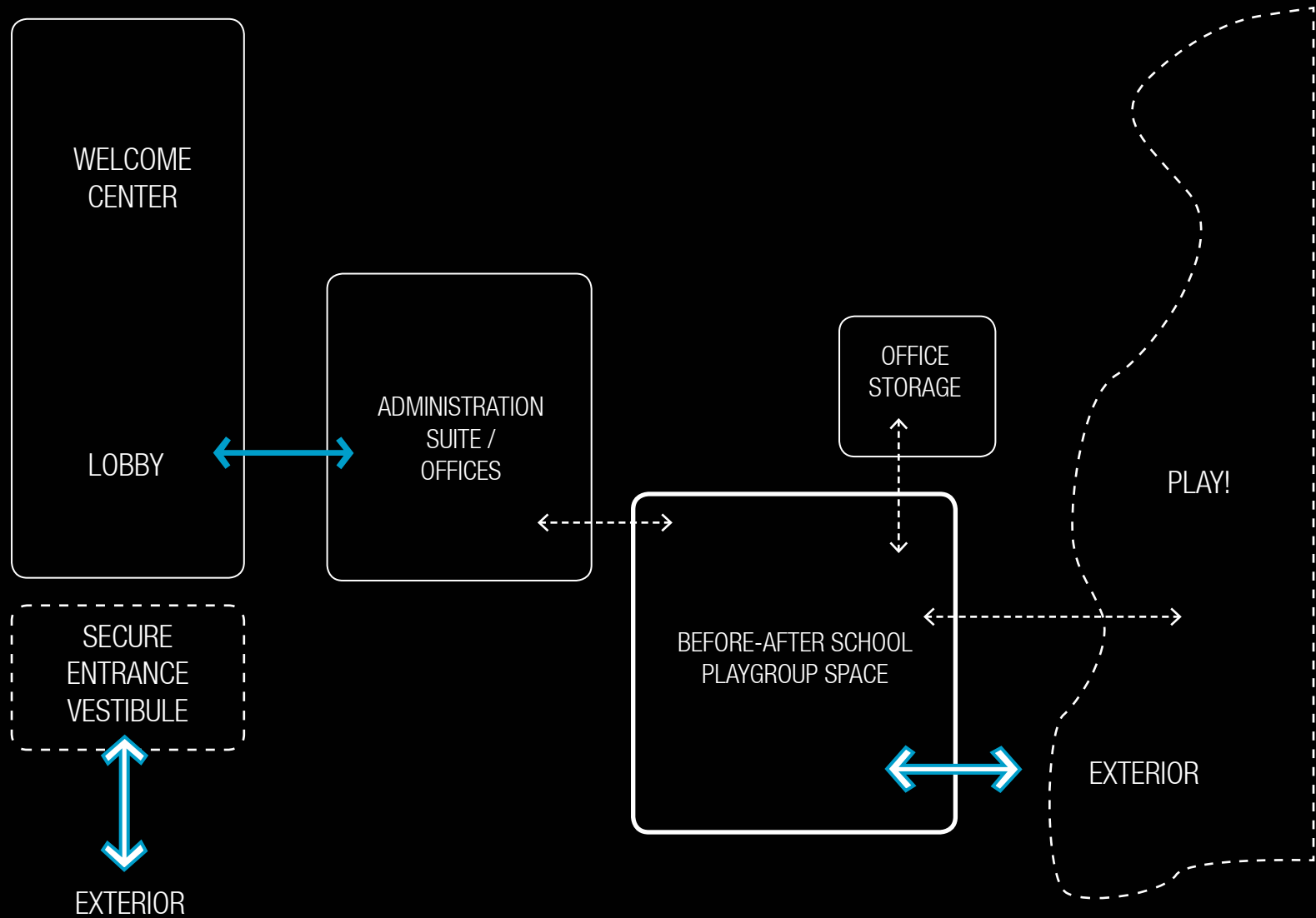
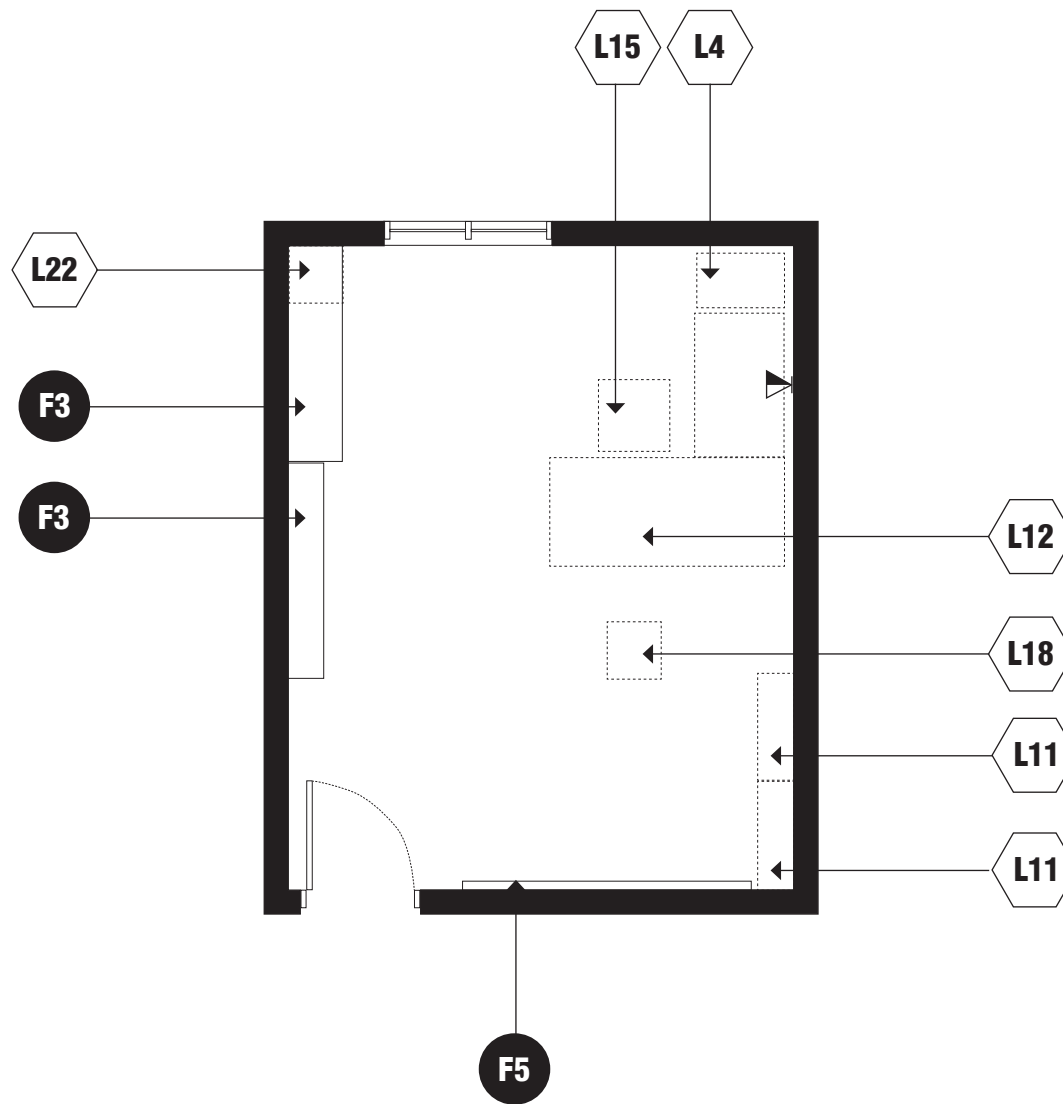


FIG. 13.0 // BEFORE-AFTER SCHOOL ADJACENCY DIAGRAM



PKC-BA /// OFFICE AND STORAGE



size

250 SF

capacity

staff

coordinators of after school program

parents/volunteers

spatial relationships

near public use spaces

near Gymnasium and student dining

area/multipurpose

access to main corridor

near FACE center

program activities

administrative duties

storing and retrieving supplies and

equipment

teaching/tutoring and counseling

LEGEND ///

● **fixed equipment**

F3 wall shelving (12" deep)

F3 wall shelving (18" deep)

F5 tackable/magnet wall surface (8 LF)

⬡ **loose furnishings**

L4 four-drawer file cabinet

L11 adjustable height bookshelves

L12 admin workstation

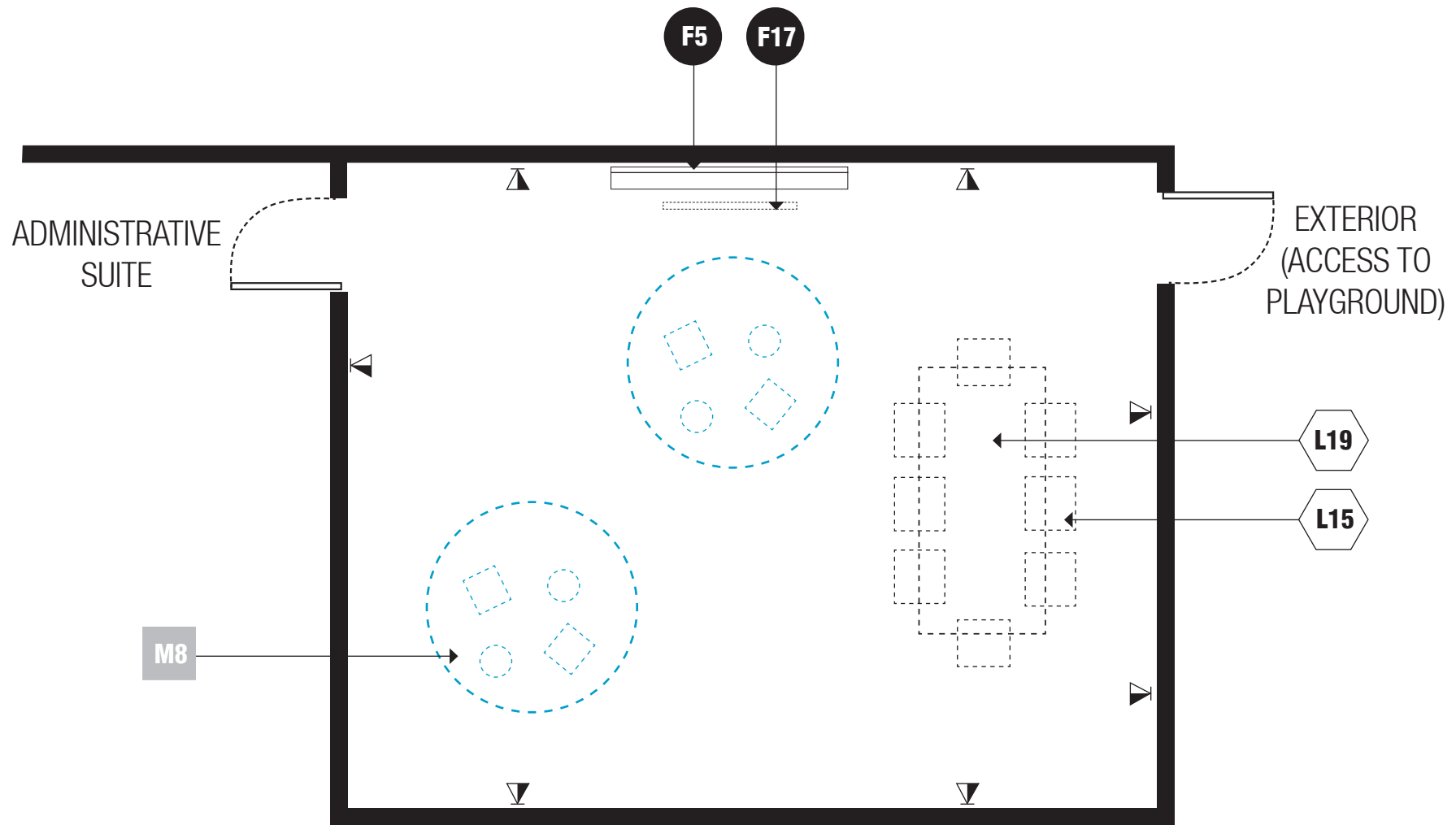
L15 task chair

L18 lounge chair

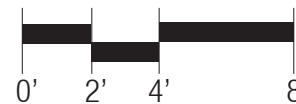
L22 safe

▶ data drop

note: consult caregiver on the quantity of storage. larger spaces should be outfitted like a standard classroom (white board, tack board, technology)



PKC-BA /// PLAYGROUP SPACE



size

500 SF

capacity

administrative staff
visitors/parents
students

spatial relationships

see illustration opposite page
located near the main administrative
near public restrooms
direct public access from exterior
exit to playground is preferable

program activities

gathering point
interaction between students

LEGEND ///

● **fixed equipment**

F5 tackable/magnet wall surface (8 LF)
F17 audio/video recording and playback
equipment

⬡ **loose furnishings**

L15 task chair (2)
L19 Conference table (with table technology
installations-VGA jacks, data outlets,
power outlets, etc.)

■ **miscellaneous**

M8 child's play area

▶ data drop

PKC-EC /// **MAINTENANCE & CUSTODIAL**

SUPPLY STORAGE/RECEIVING

TOILET/SHOWER/LOCKERS

CUSTODIAL OFFICE

LOADING DOCK/CENTRAL RECEIVING

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|--------------------------------|-----------------|-----------|--------------|--------------|
| BUILDING ENGINEERING | | | | |
| Supply Storage/Receiving | 1 | 500 | 500 | |
| Toilet/Showers/Lockers | 2 | 100 | 200 | |
| Custodial Office | 1 | 150 | 150 | |
| Loading Dock/Central Receiving | 1 | 150 | 150 | |
| Total | | | 1,000 | |

Comments //

Provide one custodial closet per floor, regardless of facility capacity.

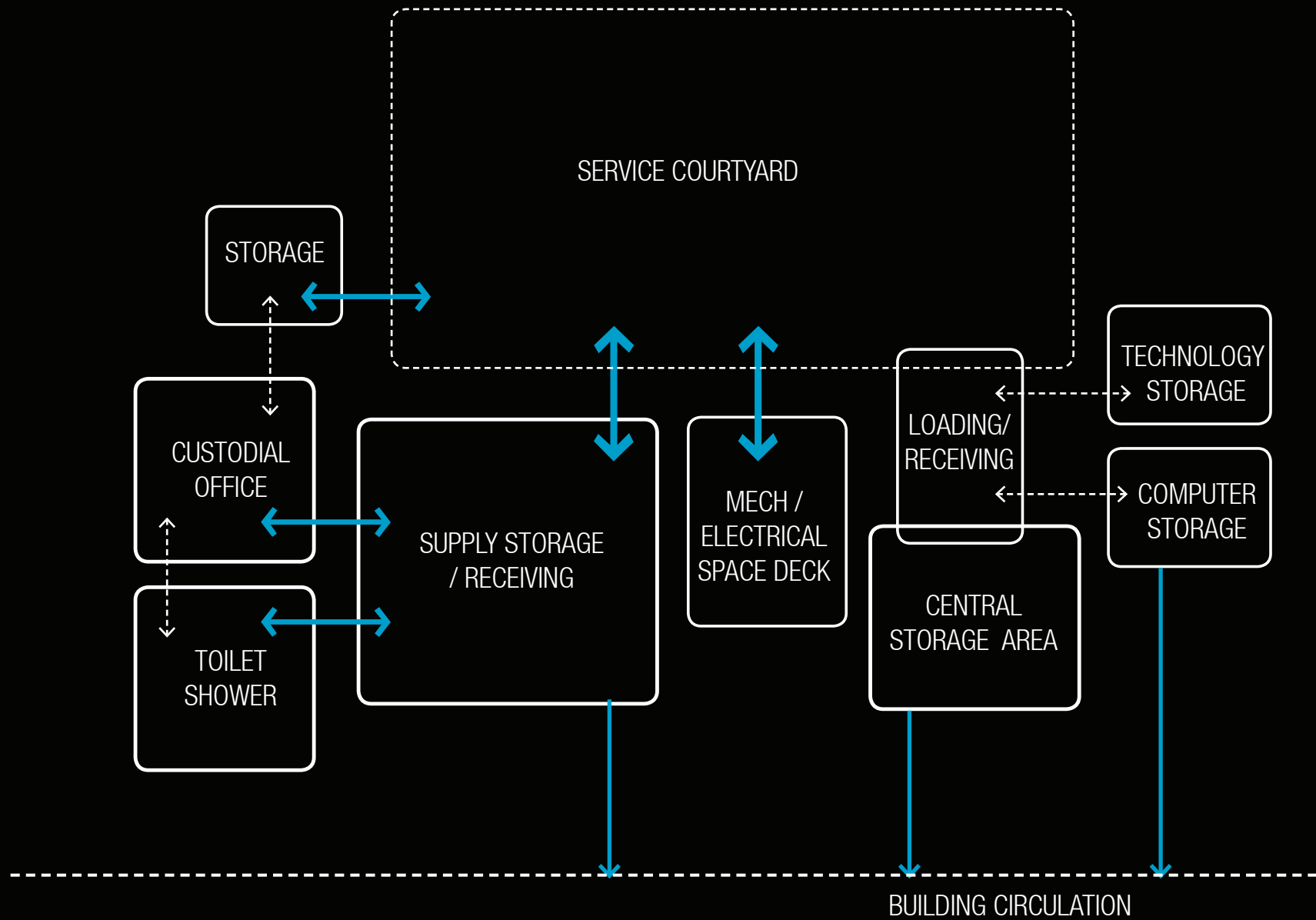
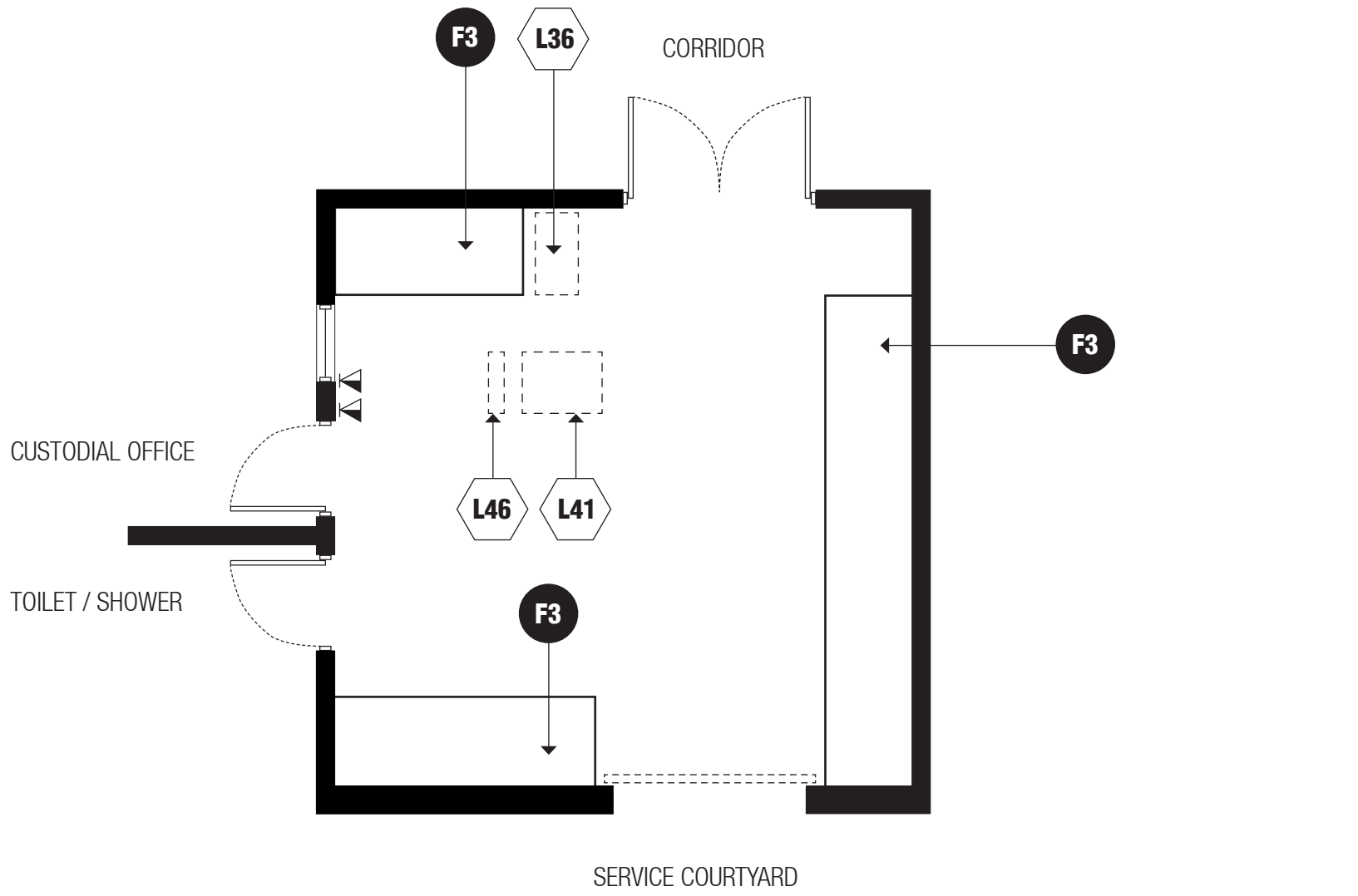


FIG. 14.0 // MAINTENANCE & CUSTODIAL ADJACENCY DIAGRAM



PKC-EC /// SUPPLY STORAGE / RECEIVING

size

500 SF

capacity

maintainence personnel

spatial relationships

adjacent and access to loading dock area
and service courtyard

access to corridor

adjacent and access to custodial office

adjacent and access to toilet/shower/
locker room

program activities

loading and unloading

storage of furniture, materials for special
events, paper, and general supplies

plumbing

plumbing connections service sink

environmental considerations

supplemental heating source

double door with removable mullions

overhead door to service courtyard

LEGEND ///

● **fixed equipment**

F3 wall shelving (84" high x 36" deep)

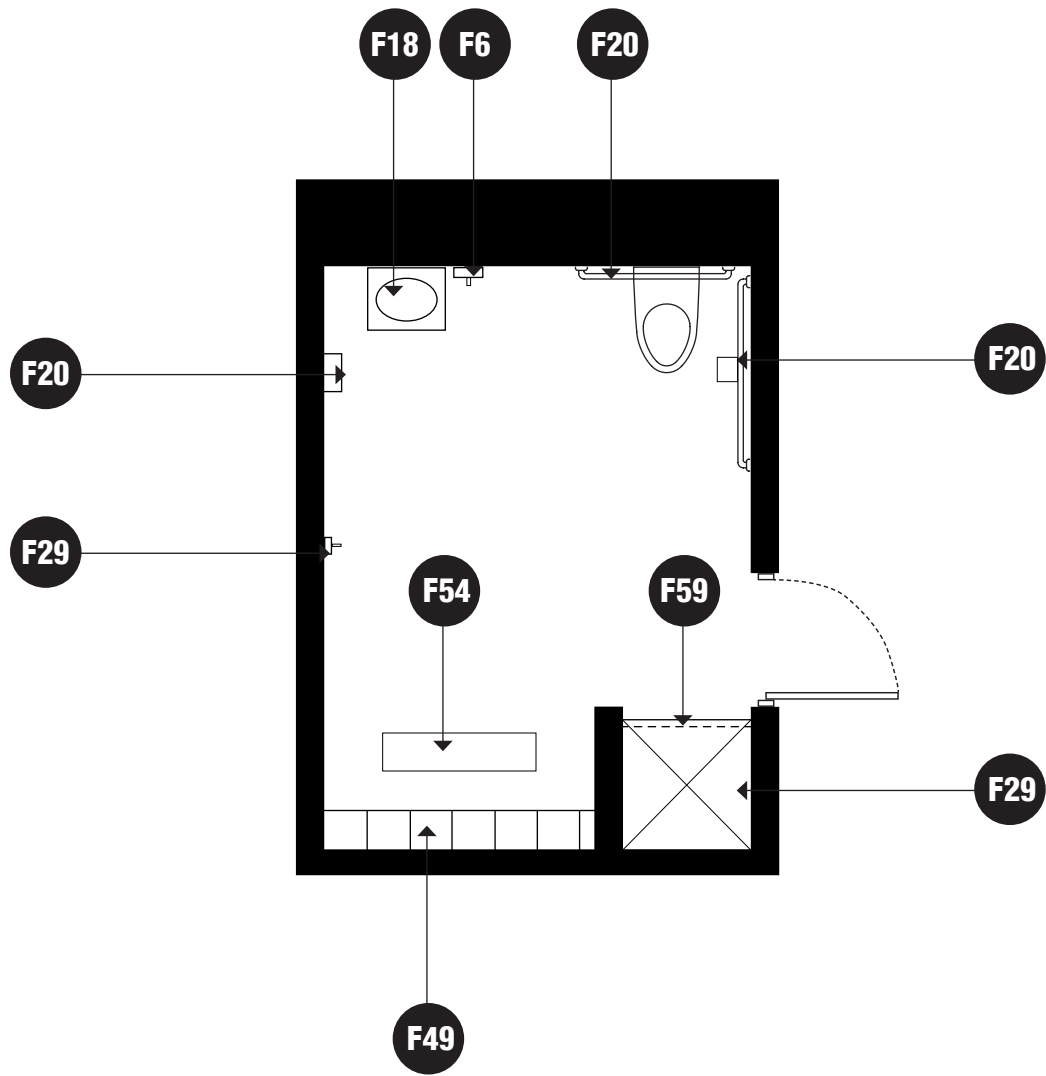
⬡ **loose furnishings**

L36 flammables storage

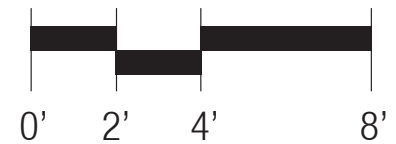
L46 step ladder

L41 chair dollies

▶ data drop



PKC-EC /// TOILET / SHOWER / LOCKERS



size

100 SF

capacity

maintenance and custodial staff

spatial relationships

adjacent and access to supply storage/
receiving

program activities

showering
changing clothes

plumbing

wall-mounted water closet
wall-mounted lavatory
ADA shower controls and head
floor drains - in restroom and shower
plumbing connections

LEGEND ///

● **fixed equipment**

F6 soap dispenser

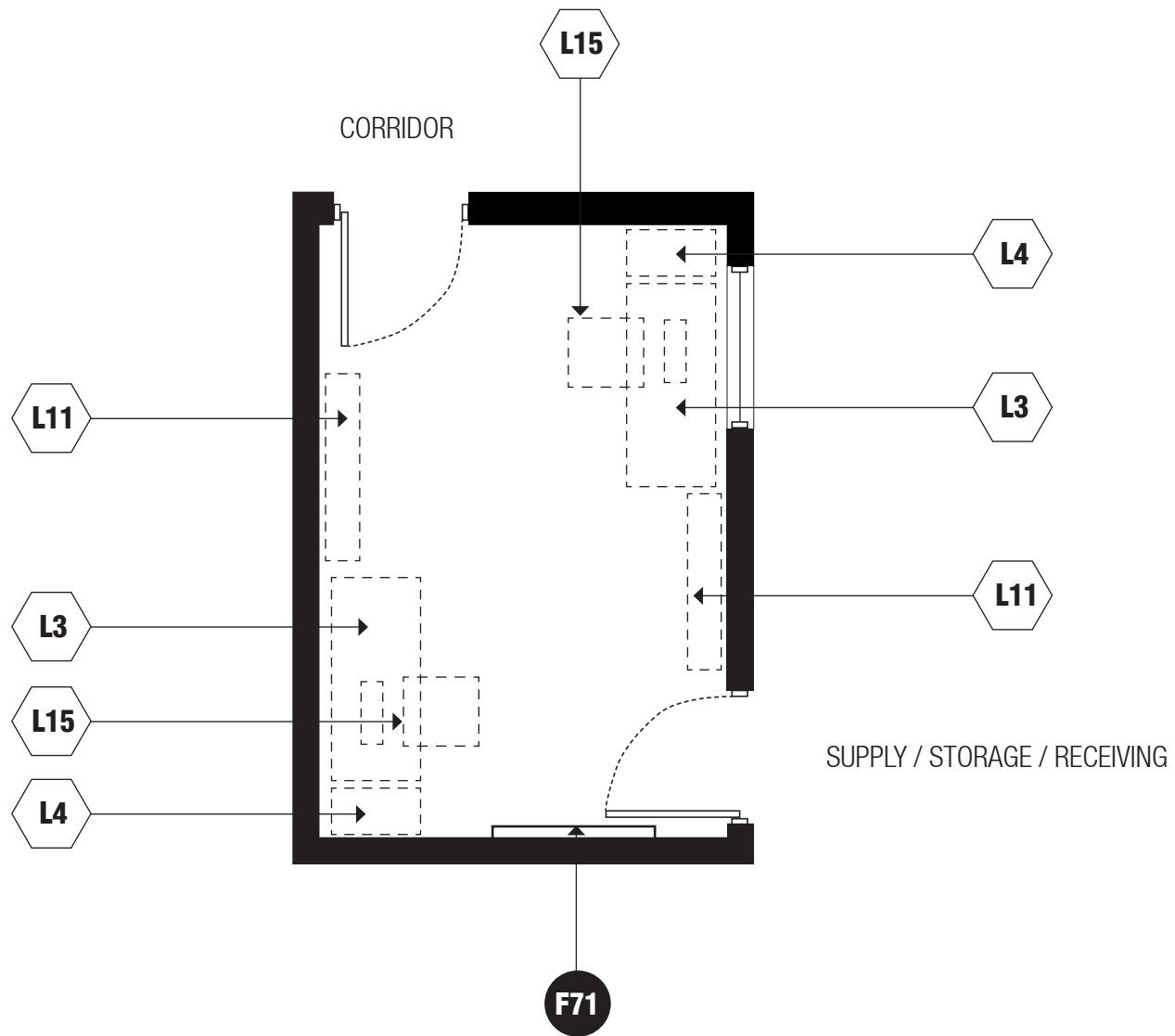
F18 mirror (24" x 60")

F20 bathroom accessories

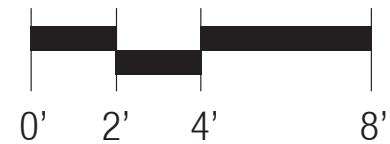
F29 ADA shower accessories

F49 lockers

F54 locker bench



PKC-EC /// CUSTODIAL OFFICE



size

150 SF

capacity

maintenance and custodial staff
building engineer

spatial relationships

adjacent and access to supply storage/
receiving
access to corridor
near custodial toilet

program activities

conferences with staff and other visitors
telephone calls

LEGEND ///

● **fixed equipment**

F71 tack board (4 LF)

⬡ **loose furnishings**

L3 teacher work surface with mobile
storage (2)

L4 four-drawer lateral file cabinet (2)

L11 adjustable-height bookshelves (12 LF)

L15 task chair (2)

PKC-BS /// **BUILDING SUPPORT**

LARGE GROUP RESTROOMS
CUSTODIAL CLOSET
ELECTRICAL CLOSET
CORRIDORS
MECHANICAL / ELECTRICAL SPACE DECK
STAFF RESTROOM
TECHNOLOGY STORAGE

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|------------------------------------|-----------------|-----------|--------------|--|
| BUILDING SUPPORT | | | | |
| Large Group Restrooms | 2 | INCLUDED | -- | SF for individual spaces to be determined by the architect, will vary per project. |
| Custodial Closet | 3 | 30 | 90 | |
| Electrical Closet | 3 | 30 | 90 | |
| Corridors | -- | INCLUDED | -- | |
| Mechanical / Electrical Space Deck | -- | INCLUDED | -- | |
| Staff Restroom | 4 | 50 | 200 | |
| Technology Storage | 2 | 50 | 100 | |
| Total | | | | |

Comments //

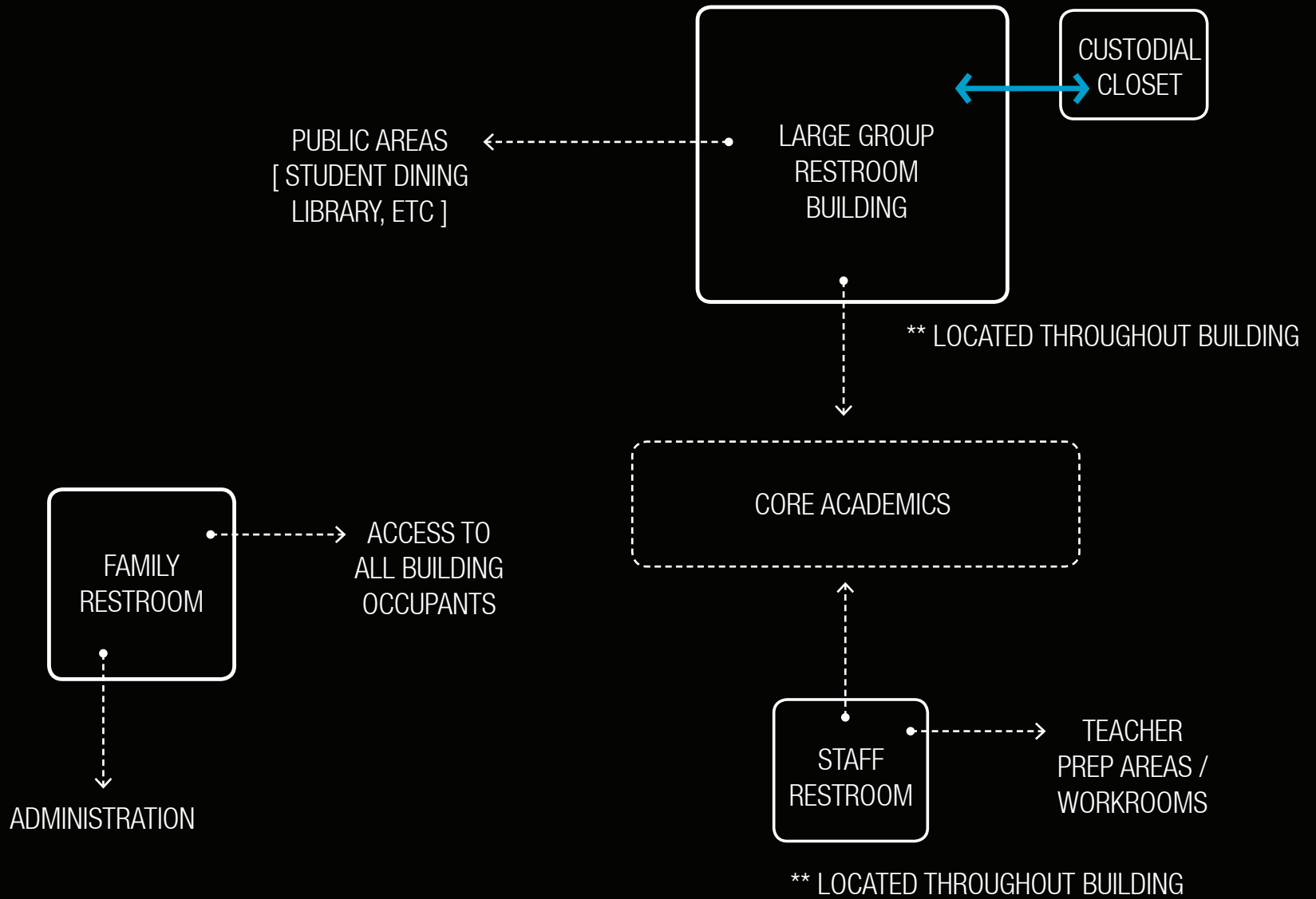
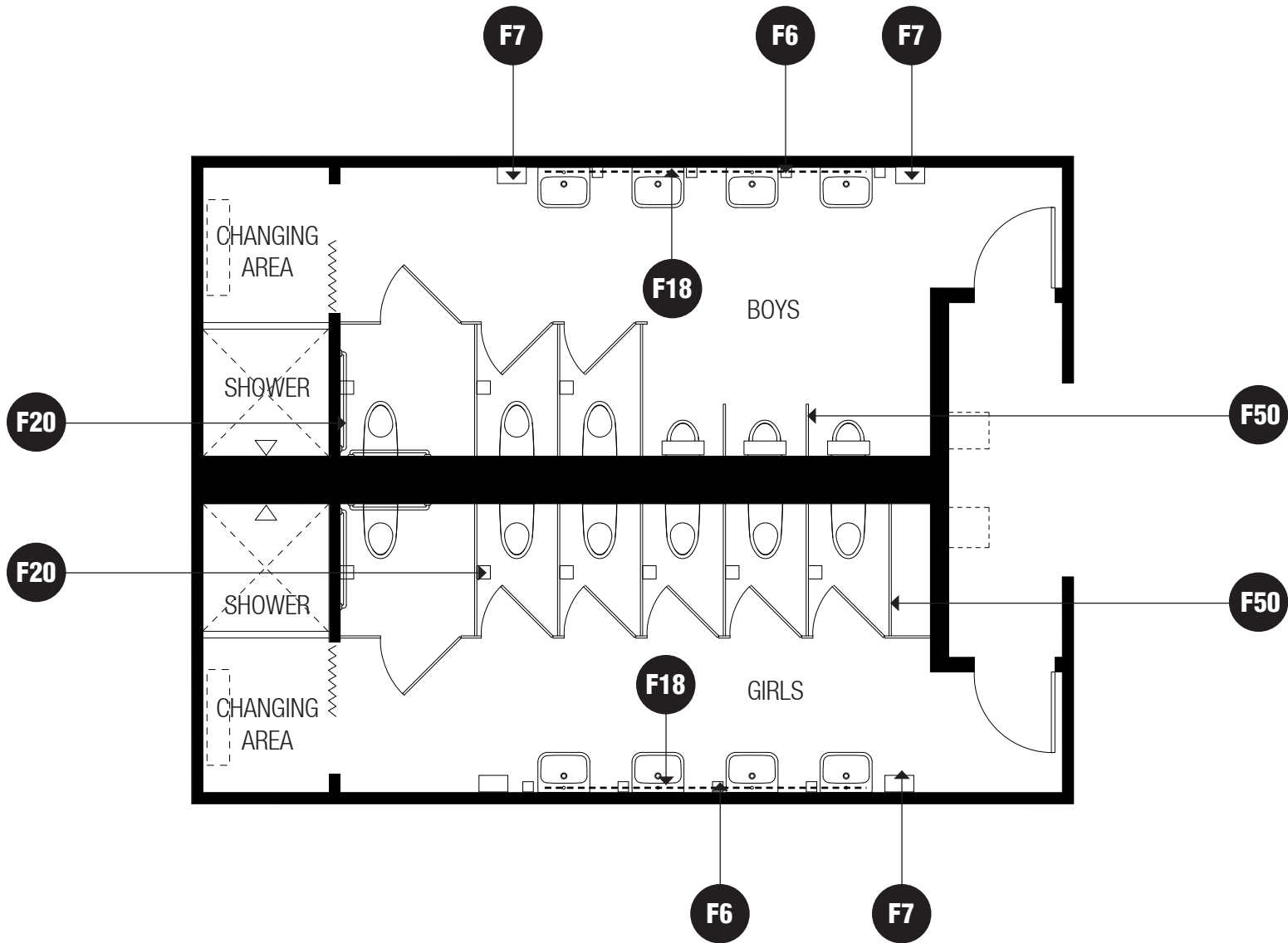
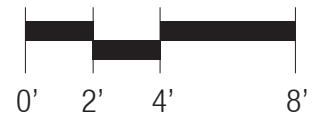


FIG. 15.0 // BUILDING SUPPORT ADJACENCY DIAGRAM



PKC-BS /// LARGE GROUP RESTROOM



Spaces to be determined by design professional based on the number of fixtures required.

size

based on the sum of the program areas excluding building services, multiplied by 3.5%

capacity

based on size of program area

spatial relationships

near student dining area
near public use areas, such as media center and gymnasium
near academic core area
restrooms located in several areas throughout building

program activities

personal and health needs for the students

plumbing

wall-mounted water closets
wall-mounted lavatories or wash fountains
appropriate height fixtures by age
shower
plumbing connections

LEGEND ///

● **fixed equipment**

F6 soap dispenser

F7 towel dispenser

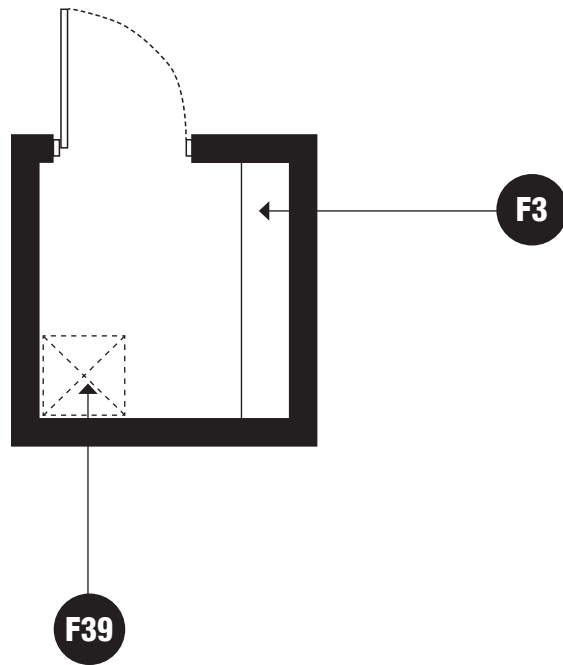
F18 mirror (24" x 60")

F20 bathroom accessories

F50 toilet partitions

NOTES //

Where individual restrooms are provided in lieu of large group restrooms, refer to staff restroom.



size

30 SF

capacity

n/a

spatial relationships

near large group restrooms

provide one per floor

program activities

space for storage of custodial supplies

throughout the building

plumbing

service sink or floor drain sink

plumbing connections

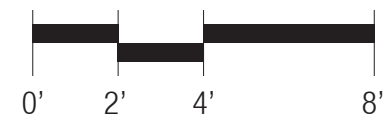
● LEGEND ///

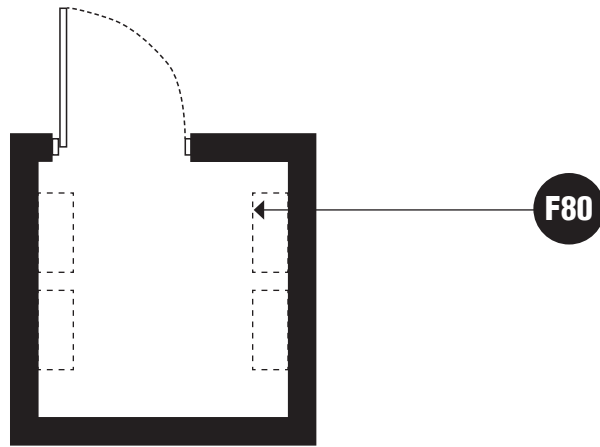
fixed equipment

F39 mop sink

F3 wall shelving

PKC-BS /// CUSTODIAL CLOSET





Spaces to be determined by design professional.

size

30 SF

capacity

n/a

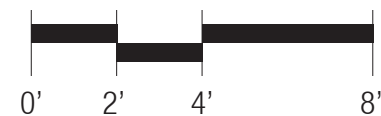
program activities

space for electrical wiring and panels

LEGEND ///

● **fixed equipment**

F80 electrical panel



- Corridors shall be a minimum of 8 feet wide; some areas of natural light is desirable; the designer should minimize long corridors lined with classroom doors.
- Extended learning areas are in addition to the minimum above and must not intrude into the egress pathway. Seating areas in extended learning areas must meet fire code.
- Lobbies are in addition to the circulation requirement.
- Instructional and activity areas shall be accessible by corridors without passing through another instructional or activity area.
- The corridors are to meet the egress requirements of applicable codes.
- Stairs, ramps, and elevators are included under the corridor category.
- It is recommended that stairs in multi-story buildings not be enclosed unless required by code. However, such a design should not allow students to lean over railings or put arms/legs through posts.

program activities

circulation space

vestibules

area of vestibules to be included within area allotted for corridors

width of vestibules can be no less than minimum width of adjacent corridor.

provide recessed vinyl floor mats (recommend 15 LF of surface mats in addition to vinyl mats)

provide automatic door operator on one leaf of main entrance/exit door and related vestibule door

plumbing

drinking water coolers with gooseneck faucet for water bottles

fixed equipment

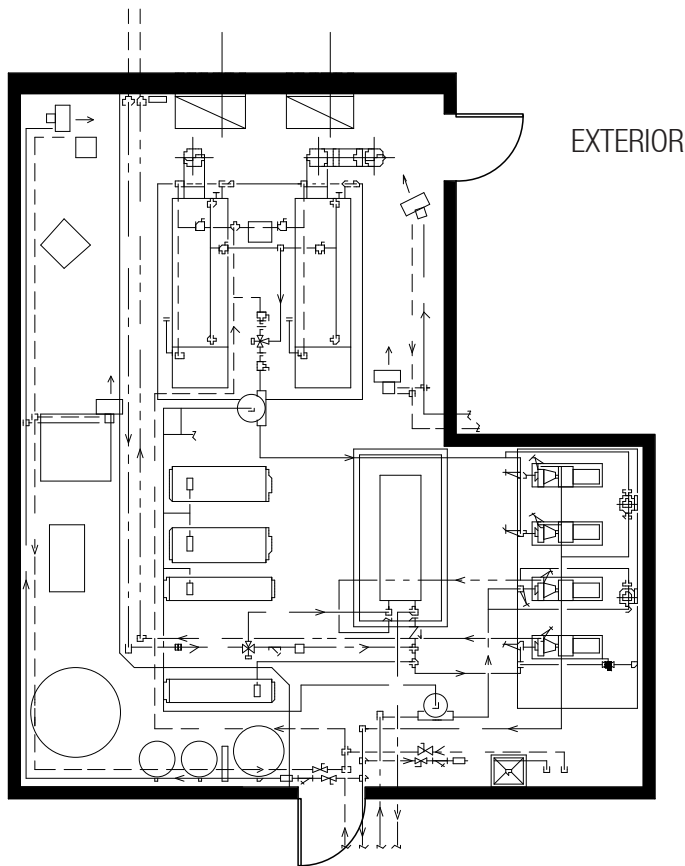
F51 fire extinguisher

F52 recessed floor mats

F53 digital boards

F71 tack board

F72 3D displays



PKC-BS /// MECH / ELECTRICAL SPACE DECK

Spaces to be determined by design professional.

size

based on the sum of the program areas, excluding building services, multiplied by 6.9%

capacity

based on size of program area

program activities

space for mechanical and electrical equipment

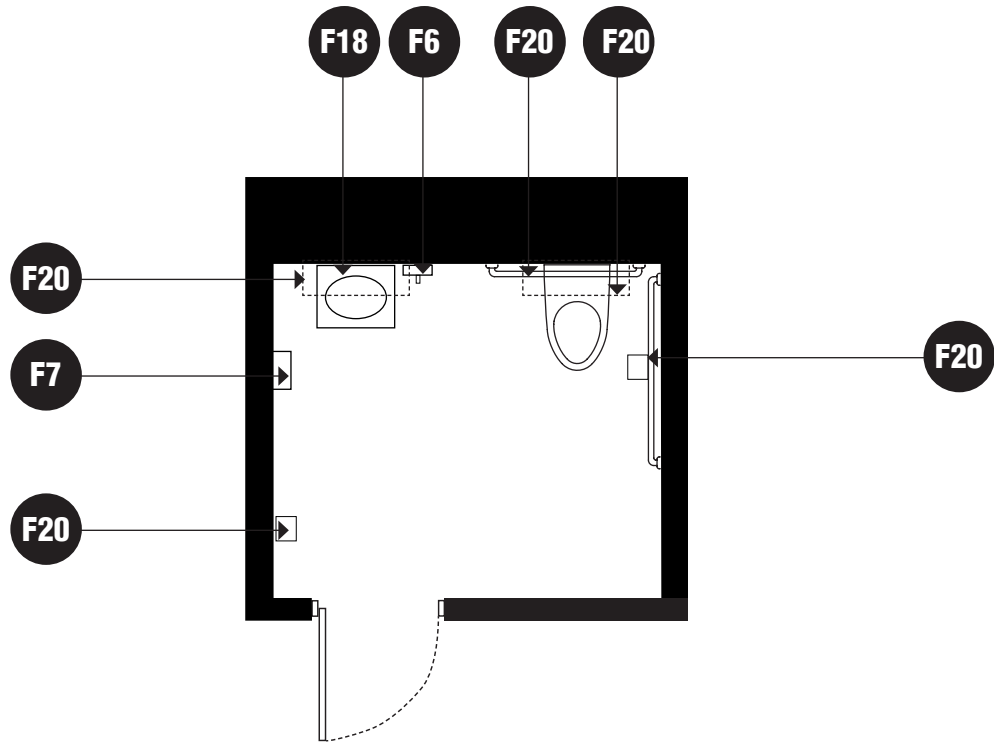
spatial relationships

- accessible for maintenance and repair
- access to outside
- isolate from main area of building
- near loading/receiving area
- near custodial area

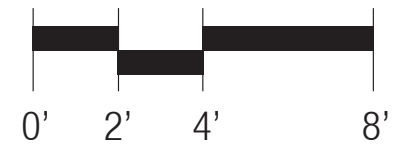
NOTES //

1. This is an example of a mechanical room. The equipment and layout will vary depending upon the heating, ventilating, and air conditioning system used.
2. A penthouse is considered a mechanical room.





PKC-BS /// STAFF RESTROOM



size

50 SF

capacity

1 person

spatial relationships

near academic core classrooms

near teacher prep area/workroom

program activities

personal and health needs for teachers, staff, and other individuals

environmental considerations

uniform lighting

environmental sound control -

wall minimum STC 53

ceiling minimum CAC 35, NRC 0.40

moisture and stain resistant finishes

finishes

flooring:

ceramic tile

base:

resilient base

optional - ceramic mosaic tile or

porcelain tile

ceiling:

suspended, acoustical

walls:

painted concrete masonry units

fire suppression

fire suppression system

plumbing

wall-mounted water closet

wall-mounted lavatory

plumbing connections

floor drain

HVAC

exhaust air system

supplemental heat as required

electrical

single-level switching

fluorescent lighting

duplex receptacles

leveler

communications

central sound system

electronic safety and security

life safety devices per code

LEGEND ///

● fixed equipment

F6 soap dispenser

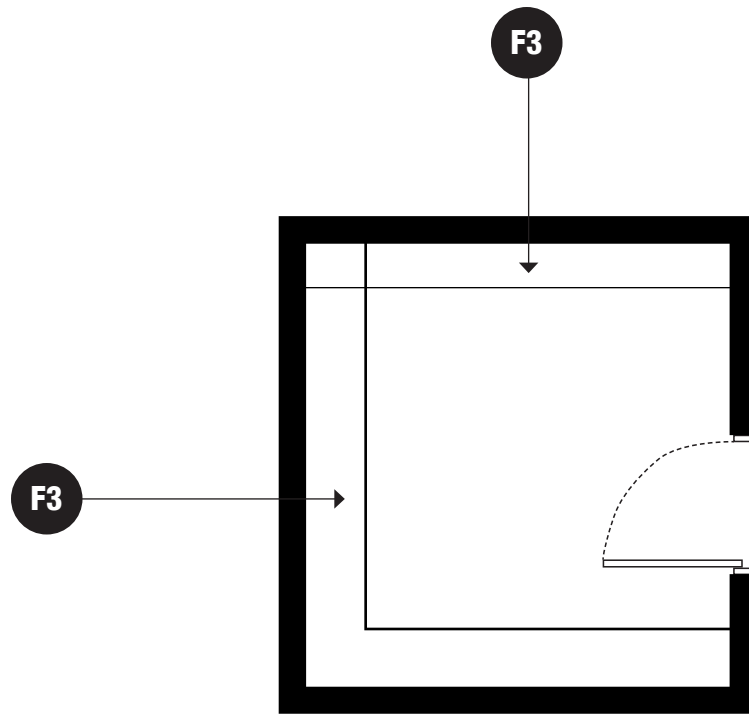
F7 towel dispenser

F18 mirror (24" x 60")

F20 bathroom accessories

NOTES //

1. Extend walls above ceiling to deck above for security and acoustical reasons.
2. Provide staff restrooms for both men and women.
3. Each pair of staff restrooms should be distributed throughout the building at appropriate locations.



PKC-BS /// TECHNOLOGY STORAGE

size

50 SF

capacity

n/a

ancillary spaces

computer storage

spatial relationships

n/a

program activities

materials storage

environmental considerations

uniform lighting

security of door

finishes

flooring:

resilient tile flooring

base:

resilient base

ceiling:

exposed structure

walls:

painted concrete masonry units

fire suppression

fire suppression system

HVAC

supply/return air system

electrical

single-level switching

fluorescent lighting

duplex receptacles

electronic safety and security

life safety devices per code

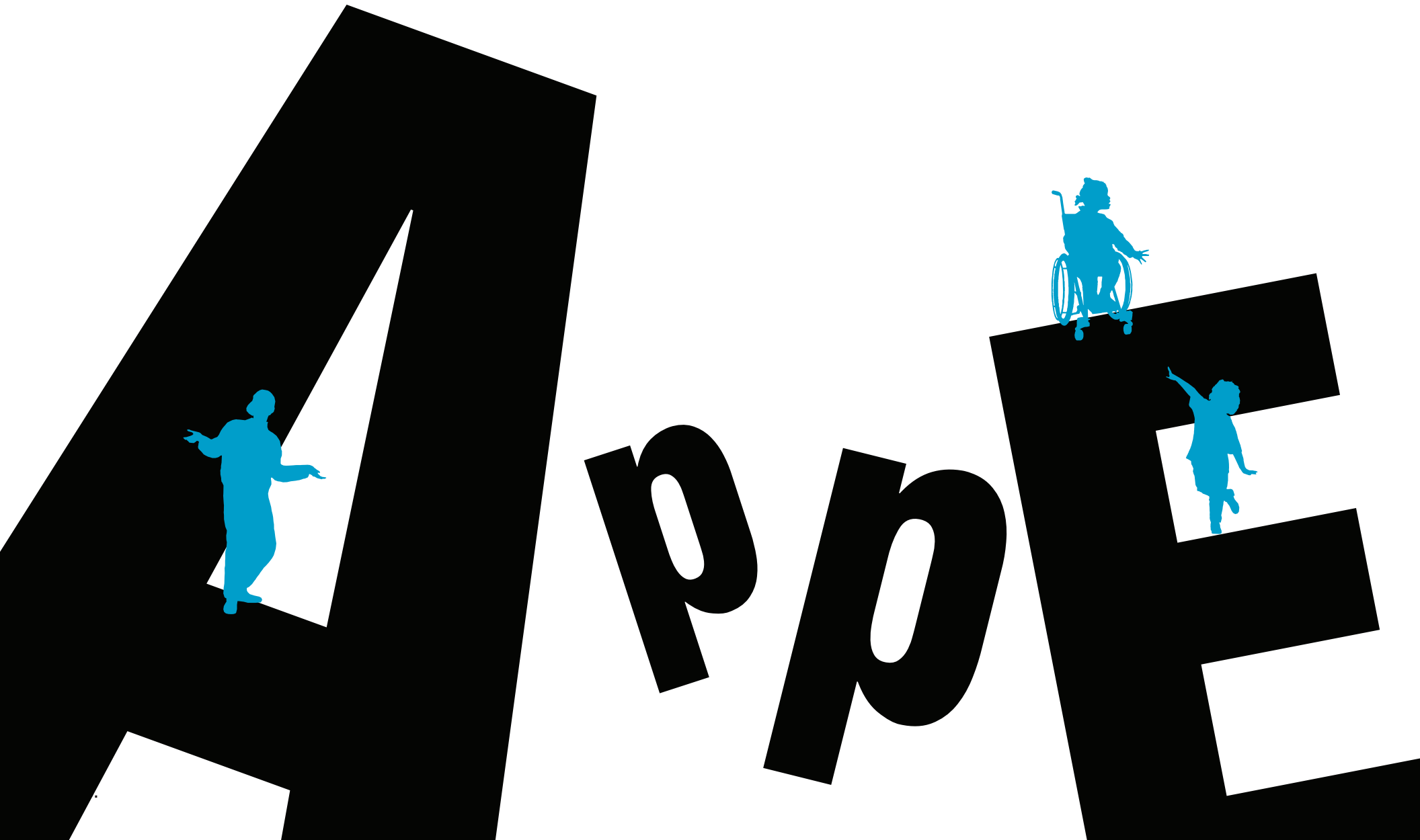
LEGEND ///

● fixed equipment

F3 wall shelving (12" and 18" deep)

NOTES //

1. Finishes/features: refer to _____ for specification references.
2. Loose furnishings and features shown represent one of many possible solutions.



N **d** **i** **K**



space and tag list

● fixed equipment

| | | | | | |
|------|--|-----|--|-----|---|
| F1 | base/wall cabinets and shelving (deleted “around classroom sink”) | F19 | toilet tissue holder | F49 | lockers |
| F1.1 | casework | F20 | bathroom accessories | F50 | toilet partitions |
| F2 | student cubbies | F21 | peg board | F51 | fire extinguisher |
| F3 | wall shelving | F22 | basketball goals | F52 | recessed floor mats |
| F4 | marker board | F23 | operable partition- motorized | F53 | digital boards |
| F5 | tackable/magnet wall surface | F24 | climbing wall | F54 | locker bench |
| F6 | soap dispenser | F25 | treatment cubicle curtain | F55 | folding utility shelf |
| F7 | towel dispenser | F27 | amphitheater | F56 | 30” itinerant/aid station |
| F8 | wall-mounted interactive electronic presentation device | F29 | ADA shower accessories | F57 | kitchenette |
| F9 | classroom sink | F31 | stage curtains | F58 | changing table |
| F9.2 | rust-resistant shelving | F32 | stage lighting | F59 | shower curtain/rod |
| F10 | demonstration kitchen | F33 | pot washing sinks | F62 | sound enhancement system |
| F11 | periphery science station | F34 | food preparation sinks | F63 | towel hook |
| F12 | rust-resistant deep shelving and dunnage racks | F35 | hand sinks | F64 | filtered water fountain with bubbler and gooseneck bottle filler |
| F13 | sound system | F36 | work tables | F65 | recycling center |
| F14 | 36” and 42” grab bars | F37 | warming/holding cabinets | F66 | oven |
| F15 | periphery kitchen station | F38 | refrigeration reach-in | F67 | convection steamer |
| F16 | washer/dryer | F39 | mop sink | F68 | range |
| F17 | audio/video recording and playback equipment | F40 | chemical storage | F69 | ware washing machine |
| F18 | mirror | F41 | exhaust hood systems | F70 | mop rack |
| | | F42 | food wells and full service sneeze | F71 | tack board |
| | | F43 | guard | F72 | 3d displays |
| | | F44 | self-contained refrigerated cold pan | F73 | loading dock levelers and dock bumpers |
| | | F45 | library case work motorized projection screen | F74 | coat hook-bathroom accessory |
| | | | | F75 | sanitary napkin dispenser |

- F76 sanitary napkin disposal
- F77 mounted child seat
- F78 child changing station
- F79 tackable surface
- F80 electrical panel
- F81 two way mirror

⬡ **loose furnishings**

- L1 stackable/nesting chairs
- L2 stackable/nesting tables
- L3 teacher work surface with mobile
- L4 storage and two chairs
- L5 four-drawer lateral file cabinet
three bound rugs-group area, block area,
and reading area
- L6 mobile shelving
- L7 teacher's lockable wardrobe
- L8 tall cabinet with shelves
- L9 learning center sets - sand/water table,
kitchen, art cart, etc.
- L10 student desks
- L11 adjustable height bookshelves
- L12 admin workstation and chair
- L13 small table
- L14 computer station
- L15 task chair
- L16 bound group rug
- L17 printer station
- L18 lounge chairs
- L19 conference table
- L20 executive chairs
- L21 work table

- L22 safe
- L23 computer desk return
- L24 mobile exam table
- L25 nurse stool
- L26 refrigerator
- L27 health suite cot
- L28 folding chairs
- L29 choral risers
- L30 mobile a/v cabinet
- L31 posture chair
- L32 conductor's podium and stool
- L33 upright piano
- L34 tumbling mats
- L35 ball bins
- L36 flammables storage
- L37 dance barres
- L38 play equipment
- L39 cafeteria tables
- L40 point-of-sale station
- L41 chair dollies
- L42 drying rack
- L43 flat storage
- L44 kiln
- L45 greenware shelving
- L46 step ladder
- L47 music stand

- L48 stainless steel mobile preparation
tables
- L49 wastebasket
- L50 small conference table
- L51 laptop charging cart
- L52 telecommunications rack
- L53 portable sound system
- L54 bleachers
- L55 milk coolers

■ **miscellaneous**

- M1 high-speed and/or large format
printers
- M2 color printers
- M3 barcode reader
- M4 photocopier machine
- M5 digital scanner
- M6 laminator
- M7 desktop computer
- M8 child play area
- M9 large shredder

energy / environmental criteria

Scientists who study the “neuroscience of learning” are finding that certain lighting, acoustics, and spatial relationships support or hinder the learning process. The following criteria should be used when creating optimal learning and teaching environments.

| | DESIGN PARAMETERS | PARAMETER NOTES |
|---|---------------------------------|--------------------------------|
| LIGHTING QUALITY // improving natural and artificial lighting in classrooms | | |
| 1 Controlled Natural Lighting (Glazing) | 10-12% of floor SF | LEED and Green Globe |
| 2 Artificial Light | 35-50 foot candles | IES |
| ENVIRONMENTAL AIR QUALITY // addressing temperature control, ventilation, air filtration, carbon dioxide levels, and HVAC background noise to ensure comfortable rooms | | |
| 1 Winter Temperature | 68.5 - 75.5 degrees | EPA 2000 and ASHRAE 55-04 |
| Summer Temperature | 74 - 80 degrees | |
| 2 Humidity | 30 - 60% relative humidity | EPA 2000 and ASHRAE 55-04 |
| 3 Air Changes | 6 - 10 per hour | ASHRAE |
| 4 Outdoor Air Ventilation | 10 CFM per person | Plus 0.12 per SF |
| 5 Air Filtration | MERV 13 | LEED |
| | MERV 6 - 8 | ASHRAE 52.2-2007 and 62.1-2007 |
| 6 Carbon Dioxide Levels | below 700 PPM above outdoor air | ASHRAE 62.1-2007 |
| 7 HVAC Background Noise Levels | RC(N) Mark II level of 37 | ASHRAE Handbook Chapter 47 |

| | DESIGN PARAMETERS | PARAMETER NOTES |
|---|--|------------------|
| ACOUSTICS // limiting reverberation and background noise and improving sound isolation | | |
| 1 Reverberation | 0.6 per second | ANSI S12.60-2002 |
| 2 Background Noise | 45 dBA | LEED |
| 3 Sound Isolation | STC 45 between classrooms | |
| TECHNOLOGY // providing data connections for online learning resources, AV equipment, closed-circuit televisions, and a sound system with emergency capabilities | | |
| 1 Data / Computer Drops | at teacher workstations and wireless access points | |
| 2 Audio / Video Equipment | | |
| Interactive Whiteboard | | |
| Document Cameras | | |
| Sound Reinforcement | amplifier, microphone, speakers | |
| 3 Clock | synchronized with bell system | |
| 4 Sound System and Emergency Call Box | | |
| Ceiling or Wall Speaker | class change bells, emergency announcements | |
| 5 CCTV Camera | | |
| Security | | |
| WebX Conferencing | | |
| Distance Learning | | |

energy / environmental design

There is a high interest in using school buildings as teaching tools to teach environmental stewardship and awareness, while simultaneously providing engaging environments for students, staff, and community who use the facilities. The organization, understanding, and use of school buildings will have a major impact on student and staff conservation behavior.

The sustainable design and green features of any building can be addressed in an active or a passive manner: active interaction is based on digital displays, educational features, and curriculum-integrated learning about environmental issues; passive interaction is based on the program design, building configuration, green building features, and energy efficient building automation.

Passive Concepts //

1. Building Layout

- Concentrate daylight and views to the outside to areas of frequent human interaction (e.g. classrooms, cafeterias, media centers, art rooms, music rooms) with passive solar design
- Avoid excessive window areas in corridors, lobbies, hallways with no gathering opportunities (design for less than 45% of wall area)
- Avoid skylights and use roof monitors with vertical glazing instead

2. Types of Building Materials

- Use durable wall surfaces that are easy to clean
- Design for cleanability with easy and safe access
- Incorporate light colored pitched roofs to prevent

heat gain and leakage

- Install high performance walk-off mats at all points of entry
- Design with noise minimization in mind

3. Uses of Technology

- For instructional and administrative purposes, the new school should have extensive technology systems. These same infrastructures and technology components can be used to enhance the perception of the building's environmental components. Digital display of building's energy and water use at entrance and in cafeteria
- Website with environmental features of the school
- Use only vacancy sensors for classrooms, cafeteria, etc. to turn off (not on) lighting
- Daylight sensors and dimming in larger areas (cafeteria, multi-purpose, etc.)

4. Vehicular and Pedestrian Traffic

- Provide sufficient, covered, and secured bicycle storage
- Provide bicycle lanes to building from all major access directions

5. Landscaping, Play/Practice Fields, Site, and Lighting

- Use native high trees and low bushes and ground covers and locate to provide shade to the building
- Non-intrusive lighting of all areas (not correctional-type lighting) according to the Light Pollution Credit in LEED-S with no lighting to leave property line

6. Green Curriculum

- Provide outdoor classroom
- Design interior with sense of building's orientation to north – east – south - west

Active Concepts //

1. Building Layout

- Provide signage to educate users about interior and exterior green building features throughout
- Provide signage for user behavior modification, e.g., ACPS policy for thermostat settings, reminders to turn equipment off when not in use
- Provide visitor map with floor plan for location and explanation of green building features

2. Types of Building Materials

- Provide view window to inside of wall constructions and mechanical room
- Provide materials with environmental message in selective areas, e.g. 100% recycled post consumer plastic toilet compartments, wheat board cabinets, or furniture made of wood harvested from school site, and explain with signage

3. Uses of Technology

- For instructional and administrative purposes, the new school should have extensive technology systems. These same infrastructures and technology components can be used to enhance the perception of the building's environmental components.
- Green morning announcement with update on

energy and water use

- Student-conducted energy audits
- School-based resource conservation program with frequent feedback to users

4. Vehicular and Pedestrian Traffic

- Provide preferred parking for ACPS Green Fleet (for carpooling and fuel efficient vehicles)

5. Landscaping, Play/Practice Fields, Site, and Lighting

- Use native high trees and low bushes (less than three feet high) to deter hiding
- Use aesthetically pleasing fencing around perimeter of building
- Non-intrusive lighting of all areas (not correctional-type lighting) according to the Light Pollution Credit in LEED-S with no lighting to leave property line
- Reference the Alexandria City Landscaping Guidelines when providing landscaping

6. Green Curriculum

- LEED credit Schools as a Teaching Tool requires 10 hours of instruction per student, grade, and school year on environmental issues related to the school building. The school building's design should support this requirement wherever possible

safety / security

ACPS wants to maintain an inviting environment, while simultaneously providing a safe environment for students, staff, and the community who use the facility and adjacent support services. The organization of a building will have a major impact on student behavior and safety concerns.

Building security can be addressed in an active or a passive manner: active security is based on security systems; passive security is based on program design, building configuration, and community participation. Schools should be based on passive concepts with applied active concepts where necessary.

The principles of the Crime Prevention Through Environmental Design (“CPTED”) approach should be followed to incorporate passive safety and security measures. CPTED is the broader approach to safety and security that seeks building designs that encourage desirable behavior, heighten functionality, and decrease anti-social behavior.

There are three main considerations in CPTED:

- 1. Natural Surveillance:** the capacity to see what is occurring without having to take special steps to do so
- 2. Natural Access Control:** the capacity to limit who and how someone can enter a facility
- 3. Territoriality:** the capacity to establish authority over an environment regarding who is in charge, who is allowed, and who is not welcome¹.

1. Building Layout

- Avoid blind spots, corners, and cubby holes

- Maintain lines of sight and use of opening to create transparency
- Locate administrative and teacher preparation with good visual contact of major circulation areas (i.e., corridors, cafeteria, bus drop-off, parking)
- Develop spatial relationships that naturally transition from one location to another
- Locate toilets in close proximity to classrooms
- Design toilets to balance the need for privacy with the ability to supervise
- Locate areas likely to have significant community (after-school) use close to parking and where these areas can be closed off from the rest of the building

2. Types of Building Materials

- Use durable wall surfaces and maintainable flooring materials that are easy to clean so graffiti and dirt can be removed
- Incorporate pitched roofs which inhibit roof entry and are aesthetically pleasing
- Operational part of windows on the ground floor should be in the upper portion to prevent access
- Install non-slip floors and walk-off mats at point of entry
- Use of interior glass to create a transparent environment within the school, and
- Colors, artificial lighting, and natural day lighting should be managed artfully to create an environment that is aesthetically pleasing in order to support student and faculty pride in the building.

3. Uses of Technology

- Phones in every instructional and support area
- Building-wide all-call designed to be heard throughout the school and on the play fields, when needed
- Motion or infra-red detectors, which can also conserve lighting costs
- Video cameras that are used for instructional purposes could also be used for security purposes during non-school hours
- Smoke and heat detectors located throughout the building
- Emergency call buttons in large parking areas, and magnetic locking systems and carefully-selected door hardware to facilitate lock downs in needed.
- Considerations should be given to zoning the building for non-school day uses in terms of both energy efficiency as well as security, to include lighting zones, securable zones, and mechanical zones

4. Visitor Management

- The front entry lobby should be welcoming and inviting for students, staff, and visitors with a central visitor registration area prominent upon entry
- Clear way finding signage should be included that directs visitors upon campus arrival to visitor registration and as well as throughout the building to provide overall building guidance
- A secured double vestibule or a video enabled front entry intercom buzzer system should be provide to manage visitor entry
- Front lobby and exterior displays should be provided for communicating school messages

6. Vehicular and Pedestrian Traffic

- Separate bus drop-off area from other vehicular traffic
- Separate staff and community parking areas
- Separate student (pedestrian) traffic flow

5. Landscaping, Play/Practice Fields, Site, and Lighting

- Use native high trees and low bushes (less than three feet high) to deter hiding
- Use aesthetically pleasing fencing around perimeter of the building
- Non-intrusive lighting of all areas (not correctional-type lighting) according to the Light Pollution
- Credit in LEED-Ss with no lighting to leave property line
Provide security lighting around building and parking lots with photocell timer, motion sensor, and on/off capacity

¹Schneider, Tod (September 2002). *Guide 4: Ensuring Quality School Facilities and Security Technologies: Safe and Secure: Guides to Creating Safer Schools*. Northwest Regional Educational Laboratory,

community use

Community involvement in education and educational involvement in the community can take a variety of forms before, during, and after the school day. The following is a partial list of potential community uses:

- Touring groups
- Speech/debate clubs
- After school youth enrichment
- Adult education
- Community meetings
- Mentoring programs
- Parent involvement
- School/business partnerships
- Alternative education programs
- Dance studios
- Community athletics
- Recreation programs
- Health screening
- Senior citizens activities
- Intramural sports programs
- Child care (staff, students, community)
- Voting
- Emergency shelter

Based on limitations established for the size of the facility and budget constraints, most of the community uses will likely need to focus on shared space that is used primarily for school programs during the school day and community uses during non-school hours. Priorities need to be established at the local site level to determine future community activities that may be added in order to be incorporated in the overall master plan.

Even within these constraints, opportunities exist. The areas that have the greatest possibility for community usage include:

- Performance/meeting area
- Library
- Play fields
- Computer labs
- Conference rooms
- Multipurpose room/gym
- Cafeteria

Consideration should be given to furniture and equipment selection for shared uses by students, very young children, and adults. The facility and site should be configured and zoned to enhance parking and circulation, security, and energy conservation. Adequate signage is needed to assist community members. Auxiliary storage needs to be made available for community programs

Collaboration and partnership require greater cooperation in the planning of schools and community facilities. It is important for the school division, governmental agencies, and corporate partnerships to participate collaboratively in the planning of schools.

Planning for future schools should include joint use considerations at the beginning of the process. School divisions and governmental agencies are beginning to realize that cooperation is needed, especially considering ever-shrinking budgets and meeting the diverse needs of the community. There are potential opportunities in jointly developing parks, libraries, and one-stop shopping

centers for human services. Partnerships and joint ventures should be considered and are encouraged by the board of education.



Educational Specifications ■ Alexandria City Public Schools

JULY 2014

ELEMENTARY SCHOOL



for ward





The City of Alexandria (the City) and the **Alexandria City Public School Division** (ACPS) joined together in the fall of 2012 to develop a Long Range Educational Facilities Plan (LREFP) to improve facilities planning, accommodate the growing student population, and enhance educational programs and services. As part of this effort, ACPS has engaged Studio Twenty Seven Architecture and Brailsford & Dunlavey (“the Planning Team”) to develop Elementary School (PreK – 5th Grade) Educational Specifications. An Educational Specification (“Ed Spec”) is the guiding planning document that describes the proposed outcomes of a school modernization or new construction project.

The document presented here is a result of the application of professional technical expertise and the collaboration of invested and knowledgeable stakeholders. The document is outlined in the following table of contents.

The recommended program and concept presented here constitute the professional opinions of the Planning Team based on the assumptions and conditions detailed throughout. This planning effort was in complement to the staff and faculty participation and community input. The School Board will make the final recommendation. It is recommended that this document be comprehensively updated every 10 years.

The **Planning Team** was comprised of the following individuals //

Jay Brinson, Program Manager,
Deanna Newman, Educational Facility Planner,
Beth Penfield, Educational Facility Planner,
Ty Specht, Project Analyst, and
John K. Burke, Architect.

The Planning Team wishes to acknowledge the support, cooperation, and effort of all of the ACPS and City staff who contributed to the planning effort, in particular //

Alyson Alvarez,
Katherine Carraway,
Steven Chozick,
Susan Eddy
Mark Eisenhour
Andrea Feniak,
Laurel Hammig,
GwenCarol Holmes,
Pat Mann
Karl Mortiz, and

All of the faculty, staff, and committee members who joined the effort throughout.

TABLE OF CONTENTS



introduction //

| | |
|-----------------------------|----|
| purpose | 08 |
| process | 09 |
| national trends | 14 |
| context / formulation | 16 |
| strategic vision | 20 |

planning concepts //

| | |
|--|----|
| capacity | 22 |
| program area summaries | 25 |
| conceptual building organization | 34 |

design principles //

| | |
|---------------------------------|----|
| overview | 36 |
| the 700 student prototype | 40 |
| space summaries | 41 |

SPACES ///

| | |
|--|------------|
| core academic / E-ACA | 44 |
| media center / E-MC | 70 |
| visual arts / E-VA | 84 |
| music / E-MU | 92 |
| physical education / E-PE | 102 |

| | |
|------------------------------------|------------|
| administration / E-AD | 119 |
|------------------------------------|------------|

| | |
|------------------------------------|------------|
| student dining / E-SD | 153 |
|------------------------------------|------------|

| | |
|---|------------|
| maintenance & custodial / E-MC | 171 |
|---|------------|

| | |
|--------------------------------------|------------|
| building support / E-BS | 181 |
|--------------------------------------|------------|

appendix //

| | |
|---------------------------------------|-----|
| space and tag list | 207 |
| glossary of terms | 209 |
| energy / environmental criteria | 211 |
| technology | 215 |
| safety / security | 216 |
| community use | 218 |
| prototype chart | 220 |

INTRODUCTION ///

purpose

Educational Specifications (“Ed Specs”) are developed to serve as the guiding recipe and benchmark for future school renovations and new construction projects.

Per the National School Boards Association // **“ The purpose of educational specifications (“Ed Specs”) is to define the programmatic, functional, spatial, and environmental requirements of the educational facility, whether new or remodeled, in written and graphic form for review, clarification, and agreement as to scope of work and design requirements by the architect, engineer, and other professionals working on the building design. ”**

In essence, the Ed Spec tells the story of the school facility and how the built environment will support the academic program and vision of school leadership. This generic Elementary School Educational Specifications is primarily intended for use as a planning guide by architects and project planners but it is also intended to serve as communication and benchmarking tool for all project stakeholders: students, parents, and families; faculty and administrators, civic leaders and community members; and project design and construction partners.

The general concept embodied in the specifications is to provide adequate details for proposed spaces while leaving ample flexibility for creativity and options in design by the architects. They are meant to define expectations amongst project stakeholders but not limit creativity. The Ed Spec is also meant to be a living document, amendments can be discussed, developed and issued over time.

Project Planning //

During the planning phase of a project, the Ed Spec will be utilized to understand and develop future project scopes of work and budgets. The Ed Spec will be included in project procurements to ensure that interested vendors are clearly and uniformly communicated the intent of a project and therefore provide well informed responses to meet actual project needs. While the unique site locations of new schools may necessitate floor plan modifications, the program and space requirements should be modified only as allowed within the parameters of this document.

Project Implementation //

During the implementation phase the Ed Specs will be utilized for quality control, allowing ACPS to measure project deliverables against the stated benchmarks and standards. Design deliverables and construction will be reviewed for compliance with the standards and goals stated herein with a goal of meeting benchmarks by 10 to 15 percent. Additionally, the Ed Spec will help provide the foundational support for project decisions during implementation as responses can be measured against their responsiveness to the Ed Spec.

Project Turnover and Occupancy //

The Ed Spec can serve as a valuable aid in the turnover of the facility to staff and administrators and other occupants. It is a user friendly document that allows people outside of design and construction professions to understand the building and the intent of its spaces.

process

Planning a state-of-the-art school requires the consideration of several influencing factors: the historical and forthcoming context of the community; the current and future learning pedagogy and curricular goals; the technical expertise of the faculty and administrators; national and regional trends and benchmarks; and strategic visioning goals and objectives.

Developing the plan requires the cooperative efforts of facility specialists, administrators, faculty and instructional consultants, in addition to the careful involvement of outside partners and community stakeholders. In order to create the best possible learning environment for children, an effort has been made to incorporate the best ideas from existing plans and facilities as well as to anticipate future needs for educating Alexandria's children.

As mentioned, ACPS and the City are working together to develop a long range educational facilities plan in order to develop thoroughly coordinated plan that responds to projected enrollment growth and considers city-wide needs in a comprehensive manner. The LREFP process, which is shown in figure 1.0 on the following page, focuses on developing technical details in three key areas: Enrollment Forecasts, Current Facility Conditions and Capacities, and the Educational Specifications. The joint work group has subcommittees assigned to each of the three technical areas to enhance the efficacy of community involvement and report on progress to the full work group.

The overall workflow for the development of the Educational Specifications is demonstrated in figure 1.1 on the following

page. The process began with a series of discussions devoted to aligning this document with the Division's strategic objectives and vision for future schools followed by several weeks of interviews with technical experts, building users, and other stakeholders. The project Planning Team was careful to solicit community and student input at key intervals to ensure the document considers all perspectives related to facility needs, adjacencies, and space prioritizations.

Input from specialists in technology, facility planning, other school divisions, and elementary school pedagogy has been added to the basic plan to ensure quality facilities well into the twenty-first century.

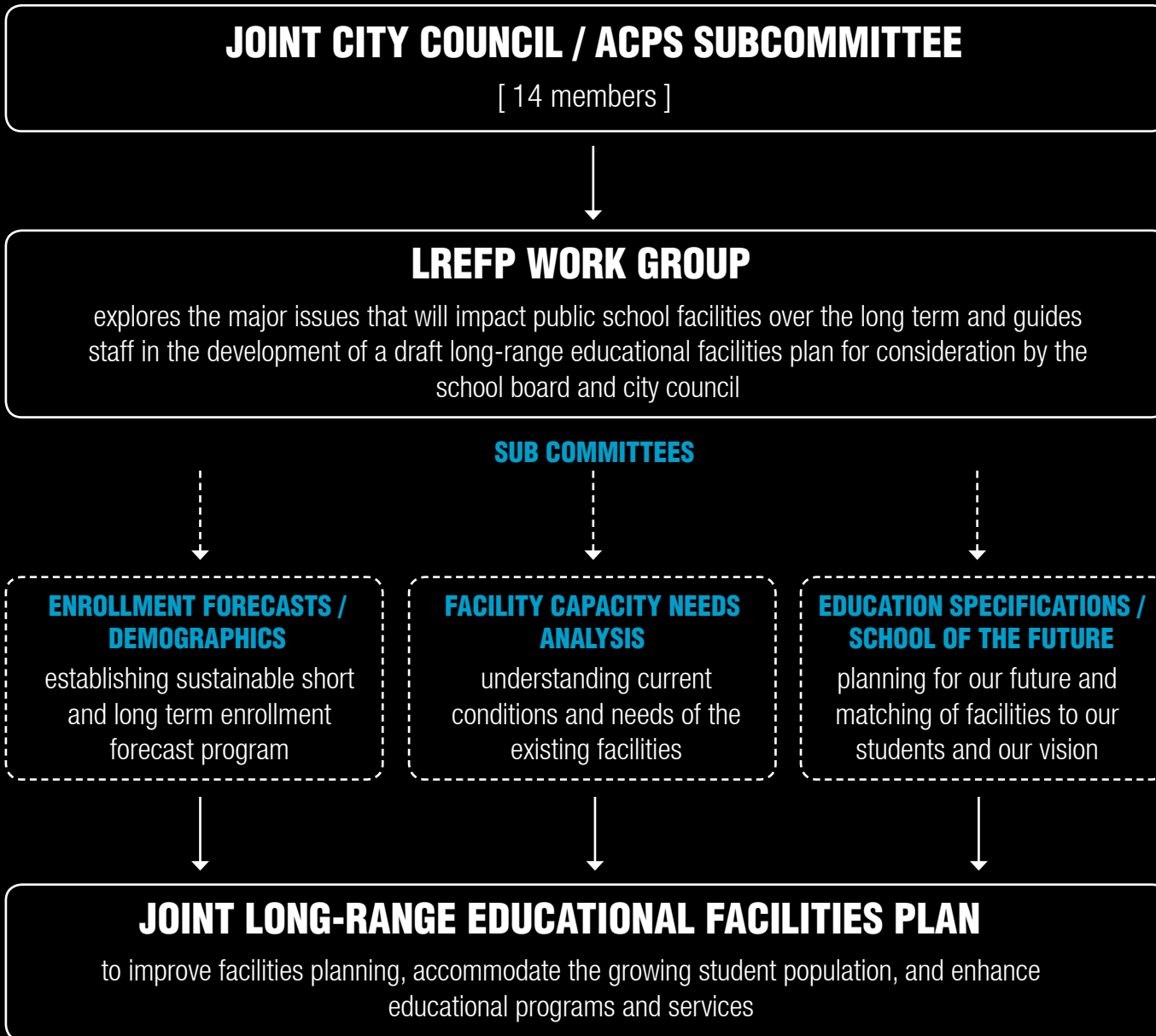


FIG. 1.0 /// PROCESS DIAGRAM

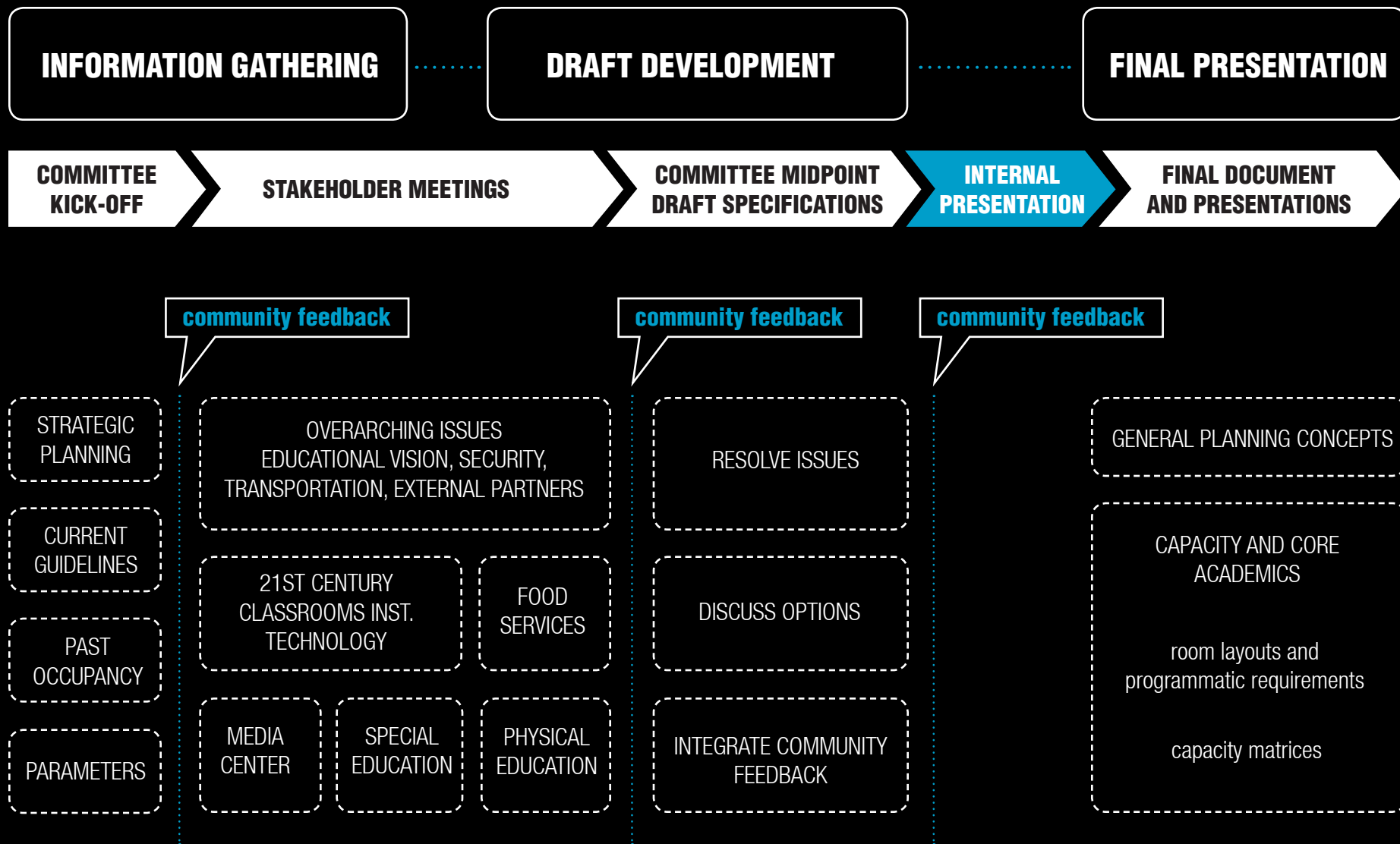


FIG. 1.1 /// **WORKFLOW DIAGRAM**

national trends in educational facility planning

Each school division is unique from an educational and building program perspective. Balancing against national, state, and local regulations, it is important to understand that one size does not fit all. The trends and planning principles presented here are to provide context to the formulation and development of this document.

21st Century Learners //

Learning environments should be planned and designed in consideration of supporting all learners: auditory, tactual, kinesthetic and visual. Individual learning styles impact the way in which individual students:

- Concentrate in one's immediate surroundings
- Process information
- Make decisions and solve problems
- Complete tasks and assignments
- Interact with others
- Retain new information

Educational facility planning and design can help maximize learning by considering differentiated instruction and recognition that 'one size does not fit all' when it comes to learning environments.

Today's learners were born digital and are used to having the world of information at their fingertips and in their pockets. Today, learning can occur "any time, any place, any path, any pace." Classrooms are transitioning from environments focused on teacher-directed whole-group instruction to learner-centered workplaces that support a collaborative culture of students at work.

Schools and homes continue to be important places

for learning, but not exclusively. Understanding the importance of the "third learning space" - the many places where students learn in ways not bounded by the schedule of the school day, the limitations of the four classroom walls, or the location of one's home - is a critical component in planning and designing innovative, inspirational, and thriving educational environments.

Student Focus Group //

The Planning Team held a focus group with middle school students from George Washington Middle School to discuss current and future learning environments and help inform the plan. The prevailing theme centered on students wanting the opportunity to have choices for how and when they learn throughout a class period as well as throughout the day. They generally understood that each student has a different style of learning and recognized the importance of providing appropriate environments and opportunities for each learning style.

Other student discussion points captured generally accepted evidence based design elements and other trends in modern educational environments:

- Exciting, engaging and varying learning spaces
- Access to natural daylight and climate control
- Ability to control acoustics and ambient noise
- Furniture options, adaptability, convertibility, and ergonomics
- Ability to work alone and/or in groups
- Space to move around and work within classrooms
- Informal break out spaces within corridors
- Healthy eating options and improved dining

facilities

- Use of the media center for multiple activities (quiet and noisy)
- Access to deliberate outdoor learning spaces
- After school access to spaces such as the Media Center and fitness spaces

Classrooms & Technology //

The 'classroom of the future' should be more personalized, student-directed, collaborative, interdisciplinary, and hands-on than those of even 10 years ago. As the focus of education moves away from just the transmitting of information and to developing creative problem solving and communication skills, the classroom setting is morphing into a beehive of activity – a learning studio.

At different times, students may be working alone, in pairs, or in groups:

- Working alone: reading, writing, interacting with the computer, or just thinking
- Working together in pairs or groups: dissecting a problem or reading and reacting to one another's written work, role-playing, or sharing ideas, opinions, and experiences
- Interacting with the teacher and the whole class: listening, making presentations, asking questions or brainstorming ideas

Teaching methods should address a variety of learning styles and children with disabilities are educated alongside their non-disabled peers at their neighborhood

school.

The classroom of the future should no longer be just one- directional with rows of desks facing the 'front' of the room. It should have a variety of focal points with mobile resources to support learning, flexible furniture, and robust technology. Rooms should also range in size and purpose from small incubator and assessment spaces to large seminar and presentation areas. Corridors and informal learning spaces should create a seamless and extended learning environment.

Technology is infused seamlessly into the education program and physical building and wireless connectivity allows for learning to occur whenever and wherever. Classrooms are versatile, flexible and adaptable to support different mediums.

Media Centers and Student Commons //

The 21st Century school media centers are changing from being quiet book-lined storage spaces for research and reading to multi-media, interactive studios of social collaboration for faculty and students. They are seen as a learning 'commons' - an extension of the classroom and the social and technology heart of the school.

New media centers are more than 50 percent digital and offer both learning and gathering areas as well as production areas. The ideal media center might move from noisy to quiet - through a 'café' and mobile computing environment, to small, AV-enhanced, group study conference areas, to individual study carrels or a media

national trends in educational facility planning

production room.

The technology that this generation of students understands and uses is multi-media. They communicate and learn through on-line devices, but they also publish and perform. The media center may include a computer lab for research, a publications room for the school newspaper and yearbook, a video production and editing lab for film, a distance learning lab, and a variety of display venues.

National standards for media centers call for 4-6 SF per student. Even at this size, most learning commons cannot offer a full range of media options. Multimedia satellites instead are infused throughout the school to complement core curricular activities. Many learning commons also offer virtual space to bring together a generation that grew up on social media.

Building & Grounds //

The school building itself is considered a learning tool and a community asset. There is a sense of identity and the quality of architecture instills a sense of place and pride. The architecture considers learning opportunities over the entire campus, including school grounds and landscaping.

Transparency of spaces help foster an internal sense of community and excitement about the learning activities that are occurring within. Use of glass allows for visual connections externally and internally. Front entrances are inviting and welcoming for all community member – parents, families, neighbors. The school is a hub of activity before and after school as well. Health services and other non-

educational support are often provided.

Evidence-Based Environmental Elements //

Evidenced-based design is the consideration of credible research findings in the planning and design process with a goal of achieving positive outcomes. Researchers have presented findings that link measurable outcomes such as student attendance, academic performance, faculty retention, and disciplinary actions. More specifically, several design elements have been connected to these outcomes: Lighting quality, indoor air quality, acoustics, and furniture design.

Lighting Quality //

The Heschong Mahone Group found statistical correlations between the amount of daylight in an elementary school classroom and the performance of students on standardized math and reading tests in 1999. Since then, case studies and further research have supported this finding and the educational facility planning community has generally accepted the following classroom design parameters.

Goal: Improve natural and artificial lighting in classrooms.

Environmental / Air Quality //

According to the US Center for Disease Control and Prevention, American children miss approximately fourteen million school days each year due to asthma. Controlling environmental factors such as dust, pollen, and carbon monoxide could help prevent more than 65 percent of asthma cases of elementary school-

age students according to the American Journal of Respiratory and Critical Care Medicine. The following classroom design parameters should be considered when modernizing a school facility.

Goal: To ensure comfortable rooms, address temperature control, ventilation, air filtration, carbon dioxide levels, and HVAC background noise.

Acoustics //

Research links the importance of maintaining appropriate acoustic conditions for student learning. This relates to noise from external sources and reverberation in the classroom and is linked to academic achievement, behavior, attention, and academic concentration. Acoustics are also important for teacher wellness and avoiding straining vocal cords while attempting to speak over noise. Classroom design parameters are generally accepted as outlined.

Goal: Limiting reverberation and background noise and improving sound isolation.

Ergonomics //

A 2007 study compared adjustable furniture in schools to traditional fixed furniture. Students using adjustable furniture were found to have higher grades than those in the control group using traditional school furniture. Characteristics of furniture that promote good posture should be considered as well as adjustable desks and chairs to allow students of varying sizes and body types to improve their comfort levels when sitting for long

periods of time. Research studies continue to explore this issue.

In summary, these national trends provide an important context for many of the ideas that ACPS is working to implement and how those concepts are articulated within this document.

City of Alexandria: Demographic, and Economic Context //

The City of Alexandria is divided into 18 planning neighborhoods, each with their own unique history and atmosphere ranging from the more urban historic neighborhoods close to the District of Columbia to the more suburban western communities. In general, most neighborhoods serve higher income professionals seeking safe, walkable community close to DC. Typical of the Metro, people come from all over the world – ACPS records 128 countries of birth and 103 languages.

According to the 2010 census, the City was 60percent white (16 percent Hispanic), however ACPS is more diverse.

- Black: 31.95 percent
- Hispanic: 33.04 percent
- White: 27.07 percent
- Asian: 4.56 percent
- Native American: 0.49 percent
- Native Hawaiian/Pacific Islander: 0.32 percent
- Multi-racial: 2.29 percent

As a percentage of total population, the school age population in Alexandria is lower than the United States



as a whole. This is due primarily to the fact that much of the City’s historic growth has been from young adults moving to the Washington, DC metropolitan area for new jobs. As a result, the City has become more urbanized with over 60 percent of the housing stock being multifamily and an average household size of just over two persons.

The school age population in Alexandria had been steadily declining since 1970, but the decline tapered off in 2007. Although the percentage of school age population in Alexandria remains lower than adjacent Virginia counties; between 2000 and 2010 the number of children aged 0-5 grew at more than twice the rate of the whole population (22 percent to 9.1 percent). This growth trend combined with observed increases in kindergarten capture and cohort survival rates has

led to over 31 percent enrollment growth since 2007. Based upon these trends and recent work with the City’s planning department, ACPS believes that enrollment growth over the next five years will continue to outpace the citywide growth rate at more than a 3:1 ratio.

To underscore the diversity of the student population in Alexandria it is important to note that although median incomes in the city are among the highest in the region, approximately 60 percent of ACPS students are eligible for free or reduced lunch programs. Further, the division has a strong international presence with English Language Learner (ELL) students accounting for nearly 20 percent of the school population.

FIG. 2.1 // **REGIONAL STATISTICS**

| CURRENT AS OF 2/2014 | SCHOOLS | TOTAL ENROLLMENT | FREE LUNCHES | REDUCED LUNCHES | ELL STUDENTS |
|-----------------------------|----------------|-------------------------|---------------------|------------------------|---------------------|
| PreK - 5th | 5 | 3328 | 1871 | 369 | 392 |
| K - 5th | 7 | 4206 | 1650 | 339 | 1065 |
| PreK - 8th | 1 | 329 | 266 | 19 | 48 |
| 6th - 8th * | 2 | 2550 | 1273 | 297 | 487 |
| Total | 15 | 10413 | 5060 | 1024 | 1992 |

*Reflects ACPS’ current direction to return to a traditional style of school model and abandon multiple schools within one building

ACPS Learning and Teaching Model //

Learning and Teaching in ACPS is a well-executed balance between a rigorous curriculum, proven instructional strategies (pedagogy) and relationships with students that communicate high expectations and commitment to student success.

ACPS has developed and uses a 21st century curriculum that is focused on helping students become critical thinkers and problem solvers. In addition to helping students acquire declarative and procedural knowledge, each unit has a focus on higher-order thinking skills to ensure students are developing critical thinking skills needed for post-secondary success: reading complex text, writing at a post-secondary level, analyzing and interpreting data and participating in discourse across the disciplines.

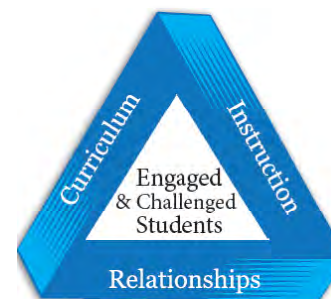
Instructional Methods //

Instructional methods vary with grade level, but maintain continuity from early childhood through the primary, intermediate, and middle grades. Predominant elements include:

- Integrated learning, where content areas cross disciplines
- Flexible groupings (In primary grades, regrouping stays within the classroom).
- Mentoring of older to younger students
- Extended day learning opportunities
- Parent involvement and volunteer activities

ACPS offers 'What to Expect' brochures for every grade level available on its web site and the full program of studies is

available for middle and high school. These documents should be referenced by architects to better understand program offerings and curriculum goals.



THIS PAGE IS LEFT BLANK INTENTIONALLY

strategic visioning

ACPS was guided through a series of visioning sessions with educators, administrators, and community members that challenged them to clarify their expectations related to facility operations, sustainability, architectural quality, space priorities, and the community context. The visioning sessions focused on identifying gaps between ACPS' future goals and their current realities. The following narrative summarizes the areas of greatest dissonance and formulates the concept for the construction and operation of a school of the future in Alexandria.

Building Concept and Priorities of Spaces //

The desire to teach whenever and wherever drives the need for future facilities to implement a spatial organization that provides both formal and informal learning spaces and maximizes collaboration and interaction between students and faculty.

School designs should focus on creating collaborative and adaptable learning spaces supported by a robust and seamless integration of technology and flexible and ergonomic furniture. Incorporating an overall organization of small learning communities with breakout spaces in hallways (ELA's), collaborative spaces in classrooms, and spaces that facilitate chance interactions throughout the school will allow teachers to collaborate across disciplines and tailor learning objectives and lessons to students' individual needs.

Providing multifunctional spaces for third party partner and community programs that extend educational and extra-curricular services to students, families and the community

is a priority. The facility should operate as one organism that can be segmented into different functions and zones depending on the time of day and use.

Community Context //

ACPS school facilities should serve as neighborhood assets and centers for parent, family and community interaction and engagement. Parental and family support plays a critical role in the success of students. ACPS students and families come from diverse backgrounds and schools should be welcoming and inviting places that include dedicated space for parent and family engagement as well as spaces available for community and partnership use.

Each school community is unique and designers should consider what spaces best support the community's needs; however, all schools should be planned and designed to support community use during non-school hours. Implementing a secure separation between the academic core and the shared use spaces along with the careful application of active and passive design strategies will create safe and secure learning environments.

Organizational and Operational Paradigm //

ACPS believes an integrated, interdisciplinary team approach will increase student achievement and faculty collaboration and enhance the overall learning experience. A collaborative team approach is best facilitated with small learning communities, extended learning environments, and a departmental organization of spaces. Media Centers should be seen as the 'learning commons' and be utilized

regularly as an extension of teacher's classrooms and workspaces.

ACPS desires to increase inter-student collaboration and group learning and activities. To support this, flexible and adaptable informal and formal teaching spaces are required. Emphasis will be on spaces and configurations that support critical thinking and project based learning ideally within groups of four students and the ability to break out of formal learning environments. Utilizing a push-in and team teaching approach, special education students will learn in the same collaborative learning environment as their peers.

Architectural and Construction Quality //

ACPS has a strong belief that high-quality architecture has a positive influence on student success and faculty retention and is committed to delivering high-quality, state-of-the-art, and sustainable facilities to students and faculty and the community. This belief applies to the external and internal qualities of the facility. The school facility and grounds are considered a learning tool and creativity in design and architecture is a priority.

Quality of design and engineering should focus attention on areas that most impact the learning environment with a particular emphasis on incorporating researched-based facility elements, such as enhanced natural lighting, acoustics, air quality, climate control and technology, that directly impact student achievement and educator effectiveness. Externally, the architecture must be respectful of the historical and cultural context of the community while

simultaneously inspiring students and the public.

Materials and system selections should consider extended life cycles. Building systems, materials, and finishes must be resilient, easy to maintain, and create a positive, aesthetically pleasing learning environment. Life cycle of materials should balance quality and potential for future costs in an effort to ensure appropriate use of public funds is achieved.

PLANNING CONCEPTS ///

The following section provides executive summary level descriptions of the capacity analysis and planning concepts of each program space within an ACPS school facility. Detailed descriptions of each space are included later in the document.

capacity

Every school project begins with establishing the number of students that will be served when the project is complete or the 'capacity'. Capacity is the primary driver in determining the number, type, and size of the spaces in the new or modernized building.

There is no ideal school size. Schools in ACPS range from 373 students at Cora Kelly Elementary School to 874 students at John Adams Elementary School. Though the division does not have a preferred school size, for the purposes of planning, this educational specification assumes that school capacities will range between 450 students and 800 students. **This prototype is based on 700 students for illustration only.** Nationally, the average school size is 600 (540 in Virginia) with smaller schools in urban cores. The Division has been provided with an active, editable spreadsheet that will allow planners and architects to develop facilities lists for a range of schools based on the capacity and unique program needs in real time.

Simply defined, school capacity is a product of the number of classrooms at a school and the student stations assigned to each room type. Only classrooms that are 600 square feet or more with a teacher and students regularly assigned to the space are counted toward full time capacity. For elementary

schools, small instructional spaces and specialized labs including art, music, or resource are not part of the capacity calculation. It is possible for a school's capacity to change in minor ways from year to year based on average class sizes (determined by the budget) or changes in the number and type of programs.

Currently, the ACPS budgeted class size caps range from 22 in kindergarten to 26 in 5th grade. Figure 3.1 on the following page identifies class sizes for school divisions surrounding the City of Alexandria in addition to those recommended by the code of Virginia. The classroom size limits enunciated by the ACPS School Board are generally in line with the regional averages.

Class size caps establish a maximum desirable class size but the average class size in ACPS is lower. By applying actual school staffing to the current enrollment it can be determined that for most ACPS schools, class sizes range from 20- 24 in grades kindergarten through 5th grade. The lower class sizes are more in keeping with the division's long range policies and goals. For the purposes of planning the following class sizes will be used to calculate a 'design' capacity. It is important to size all classrooms to accommodate the maximum number of students even if the average is used for capacity planning.

Once a capacity is proposed, many other areas of the building are sized to support the enrollment. The number of small group rooms, art and music labs, and support staff offices are based on staffing formulas. The size of the core areas such as media center, dining and food services,

FIG. 3.0 // **CLASS SIZE**

| ROOM TYPE | RANGE OF CLASS SIZE | TARGET FOR PLANNING |
|----------------|---------------------|---------------------|
| Pre-K | 16-20 | 18 |
| Kindergarten | 20-22 | 20 |
| Primary Grades | 22-24 | 22 |
| Intermediate | 24-26 | 24 |
| Special Needs | 6-12 | 10 |

FIG. 3.1 // **REGIONAL BENCHMARKS**

| SPACE | ENROLLMENT | | | | | | RECOMMENDED OR AVERAGE CLASS SIZE PER GRADE | | | | | | | | SF / STUDENT | |
|-----------------------------------|---------------|--------|-------|----|-----|-------|---|------|------|------|------|------|------|----|--------------|---------------|
| | K-5 | 6-8 | Pre-K | HS | VPI | PS | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | 8 |
| Arlington ₁ | 13,277 | 4,860 | | | 544 | | 24 | 24 | 25 | 25 | 27 | 27 | | | | 118/ES 157/MS |
| Fairfax ₂ | 98,264 | 27,872 | | | | | 22 | 22 | 22 | 21 | 22 | 22 | 23 | | | |
| Loudoun ₃ | 33,574 | 16,512 | | 99 | | 620 | 22 | 22 | 22 | 22 | 22 | 22 | 21.6 | 22 | 22 | |
| Prince William ₄ | 39,538 | 19,473 | | | | 505 | 23.8 | 23.3 | 23.3 | 23.3 | 23.3 | 23.3 | 30.3 | 30 | 30 | |
| District of Columbia ₅ | 21,348 | 7,018 | 3,368 | | | 2,197 | | | | | | | | | | |
| Code of Virginia ₆ | | | | | | | 24 | 24 | 24 | 24 | 25 | 25 | 25 | | | |
| Average | 41,200 | 15,147 | 3,368 | 99 | 544 | 1,107 | 23 | 23 | 23 | 23 | 23 | 23 | 25 | 26 | 26 | |
| United States ₇ | pk-8 2009 avg | 34,418 | | | | | 23.7 | 23.7 | 23.7 | 23.7 | 23.7 | 23.7 | 23.7 | 24 | 24 | |
| Alexandria ₈ | 7,616 | 2,597 | | | | | 22 | 24 | 24 | 26 | 26 | 26 | | | | |

*Code of Virginia 22.1-253.14:2 C states: "24 to one in kindergarten with no class being larger than 29 students; if the average daily membership in any kindergarten class exceeds 24 pupils, a full-time teacher's aide shall be assigned to the class; (ii) 24 to one in grades one, two, and three in any kindergarten class exceeds 24 pupils, a full-time teacher's aide shall be assigned to the class; (ii) 24 to one in grades one, two, and three with no class being larger than 30 students; (iii) 25 to one in grades four through six with no class being larger than 35 students."

- 1- www.apsva.us
- 2- www.fcps.edu/fts/dashboard/
- 3- www.lcps.org
- 4- pwcs.schoolfusion.us
- 5- dcps.dc.gov
- 6- www.doe.virginia.gov
- 7- nces.ed.gov
- 8- www.acps.k12.va.us

physical education facilities, and site amenities are based on local and national benchmarks related to size.

The following chart (figure 3.2) summarizes the breakdown of the proposed capacity for a prototype 700 student elementary school. The balance of this document outlines the spaces for this sample prototype

Per the Guidelines for School Facilities in Virginia’s Public School, the goal of the optional guidelines developed by the Virginia Department of Education is

“ ... to provide recommendations that will help local school divisions ensure that their school sites and facilities support the principles of good teaching and learning and promote sound educational programs. ”

The guidelines developed here by the project team respond to or exceed the Virginia State guidelines and recommendations. It is the responsibility of the architect to ensure their plans meet or exceed the current state guidelines at the time of actual project design in the event the state guidelines has changed and this document has not yet been updated to reflect those changes

| GRADE | # OF CLASSROOMS | CAPACITY | TOTAL |
|---------------|------------------------|-----------------|--------------|
| Pre-K / Pre-S | 5 | 18 | 90 |
| Kindergarten | 5 | 20 | 100 |
| Grade 1 | 5 | 22 | 110 |
| Grade 2 | 5 | 22 | 110 |
| Grade 3 | 4 | 25 | 100 |
| Grade 4 | 4 | 25 | 100 |
| Grade 5 | 4 | 25 | 100 |
| Total | 32 | | 710 |

FIG. 3.2 // **CLASSROOM CAPACITY**

program area summaries

The following section provides executive level narrative summaries of the core program space areas. Detailed descriptions of each space within a program area is provided later in this document.

Main Office-Reception/Administration/Student Services //

As students, families and other visitors enter an ACPS building, it is important that they are greeted with an inviting and well organized front office suite. The main office should be located near the primary entrance to the school. The architect should consider security when designing the main office. The space should be organized to provide direct visual access to the entrance doors. Provide appropriately sized office spaces with an adjoining shared conference room and adjacent staff restroom. Occupational and Physical Therapy services are provided by ACPS staff who travel between multiple school locations. Within the main office, provide an appropriately sized space that includes itinerant work stations and storage. Near or adjoining the main office, provide the Family and Community Engagement center. Other administrative functions can be dispersed throughout the school via grade level suites to encourage maximum student collaboration and connection.

Visitor parking should be located by the front door. Signage and building design should clearly indicate the school entrance. Immediately upon entry, visitors should be directed to the Welcome Center/main office. For security reasons, no visitor should be able to enter the classroom areas without being checked through the reception area. See Security section for additional suggestions.

A digital information kiosk in the lobby may provide real-time data on the school's administrative and building operations. This may include information on the buildings energy use, water use, and the latest recycling rates.

Health Services //

Health Services should be located near the main entrance to the school. Health Services is responsible for providing health related amenities to all students and staff. The space should be organized to provide appropriate space for:

- health screening
- illness or injury treatment
- meetings and trainings
- prescription medication storage and distribution
- secure records keeping
- private consultations
- rest and recovery units
- waiting area.

In addition, it is possible that a facility in the future will provide (location depended) community partner/provider operated wellness centers. These centers will require additional spaces to accomodate offerings and amenities such as:

- full medical evaluations
- full laboratory services
- dental services
- radiology services
- pharmaceutical services.

Cooperative and collaborative wellness centers are desired (location dependent) and operated through community partnerships.

If the school division elects to provide a school based health center (SBHC), the architect should work with the division's officials to ensure full space programming requirements are met according to federal regulatory standards. This center should be adjacent to the school clinic but implementation of a full SBHC will require significant advance coordination by ACPS.

Core Instructional Spaces //

The basic organizational structure of the school should reflect a cluster concept and should consist of general purpose classrooms, commons space for informal instruction, a small group room, two and three dimensional display areas, and a teacher work center. Each cluster should also contain a resource classroom used by support educators and an extended learning area to facilitate collaborative teaching and learning. Student restrooms should be located within all classrooms or shared by two adjoining classrooms.

Classrooms //

Flexible and easy to arrange furniture that is easy to store is preferred. Student arrangements should reflect small collaborative groupings over individual desk arrangements. Many classrooms are designed around discovery-based learning centers. Provide 'teaching and learning' surfaces on two walls to include touch screen interactive boards,

magnetic white boards and tackable surfaces at student height.

Restrooms should adjoin classrooms at every grade level to increase flexibility for conversion to younger grades if necessary. Each classroom should include a sink and a water bubbler. The provision of an itinerant or hoteling space for drop-in or special needs instructors is another unique feature that should be included in each classroom.

Extended learning areas (ELA) should be incorporated into designs as additional teaching spaces learning areas that occur adjacent to each academic cluster. ELA's are open spaces off the corridor that are meant to facilitate break out instruction, small group and project-based work in addition to multi-class collaboration and joint teaching initiatives. ELA's vary in size based upon the individual needs of the school and the academic cluster and should be designed and equipped to accommodate a variety of furniture arrangements to optimize flexibility.

Science //

Each elementary-level classroom should be designed to support science activities and simple lab components. Schools should supplement the in-classroom sinks by providing a portable science demonstration cart for each academic cluster. Additionally the provision of an outdoor classroom, a garden area, and/or a food lab should also be considered in order to support elementary level science instruction. If a food lab is provided, it should be located off the main dining area and equipped as a dual

purpose warming and cooking studio for both teaching and extracurricular activity support.

Special Education //

Special education facilities should be integrated throughout the school to support the concepts of inclusion and the specialized requirements for the students. Currently, more than 70 percent of all students with disabilities are included in standard learning environments for 80 percent of each day. In all elementary schools, provide at least one resource space for every two grades or at least three spaces per school to support individualized learning needs and/or speech therapy. Typical occupancy of a pullout space is approximately four to five people.

A dedicated, programmatically-sized classroom may be necessary on a location-by-location basis to support City-wide programs and would be identified at the time of individual site planning. Special education facilities should be integrated throughout the school to support the concepts of inclusion and these specialized requirements should be integrated throughout the school to support the concepts of inclusion and these specialized requirements should be considered for the identified student groups. Special attention should be given to accessibility of all facilities and an integrated learning program.

English Language Learning (ELL) //

ELL instruction occurs at every elementary school in the division but enrollment can vary from as little as five percent of the school's total student population to over 50 percent.

The majority of ELL instruction is pushed-in to the general education classrooms with an itinerant instructor floating into classes as needed. Elementary schools also provide an English Language Development (ELD) break out class which can typically be accommodated in one of the resource classrooms; however, in schools with a large ELL population, such as Ramsey ES, it is possible that a dedicated classroom will be required. Designers should be careful to inquire about the site-specific requirements.

Talented and Gifted (TAG) //

A TAG program exists at every elementary school in the division, although enrollment varies widely from school to school. Staffing levels are based upon enrollment but at most schools there is one full time TAG teacher. For grades K – 3, TAG curriculum is 'pushed in' to the standard classrooms and is managed by the elementary teachers. At the 4th and 5th grade levels the same strategy is utilized for social studies and science curriculum; however, mathematics and language arts TAG course work is 'pulled out' into a separate classroom. Typical class size for these TAG classes is about 15-20 students, warranting the provision of an assigned, standard classroom. Additionally, TAG curriculum emphasizes project-based learning which may occasionally require use of ELA space or resource rooms along with the provision of storage for student projects.

Early Childhood //

ACPS does not currently provide universal pre-kindergarten programs and, at some schools, early

childhood education is provided either through a state funded grant (Virginia Preschool Initiative) or federally funded grant such as Head Start (provided by a community partner, The Campagna Center). In accordance with national trends toward earlier schooling, ACPS desires to implement universal prekindergarten at every school. For planning purposes, this document allocates classrooms for early childhood at every school at 80 to 90 percent of the planned kindergarten classrooms. At schools that house Head Start, classes can be held in standard PreK/K classrooms described in this document.

Visual and Performing Arts //

ACPS has a strong arts focus in the elementary and middle grades. Well-designed spaces need to support a vigorous curriculum and creative presentations. Art, music, and multi-purpose classrooms should be shared by all grade levels for general class and small group instruction. The location and access to these rooms should promote orderly transitions.

Larger ACPS schools often have more than one art teacher (but less than two). The main art instructor assigned to the school will own the main art classroom and ancillary spaces. Optimal location for the art room is on the ground floor with a northern daylighting orientation. Access to an outside patio or seating area should offer additional work space, display spaces, and performance spaces. Itinerant art instructor assigned to the school will function out of the Early Childhood Dining/ELA space where a separate art storage location is provided. This location provides the opportunity for push-in art assembly or the ability to program the adjacent ELA as a full-

size classroom when needed.

Larger ACPS schools often have one music teacher each for choral, band and orchestra – not all full time. Large practice and performance spaces are not provided for part-time programs and so the stage may be used part of the day for practice for orchestra or one of the other classes. If possible the music suite should be located near the stage and instrument storage shared between the band and orchestra. Chair and music stand storage can be provided on or under the stage.

Media Center //

The media center serves a dual role – its traditional role as a gathering place for research and learning and a new role as a technological information base and learning hub. In this new role, the media center may house a wireless voice/video/data network, which runs throughout the entire building. This network enables the transmission of media services to the desktops of teachers and students without physically entering the media center. The new library will utilize digital technology to enhance voice, video, and data communications within the school, among division facilities, and with distant learning resources.

“**Today's library is a learning place, not a warehouse space. And it must be a fluid environment, one that continually reinvents itself to remain relevant, that adapts to new knowledge of learning and new pedagogy. The concept of the library as a hushed, quiet space, where all students study individually and silently, sitting up straight on**

uncomfortable, wooden chairs is a concept that should have long ceased to exist. Students have become accustomed to multimedia environments, working in groups, and multitasking.

Libraries must be spaces where multiple activities can take place simultaneously. And since there are many different learning styles, the library should offer as many different types of environments as possible—quiet study areas, group activity areas, spaces for individual and small group work, spaces for instruction, and spaces where students can listen to music”

Rolf Erikson, DesignShare interview Nov 2006

Physical Education //

To support the elementary school physical education program, a variety of indoor and outdoor areas are required. Outdoor physical education teaching areas should be located near the indoor gymnasium. Physical education facilities should be designed with a focus on community use during non-school hours, since there is a high demand for both indoor and outdoor facilities.

ACPS offers formal physical education to elementary students twice a week. For larger schools this may mean 2-4 teachers are teaching in the gymnasium at the same time. At a safe 100 square feet per student, larger schools need a full size gymnasium to accommodate the program. Because the elementary schools do not have intramural sports, no seating is required. To further support the physical education program and provide for after school

programs, larger schools should have a smaller multi-purpose space.

Parking should be located near the gymnasium and a separate entrance should be provided for after school activities. Flexibility of space use is desired and designers should provide the ability to separate the gymnasium into two smaller gym stations during teaching periods.

Dining and Food Service //

The dining space(s) should accommodate one-third of the projected student capacity each lunch period. The dining area(s) should be warm and inviting spaces with plenty of natural light, pleasant acoustics, and multiple seating choices. The furniture should be age appropriate and serving lines height sensitive which may require having two distinct areas for primary and intermediate students. It is proposed through creative design that dining area(s) should effectively house multiple functions including assemblies, community meetings, and potentially be utilized as learning areas.

It is important to note that ACPS is currently piloting a “distributed dining” concept at the new Jefferson Houston School, which is slated to open in August of 2014. This design approach locates serving lines in three locations around the school and utilizes the ELA spaces as dining areas in addition to the provision of one, small cafeteria space which is primarily for the youngest students. Designers on future projects should inquire with ACPS

about the success of the distributed dining model which was implemented to minimize student travel time/maximize eating time, foster smaller-group eating environments, and minimize underutilized space throughout the school day .

This educational specification recommends a hybrid approach by providing for two separate dining areas: one for the early childhood grades (PreK and K) and one for grades one through five. The early childhood dining area should be located adjacent to the classrooms where it can also function as the ELA and an indoor play area in a fashion similar to the distributed dining concept. The dining area for grades one through five should be much larger and designed as a more traditional centralized cafeteria adjacent to the kitchen. This larger space If a more traditional dining solution is preferred, the space should also include the school stage for performances. The key to a well-designed multi-purpose performance space is to consider the technology, acoustics, and layout very early in the design process. The architect should consider the room volume, configuration, technology requirements, acoustics, and general layout as it relates to the stage and kitchen. These key design points can then be further enhanced by the selection of materials and a well-designed audio system.

Food services is responsible for food preparation and delivery of food programs division wide. Foodservices facilities should provide appropriate space for both ‘scratch’ and ‘warming’ kitchens with appropriate equipment. Provide appropriate sized storage facilities to support healthy eating program offerings which include:

- breakfast
- bag meals
- meals between bells
- snacks
- supper

Architects should consider serving and dining areas that incorporate composting and recycling facilities, homelike environmental qualities, breadth of flexible seating options, and design qualities that support visual and verbal communication between students and faculty.

Site //

Site circulation should be organized for safety and efficiency. This should be accomplished through careful separation of vehicular traffic, including the separation

FIG. 3.3 // **PLAY AREAS**

| SPACE | QUANTITY |
|---|-----------------|
| Multiuse (Hard Surface)* | (2) 100' x 120' |
| Fitness Development Fenced Equipment Area (PK-1) | (1) 100' x 120' |
| Fitness Development Fenced Equipment Area (2-5) | (1) 100' x 120' |
| Multiuse Field Play Area | (2) 180' x 140' |

**A gymnasium may substitute for one multiuse (hard surface) play area.*

NOTE: Quantities are based on 700 student prototype.

of school buses, parents, and staff. Particular consideration should be given to providing safe passage to pedestrian traffic. Sufficient stacking space should be provided to prevent congestion of busy streets.

All play areas should be protected from vehicular and pedestrian traffic, so students can be assured of a safe and secure environment on the entire school site. Shading elements should be considered along with an outdoor learning area and garden.

The Virginia Department of Education Guidelines recommend that each school “site have areas that can be developed to provide the minimum number of play areas require for physical education;” as indicated by the chart (figure 3.3) on the previous page.

Alexandria school sites are urban in nature and most current and future sites cannot accommodate the recommendations outlined in the Guidelines for School Facilities in Virginia’s Public School. However, every elementary school site should accommodate non-structured or natural play areas as well as at least one playground. It is recommended that architects work with ACPS and RPCA to prioritize types of outdoor space development on a site-specific basis. Architects should endeavor to design new schools or future renovations in a way that will maximize available open space. Ideally, all elementary schools will be designed to accommodate one multiuse field play area that conforms to the state guidelines.

Site Management //

Recreation, Parks, and Cultural Activities (RPCA) is a

partnership program that utilizes shared ACPS facilities for afterschool programming. RPCA operates the majority of playing fields, courts, parks, and playgrounds adjacent to Alexandria schools. When funds are available to enhance the campus or grounds of the school, architects should coordinate and consider RPCA’s requirements towards playgrounds, courts, fields, and gymnasium spaces, per the joint ACPS/RPCA Facility & Outdoor Maintenance & Use agreement.

Parking and Transportation //

Recreation, Parks, and Cultural Activities (RPCA) is a partnership program that utilizes shared ACPS facilities for afterschool programming. RPCA operates the majority of playing fields, courts, parks, and playgrounds adjacent to Alexandria schools. When funds are available to enhance the campus or grounds of the school, architects should coordinate and consider RPCA’s requirements towards playgrounds, courts, fields, and gymnasium spaces, per the joint ACPS/RPCA Facility & Outdoor Maintenance & Use Agreement.

The following chart (figure 4.0 on next page) recommends the minimum parking requirements based upon proposed capacity prototype. Actual parking requirements may be impacted by factors such as zoning, site constraints, absences or presence of other modes of transportation, etc. The architect must coordinate at time of design and it should be noted that ACPS offers incentives to encourage carpooling and the use of mass transit by staff.

FIG. 4.0 // **PARKING CAPACITY**

| DESCRIPTION | CAPACITY PROTOTYPE | | |
|------------------------------|---------------------------|-----------|-----------|
| Building Capacity | 450 | 700 | 850 |
| Teaching Stations | 21 | 32 | 38 |
| Bicycle Racks | 25 | 38 | 46 |
| Staff Parking | | | |
| Teachers | 21 | 32 | 38 |
| Ancillary Staff | 9 | 14 | 17 |
| Administration | 5 | 7 | 9 |
| Custodial / Maintenance | 3 | 5 | 6 |
| Food Service | 4 | 6 | 7 |
| Total Staff Parking | 42 | 64 | 77 |
| Total Visitor Parking | 9 | 14 | 17 |

NOTE 1

Ancillary staff includes teaching aides, media center specialist, special education staff, etc. Total is calculated as percentage of the student population as follows: Elementary-2%.

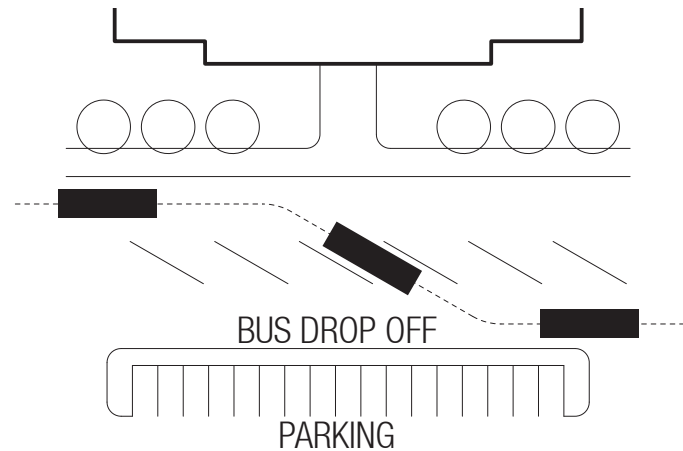
NOTE 2

Administration includes principals, secretarial, itinerant staff. Calculation at 1%

NOTE 3

Custodial/maintenance staff includes full-time staff for regular school hours. Calculation: 1 staff per 150 students.

FIG. 4.1 // **BUS DIAGRAM**



NOTE 4

Food service staff is calculated at 1 staff per 100 meals served with 80% building capacity participation for a full service kitchen.

NOTE 5

Visitor parking is calculated at 2% of building student capacity.

NOTE 6

Bicycle rack quantity is calculated at 5% of sum of student capacity + FTE staff members, per LEED 2009.

THIS PAGE IS LEFT BLANK INTENTIONALLY

conceptual building organization

The careful organization of programmatic components during early design phases is critical for the success of a future school program. This conceptual building organization diagram (Figure 5.0) illustrates relevant adjacencies for the typical elementary school model. The rooms and spaces illustrated in this educational specification compose a number of program “clusters”. The school is a collection of these “clusters” organized according to adjacencies required to best support the educational mission of ACPS. For most campuses in the city, site constraints and the presence of existing structures will limit the options available to control illustrating a learning environment characterized by flexibility, a sense of community for the students and teachers, and a safe, well-supervised environment.

Academic clusters are located in the quiet areas of the building that can be isolated during off-hours. Noisier and shared programmatic clusters are grouped toward parking, public and play areas and allow for after-hours access. A single main entry is a specific determination of ACPS’s security plan and that entrance is supported by administration and family welcome center functions. Informal “break- out” or Extended Learning Areas happen throughout the building along with opportunities for distributed dining areas.

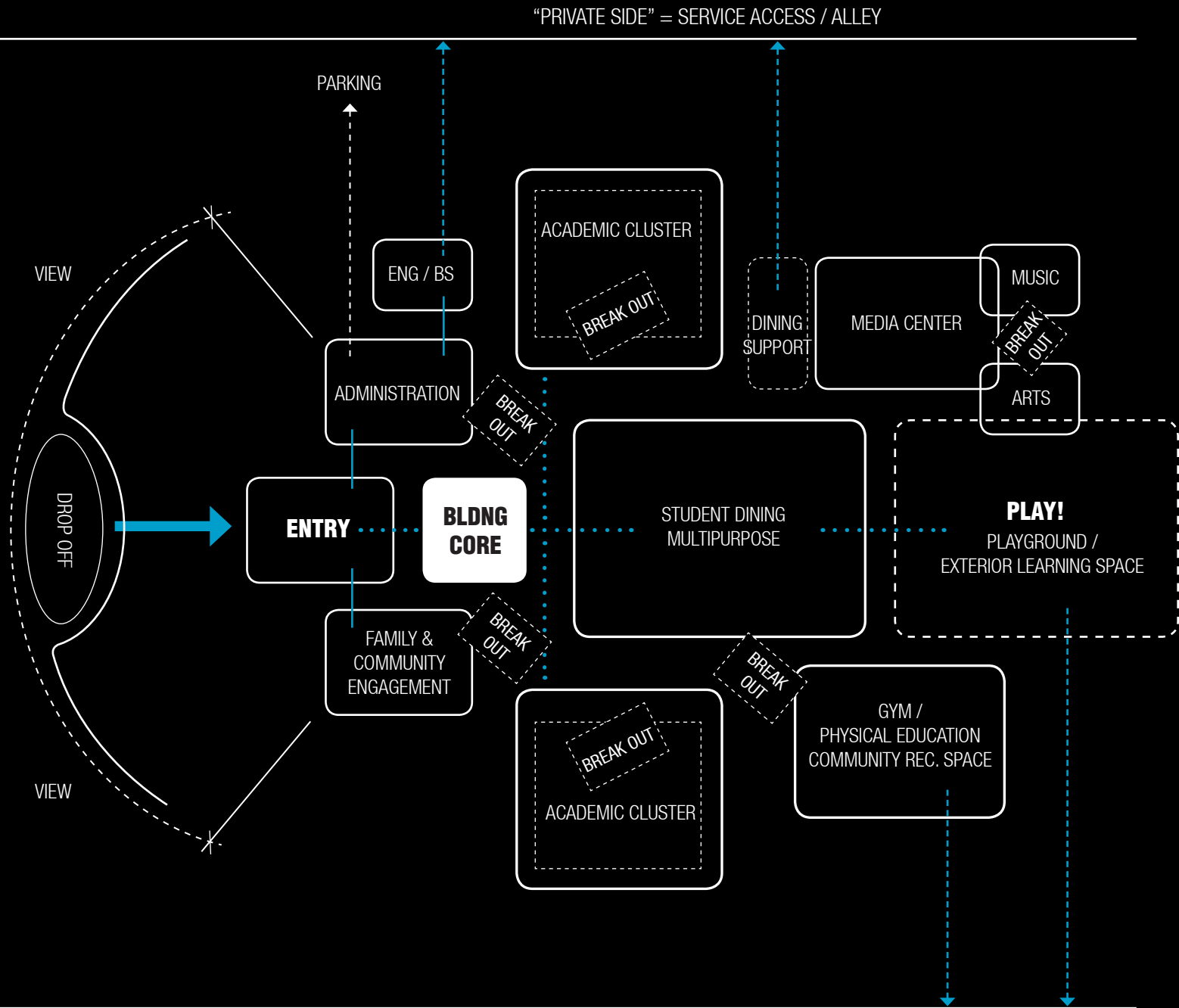


FIG. 5.0 /// ADJACENCY DIAGRAM

"PUBLIC SIDE" = STREET PRESENCE, COMMUNITY ACCESS

DESIGN PRINCIPLES ///

overview

The following section provides executive summaries of the guiding design principles that should be applied to each space within an ACPS school facility. The appendix of this document includes expanded detailed guidance for some of the categories discussed here.

Furniture & Equipment //

Classrooms vary in shape and size; therefore, the furniture should be flexible to accommodate a variety of classroom formats for both individual and group activities. Teachers and students should have storage space for personal belongings, papers, books, supplies, and teaching materials.

To the extent possible, movable furnishings will be used, rather than fixed casework, to provide flexibility for future reconfiguration. Furniture should be selected for its ergonomic traits. Consideration for variability and adjustability to support diverse learning styles.

Technology //

The facility will contain the latest in technology and infrastructure should be provided to support wireless access to data and video throughout the building. It is intended that access to technology will be seamless and pervasive throughout the building with only the minimal number of hard drops needed to support voice, teaching stations, and wall-mounted devices. Technology infrastructure should support the concept that learning can happen anywhere by enabling a one-to-one student to device ratio and the notion of “bring your own device”. The specific tools and design guidance will be determined based on the best practices at the time of construction.

Every learning area will be wired for teacher audio enhancement. Research into this cutting-edge technology suggests that student learning can improve in classrooms where the teacher’s voice is amplified and the classroom acoustics are designed to support voice clarity. Please reference Appendix pg. 215 for additional guidance regarding technology infrastructure requirements.

Universal Design //

The entire facility will be accessible for students, staff, and visitors. This will be accomplished through judicious use of ramping and elevators with sufficient internal clearances for circulation, convenient bus/van loading and unloading, and nearby handicapped parking spaces. All elements of the Americans with Disabilities Act must be complied with, including way finding and signage, appropriate use of textures, and universal accessibility of all indoor and outdoor school facilities.

Safety & Security //

ACPS wants to maintain an inviting and de-institutionalized environment, while simultaneously providing a safe environment for students, staff, and community. The organization of a building will have a major impact on student behavior and safety concerns. Architects should refer to Crime Prevention Thru Design (CPTED).

All school locations should include a double perimeter approach where every visitor is guided through a secure exterior door into a secure holding vestibule prior to gaining access to the main office. Visual access from the main office to the exterior vestibule is mandatory and every

entrance to the school will have a CCTV IP camera. Consult with ACPS over the most current keying policy. Please reference Appendix 3 for additional guidance regarding technology infrastructure requirements.

Community Use and Partnerships //

ACPS is pleased to have community and non-profit partners in its buildings offering valuable services and programs for students and families. Partnership programs and other regular community activities require shared, co-located and sometimes dedicated space that is internal to the school yet has the ability to operate beyond ACPS school hours. Extended hours of operation require the partnership programs and community activity area to have an entrance that can be separated from the main school. This secondary building entrance for after school program use should be visible to all spaces co-located in the community use and partnership area, specifically the gym and multipurpose rooms. This space will be utilized by after school programs for record keeping, registration transactions, secure money storage, and child pickup. This allows partnership to operate independently of the school's staffing requirements and provides the necessary security to protect the main school. During general school hours, partnership programs will function under ACPS' security policies and use of secondary entrances should be restricted.

Program offerings are location dependent and include, but are not limited to

- tutoring
- family and community education centers (FACE)
- recreation, parks & cultural activities (RPCA)

- medicaid therapy
- licensed before/after school programs (e.g. Campagna Kids)

Functions of these programs should be co-located with the ability to utilize standard classrooms, the gymnasium, multipurpose room and media center. It is also important to note that licensed programs have specific requirements that should be considered as a part of any plans to renovate or build new facilities. While the requirements are not onerous, failure to incorporate their consideration during the planning process can significantly constrain having access to such programs.

ACPS has a standing partnership with Alexandria Department of Recreation, Parks, and Cultural Activities (RPCA) for the maintenance and after-school programming of fields. At several schools, RPCA operates after school and community programs in the gymnasium or multipurpose room; per the joint ACPS/RPCA Facility & Outdoor Maintenance & Use Agreement.

Family and Community Engagement Centers //

ACPS serves a diverse community of families who have immigrated to the DC Metropolitan area from all over the world. It is understandable that for cultural reasons or due to language barriers that newcomers to the school may be hesitant to engage staff and need additional support. The Division wants to locate Family and Community Education Centers (FACE) to welcome families and provide the additional resource that will help them succeed.

A typical FACE center would be located near the main

office and include

- reception area with both comfortable seating for
- individual conversations and table seating for
- meetings and classes
- private office
- storage.

Parent Teacher Associations //

Provide flexible use space to accommodate the mission and program offerings of the PTA group. PTA's meet on a monthly schedule, typically during weekday evenings and have 30 to 35 participants in attendance. PTA meetings include school board members, staff, parents, and on occasion the superintendent. PTA's offer volunteer afterschool programs that require access to standard, flexible classrooms, the gymnasium, the media center, and the cafeteria. Consider co-locating PTA with other partnership functions like the FACE center. PTA functions require dedicated storage space and direct interaction with the schools main office suite and staff.

Energy & Environmental Performance //

ACPS is dedicated to renovating existing or building new facilities that meet or exceed Eco-City standards and City of Alexandria environmental performance standards. ACPS desires to offer schools that teach faculty, staff, students and the community the importance of environmental stewardship. ACPS believes quality architecture and high energy performance facilities positively impact the education of students and increase retention of staff and students. At this time, city development standards require compliance with LEED Silver certification standards for major

construction projects. ACPS seeks to exceed these minimum standards. Please reference Appendix 5 for additional guidance regarding technology infrastructure requirements.

Materials & Finishes //

ACPS believes high-quality architectural materials and finishes create an atmosphere that supports and inspires learning. All spaces should be conducive to teaching and provide a warm and welcoming feeling and meet the principals of Evidence Based Design (lighting, environmental / air quality, and acoustics). All materials must be highly durable and resilient yet support a creative learning environment. ACPS is cognizant that materials should be reasonable in cost and not exuberant when considering budget and life-cycle costs to maintain and upkeep. A sensible balance is necessary to maintaining budget and achieve ACPS' facility standards.

Operations & Mechanical //

Provide mechanical systems that are climate appropriate and responsive to the life cycle, maintenance and efficiency expectations of ACPS. Provide passive systems that pair with active systems and coordinate to achieve maximum efficiencies while coordinating with the users to determine the location of universal and dedicated systems. ACPS requires individual facilities to operate under 20 kw/hr per square foot by the year 2026. Please reference Appendix 1 for additional guidance regarding technology infrastructure requirements.

THIS PAGE IS LEFT BLANK INTENTIONALLY

the 700 student prototype

The remainder of this document is meant to be illustrative of a typical 700 student school in the Alexandria City Public Schools. The basis for the capacity and the number of classrooms per grade is located was previously described on page 15. The number and size of support spaces and labs are driven by staffing formulas and national benchmarks. For new schools or the modernization/ addition to an existing school, this information would inform a 'site specific' educational specification.

It is assumed that architects will be required to bring an existing school up to new school standards within reasonable limits. Designs for spaces may vary from recommended sizing by +/- 10% to minimize the unnecessary movement of walls or to preserve the integrity of a historic building.

The net square foot requirements include the classrooms, support spaces, labs and large core areas. The net/gross calculation includes corridors, bathrooms, mechanical spaces, etc. The proposed ratio listed in this specification assumes a new, highly efficient school. It is expected that existing schools will be less efficient and the actual final (wall to wall) building will be larger than what is listed.

Summary of Facility Space Requirements //

The following section provides a summary of all spaces required within the facility. It provides an overall summary of the school facility as well as individual space detail. Data is provided to serve as an overall guideline and architects should strive to meet the goals within 10 to 15 percent.

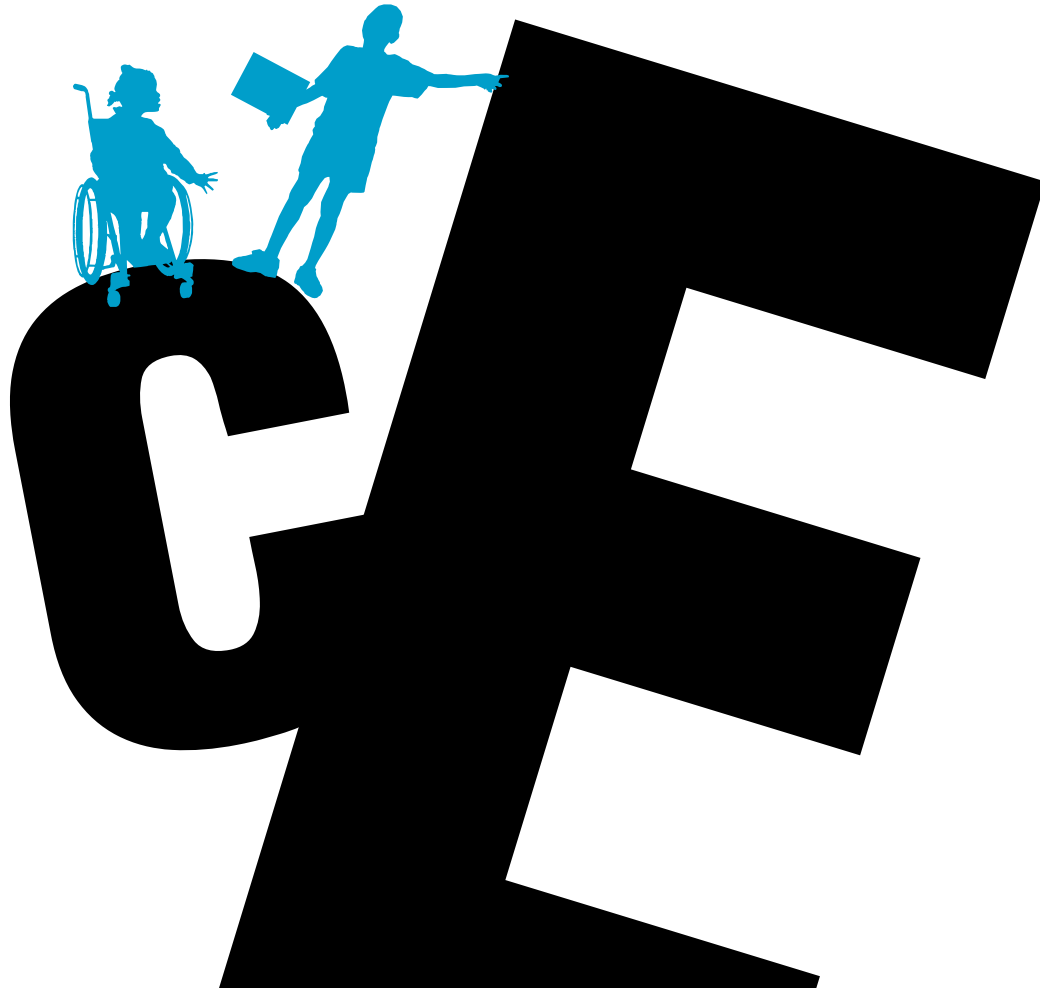
| | | |
|--------------------------|---|------------|
| INTERIOR AREAS | CORE ACADEMIC / SPECIAL EDUCATION AREAS | 43,600 |
| | MEDIA CENTER | 3,842 |
| | VISUAL ART, MUSIC | 4,062 |
| | PHYSICAL EDUCATION | 8,800 |
| | ADMINISTRATION | 4,425 |
| | STUDENT DINING AND FOOD SERVICES | 7,600 |
| | MAINTAINENCE AND CUSTODIAL SERVICES | 850 |
| | BUILDING SERVICES AND PUBLIC RESTROOMS | 25,832 |
| | TOTAL NET | 99,011 |
| | CONSTRUCTION FACTOR [0.082] | 8,118 |
| TOTAL GROSS | 107,129 | |
| EXTERIOR AREAS | MULTIUSE (HARD SURFACE) | (2) 12,000 |
| | FITNESS DEVELOPMENT FENCED | 12,000 |
| | EQUIPMENT AREA (PK-1) | |
| | FITNESS DEVELOPMENT FENCED | 12,000 |
| | EQUIPMENT AREA (2-5) | |
| | MULTIUSE FIELD PLAY AREA | (2) 25,200 |
| | PARKING [78 spaces] | 27,300 |
| TOTAL GROSS | 125,700 | |

FIG. 6.0 // **BUILDING SPACE SUMMARY**



p

A



E-ACA /// **CORE ACADEMIC**

PRE-K/KINDERGARTEN CLASSROOM

GRADES 1-5 CLASSROOM

GRADES 1-5 EXTENDED LEARNING AREA

CLASSROOM BATHROOM

RESOURCE CLASSROOM

STUDENT SERVICES

OCCUPATIONAL/PHYSICAL/ITENERANT HOTELING

TEACHER COLLABORATION ROOM

STORAGE

OUTDOOR STORAGE EARLY CHILDHOOD

ART STORAGE

EARLY CHILDHOOD LEARNING

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|--|-----------------|-----------|---------------|---|
| CORE ACADEMIC | | | | |
| Pre-k Classroom | 5 | 1,175 | 5,875 | includes 50 SF toilet and 100 SF storage closet |
| Kindergarten Classroom | 5 | 1,175 | 5,875 | includes 50 SF toilet and 100 SF storage closet |
| Outdoor Storage Early Childhood | 1 | 200 | 200 | |
| Grade 1 Classroom | 5 | 900 | 4,500 | |
| Grade 2 Classroom | 5 | 900 | 4,500 | |
| Grade 3 Classroom | 4 | 900 | 3,600 | |
| Grade 4 Classroom | 4 | 900 | 3,600 | |
| Grade 5 Classroom | 4 | 900 | 3,600 | |
| Extended Learning Area | 5 | 600 | 3,000 | add to cluster circulation |
| Classroom Bathroom | 11 | 100 | 1,100 | |
| Resource Classroom (Sped) | 3 | 250 | 750 | pull out instruction |
| Resource Classroom (other) | 2 | 250 | 500 | reading, math, speech, etc. |
| TAG Classroom | 1 | 900 | 900 | typically located in 4th or 5th grade classroom cluster |
| Student Project Storage | 1 | 150 | 150 | for general class and TAG use, typical equipment similar to art storage |
| ELL | - | - | 0 | TBD |
| Student Services | 4 | 100 | 400 | social worker, psychologist |
| Occupational/Physical/Itinerant Hoteling Storage | 1 | 400 | 400 | 50 SF of storage |
| Teacher Collaboration Room | 4 | 200 | 800 | |
| Teacher Collaboration Room | 5 | 250 | 1,250 | |
| Early Childhood Learning | 1 | 2,000 | 2,000 | Includes 200 SF chair and table storage |
| Art Storage | 1 | 200 | 200 | Adjacent to ELA/Dining |
| Total | | | 43,200 | |

Comments //

During facility renovations, the architect should be expected to minimize the movement of 'hard' walls and fit the proposed programmed spaces into the existing building. Tolerances of +/- 10% is acceptable as is the combination of spaces within a suite. Adjacencies as specified are desirable, but options may be considered and should be reviewed with the planning team.

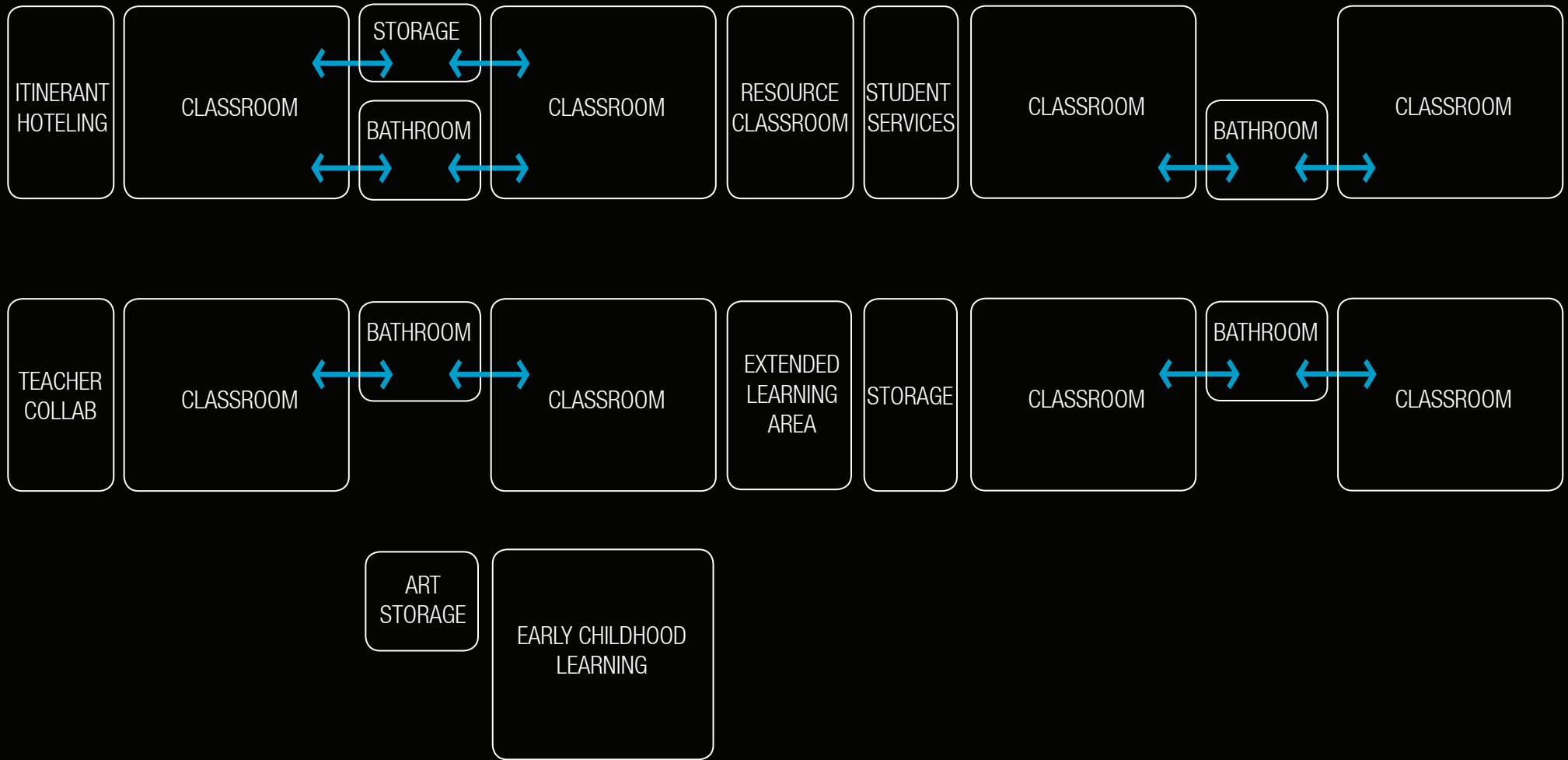
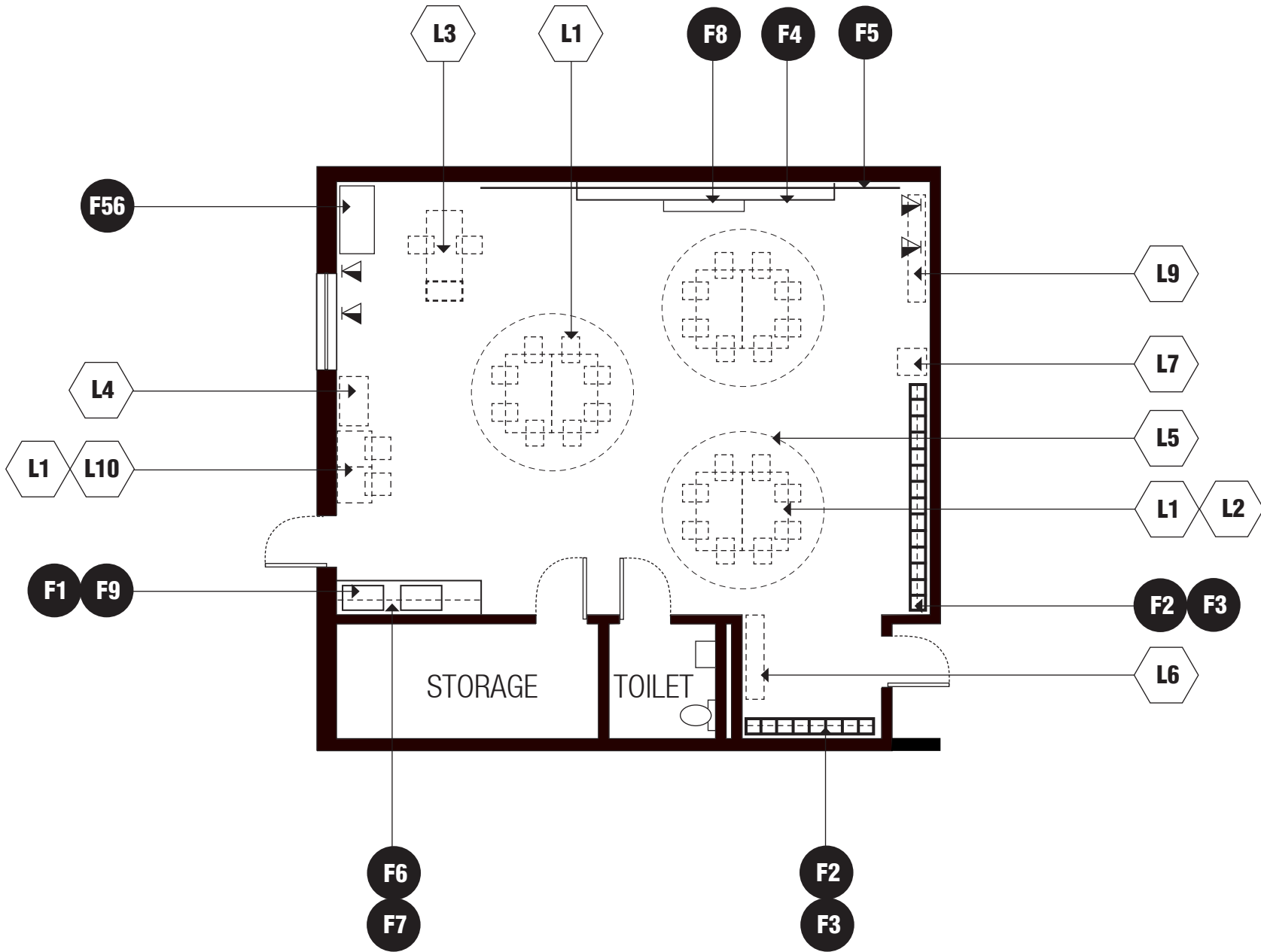


FIG. 7.0 // CORE ACADEMIC ADJACENCY DIAGRAM



E-ACA /// PRE-K/ KINDERGARTEN CLASSROOM



size

1,175 SF

capacity

16-20 students (HS/PK/K)

2 teachers

parents/ staff members

ancillary spaces

pre-k/ kindergarten restroom (50 SF)

storage closet (100 SF)

spatial relationships

see illustration opposite page

group classrooms for potential teaming

locate coat cubbies near door

locate at first floor for emergency

prefer door to the outside from the classroom

designate area for cot storage (stacked)

centers in the classroom may include:

housekeeping

blocks

library/books

writing table

art table

sand and water tables

program activities

whole group

teacher directed

small group

one-on-one instruction

cooperative learning

discovery

language arts

inquiry

plumbing

double sink at two heights

with drinking fountain and sink at child height

with deep well at adult height

wall mounted watercloset

wall mounted lavatory

LEGEND ///

● fixed equipment

F1 base/wall cabinets and shelving

F2 student cubbies (20)

F3 wall shelving (over cubbies)

F4 marker board (8 LF)

F5 tackable/magnet wall surface

F6 soap dispenser

F7 towel dispenser

F8 wall mounted interactive electronic presentation device

F9 classroom sink

F56 30" itinerant/aid station

⬡ loose furnishings

L1 stackable/nesting chairs (18-20)

L2 stackable/nesting tables (4-5)

L3 teacher work surface with mobile storage and two chairs

L4 four drawer lateral file cabinet

L5 bound group rug (3, group area, block area, and reading area)

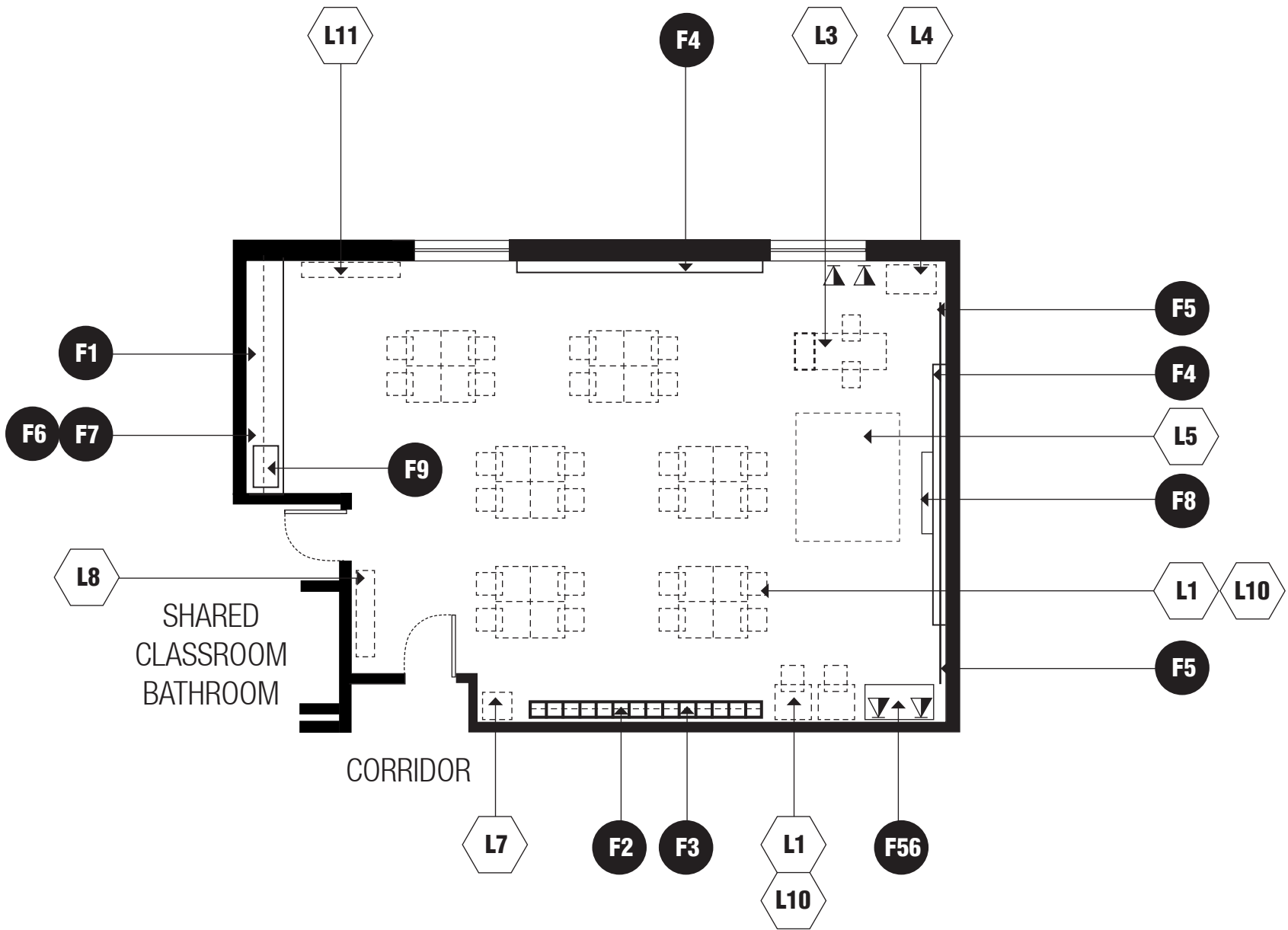
L6 mobile shelving (various)

L7 teachers lockable wardrobe (18" x 18")

L9 learning center sets- sand/water table, kitchen, art cart, etc.

L10 student desks

▶ data drop



E-ACA /// GRADES 1 - 5 CLASSROOM



size

900 SF

capacity

22 students (1st – 2nd)

24 students (3rd – 5th)

2 teachers

staff members

guest speakers/volunteers

ancillary spaces

restrooms

spatial relationships

see illustration opposite page

group classrooms for potential teaming

doorway into the commons area

doorway into adjacent bathroom suite

connecting to adjacent classroom

locate coat cubbies near door

two teaching/learning walls with student

height marker boards and technology

infrastructure

consider outside ‘porches’ where feasible.

program activities

large group instruction

small group instruction and group work

computer instruction

team teaching

oral presentations

testing

plumbing

sink with drinking fountain

LEGEND ///

● **fixed equipment**

F1 base/wall cabinets and shelving

F2 student cubbies (20-22)

F3 wall shelving (over cubbies)

F4 marker board (on 2 walls, 16 LF each)

F5 tackable/magnet wall surface

F6 soap dispenser

F7 towel dispenser

F8 wall mounted interactive electronic

presentation device

F9 classroom sink

F56 30" itinerant/aid station

F62 sound enhancement system

◻ **loose furnishings**

L1 stackable/nesting chairs (22-26)

L3 teacher work surface with mobile storage
and two chairs

L4 four drawer lateral file cabinet

L5 bound group rug (up to grade 2)

L7 teacher’s lockable wardrobe (18”X18”)

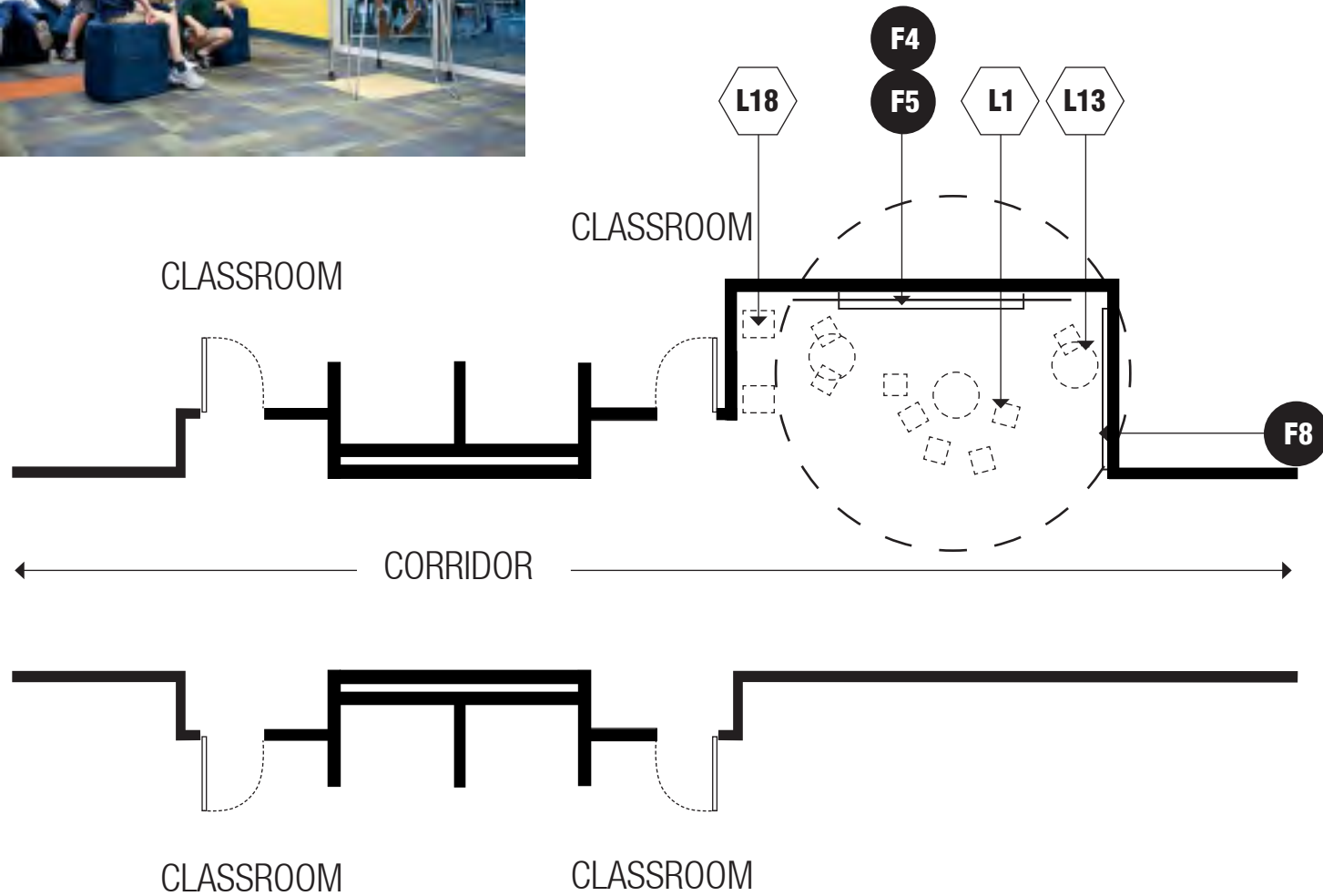
L8 tall cabinet with shelves

L10 student desks (22-26)

L11 adjustable height bookshelves



data drop



E-ACA /// GRADES 1-5 EXTENDED LEARNING AREA



size

600

capacity

4-25 students
1-2 teachers

ancillary spaces

grades K-5 classroom
furniture storage

spatial relationships

integrated into circulation
located within classroom clusters

program activities

small group learning centers
story telling
team activities and project based learning
individual activities
amphitheater
kitchenette

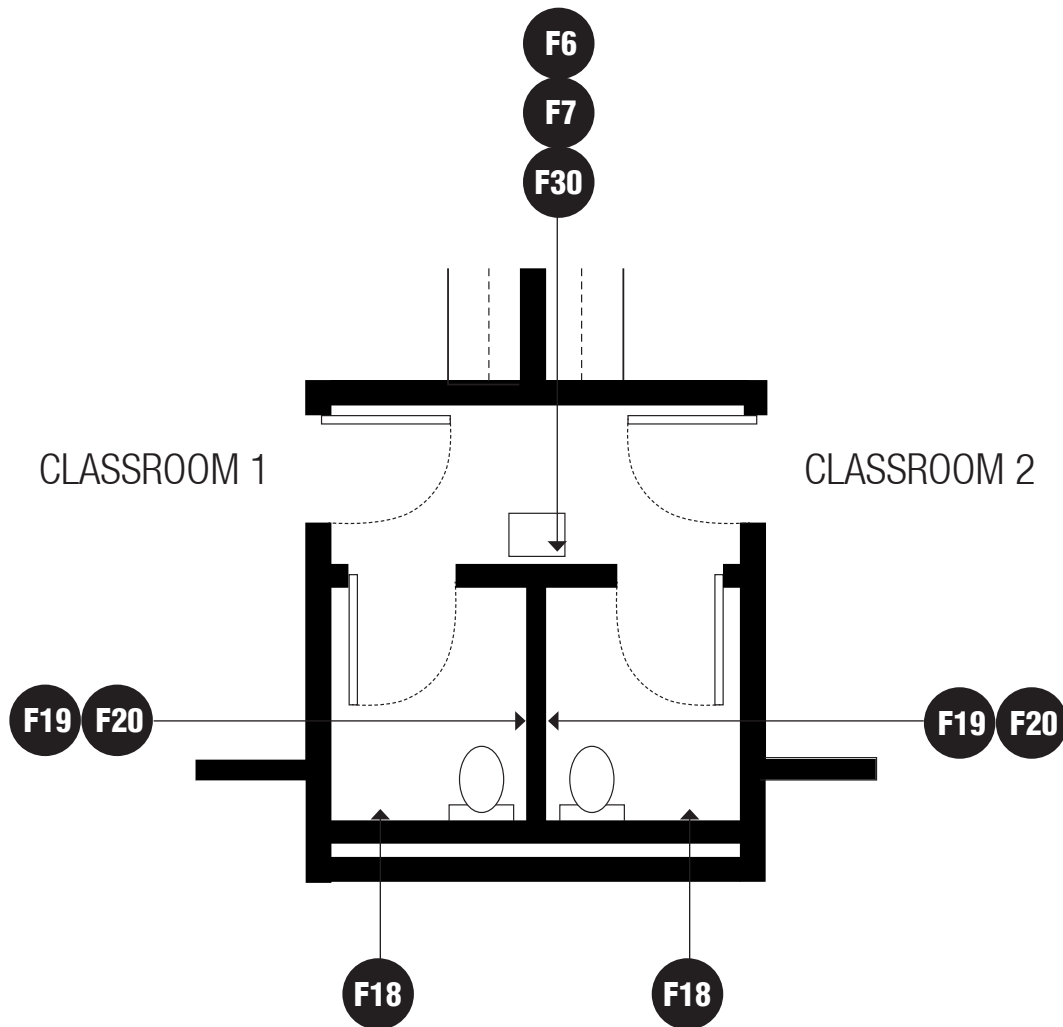
LEGEND ///

● **fixed equipment** (TBD based on age and school preference) may include:

- F4 marker board (8 LF)
- F5 tackable/magnet wall surface
- F8 wall mounted interactive electronic presentation device (optional)

◡ **loose furnishings**

- mixture of the following to support multiple learning activities in multiple learning configurations:
- L1 stackable/nesting chairs
 - L13 small table(s)
 - L18 lounge chairs



size

100 SF

capacity

2 students

ancillary spaces

1-5 classrooms

spatial relationships

shared by two adjacent classrooms

plumbing

sink connection

toilet connection

LEGEND ///



fixed equipment

F6 soap dispenser

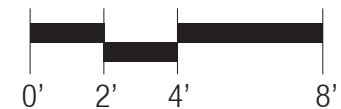
F7 towel dispenser

F18 mirror

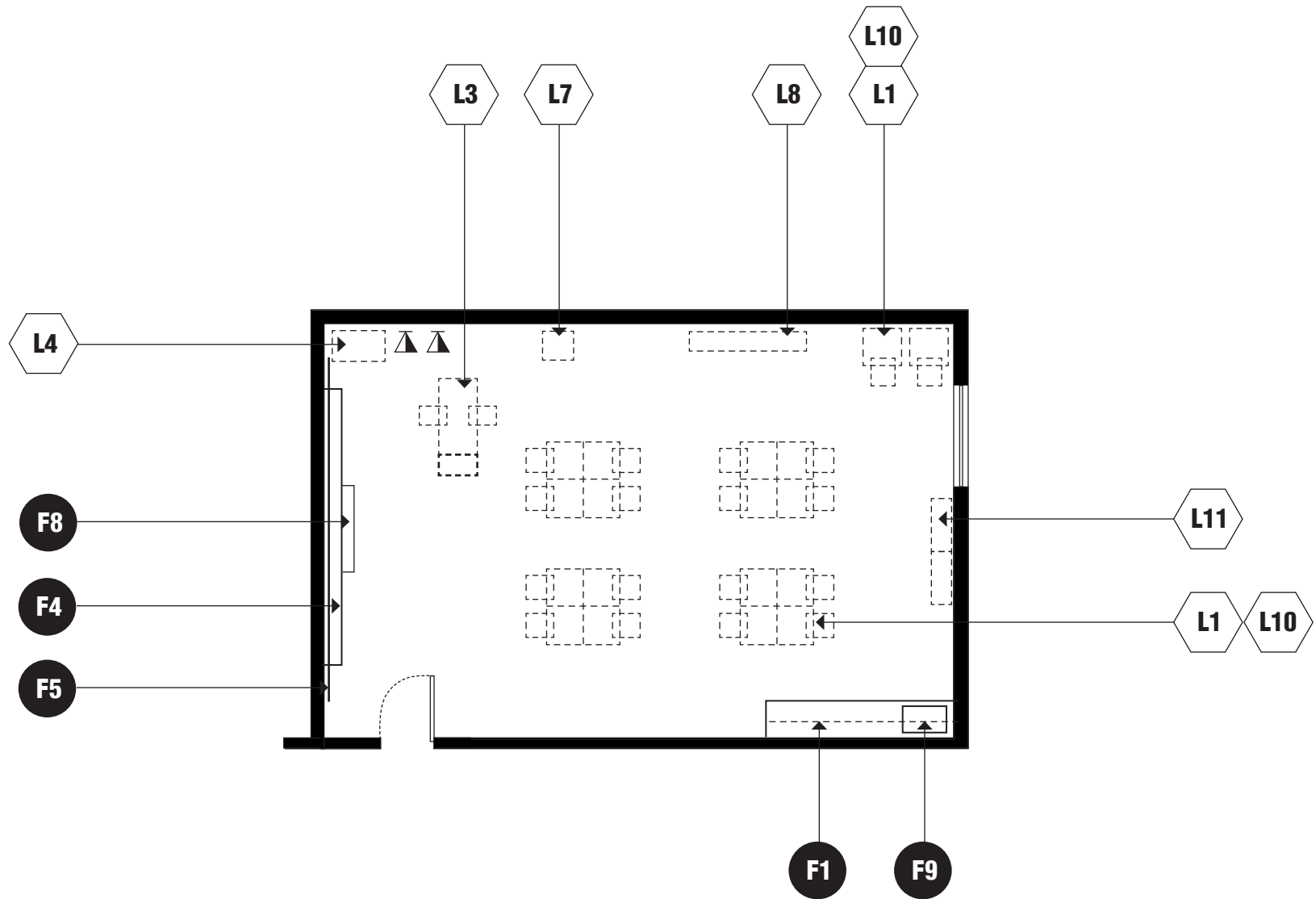
F19 toilet tissue holder

F20 bathroom accessories

F30 bathroom sink



THIS PAGE IS LEFT BLANK INTENTIONALLY



E-ACA /// RESOURCE CLASSROOM



size

250

capacity

up to 15 students
2 or more staff members

ancillary spaces

n/a

spatial relationships

located within academic core areas

program activities

small group work
independent instruction and work
reading, math, speech, etc.

LEGEND ///

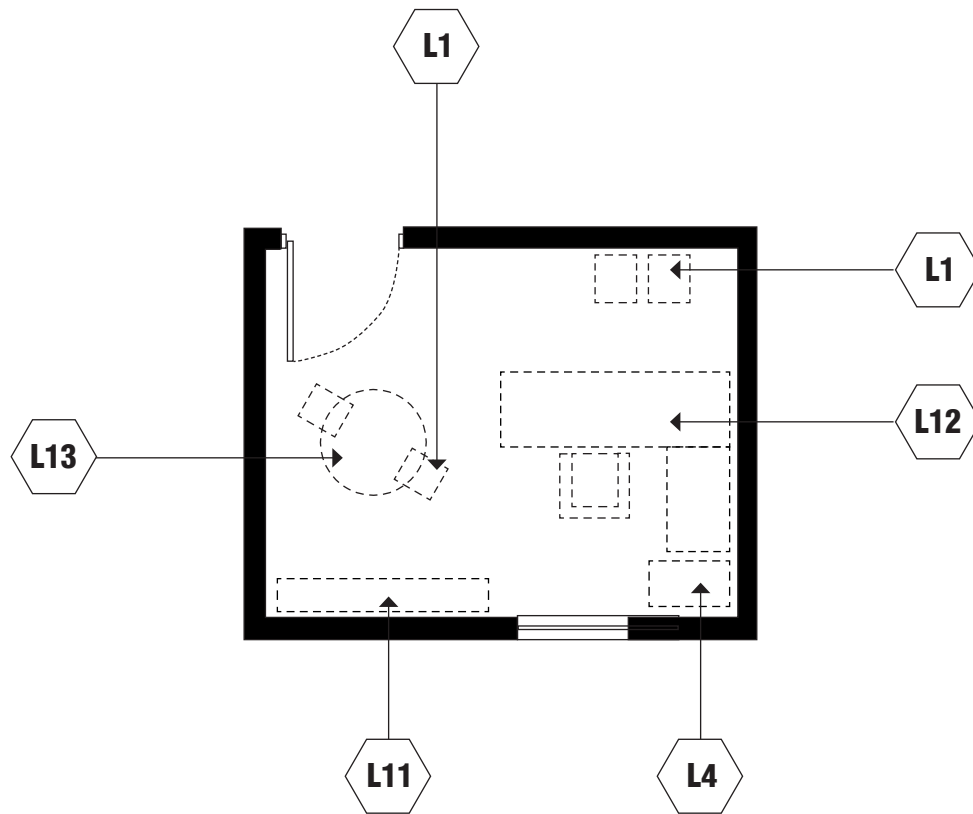
● **fixed equipment**

- F1 base/wall cabinets and shelving
- F3 wall shelving (over cubbies)
- F4 marker board (8 LF)
- F5 tackable/magnet wall surface
- F8 wall mounted interactive electronic presentation device
- F9 classroom sink

⬡ **loose furnishings**

- L1 stackable/nesting chairs (15-18)
- L3 teacher work surface with mobile storage and two chairs
- L4 four drawer lateral file cabinet
- L7 teacher's lockable wardrobe (18"X18")
- L8 tall cabinet with shelves
- L10 student desks (15-18)
- L11 adjustable height bookshelves

▶ **data drop**



size

100 SF

capacity

- counselors
- psychologist
- social worker
- students and parents
- staff
- teachers

ancillary spaces

staff restrooms

spatial relationships

near academic core areas

program activities

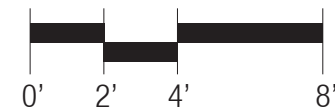
- group and individual counseling/ learning
- student assessment

LEGEND ///

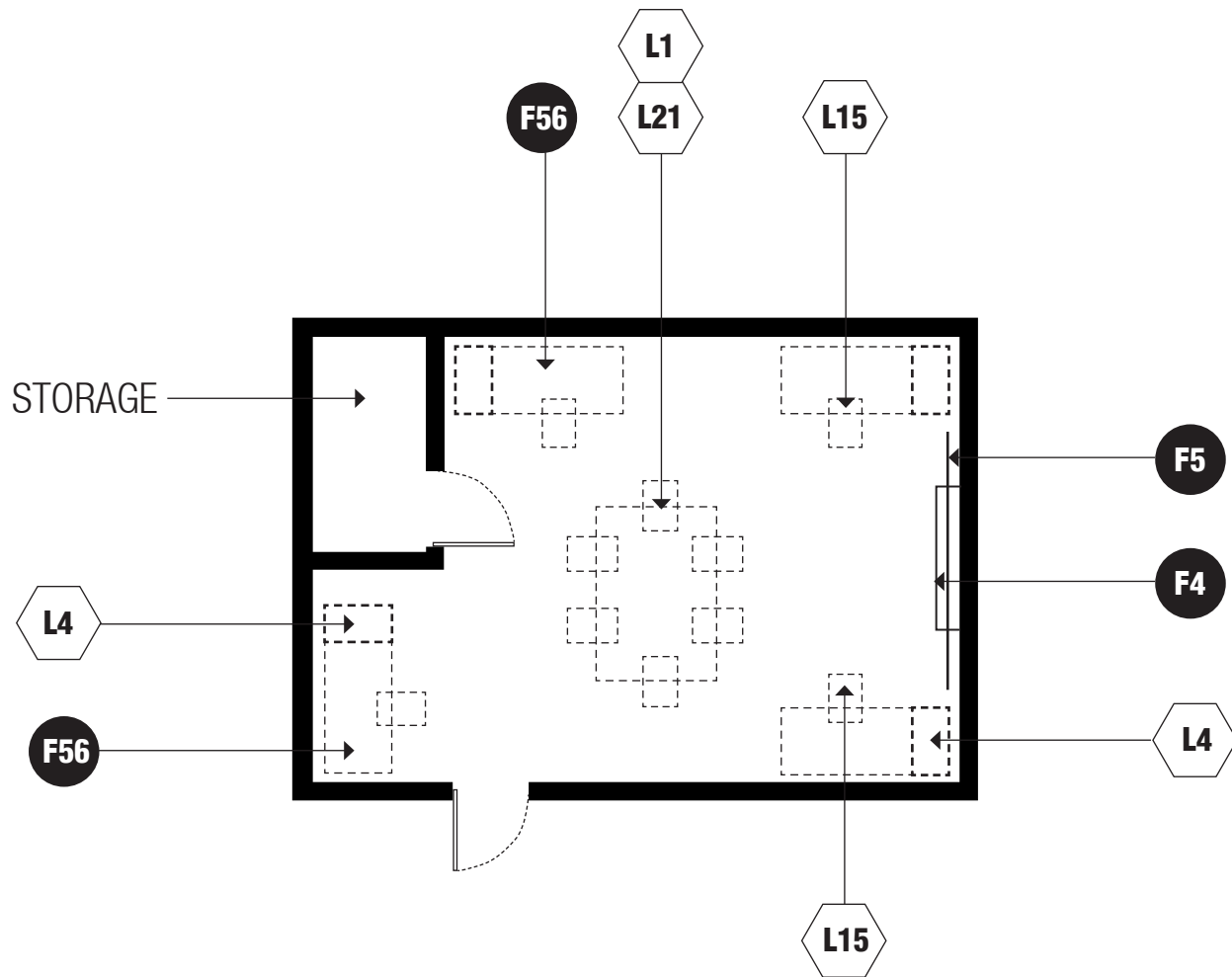


loose furnishings

- L1 stackable/nesting chairs (4)
- L4 four drawer lateral file cabinet
- L11 adjustable height bookshelves
- L12 admin workstation and chair
- L13 small table



THIS PAGE IS LEFT BLANK INTENTIONALLY



size

400 SF

capacity

itinerant

up to 4 staff

ancillary spaces

none

spatial relationships

near student services

near resource classroom used for speech

near special needs classroom

near FACE center

program activities

therapy

exercise

assistive technology evaluation

occupational and physical therapy

environmental considerations

electrical outlets for equipment

wheelchair accessibility

reinforcing structure in ceiling to support

lift equipment

LEGEND ///

● **fixed equipment**

F4 marker board (8 LF)

F5 tackable/magnet wall surface

F56 30"itinerant/aid station (4)

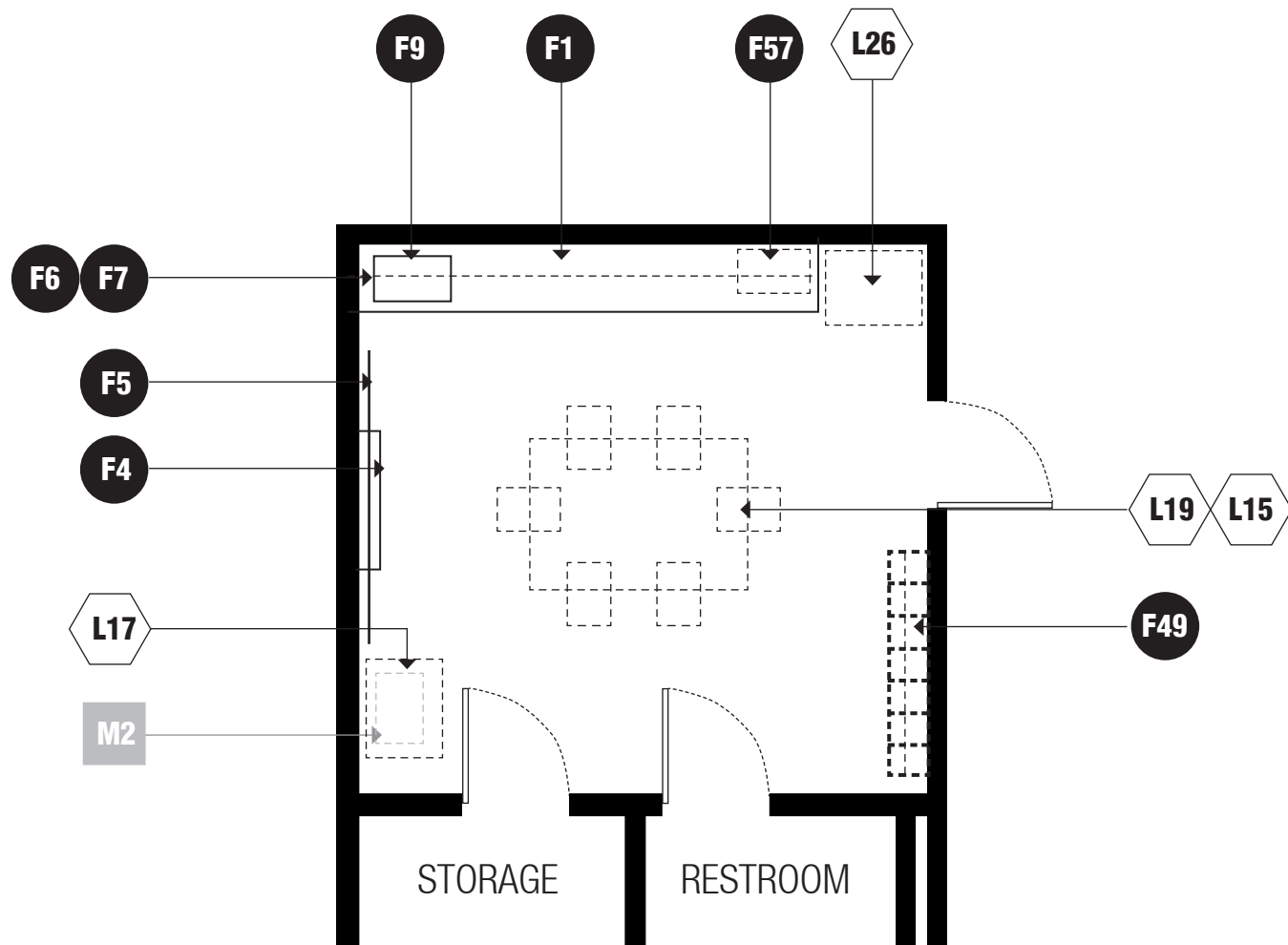
⬡ **loose furnishings**

L1 stackable/nesting chairs (6)

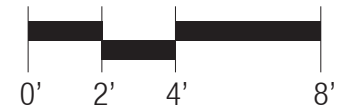
L4 four drawer lateral file cabinet

L15 task chair (4)

L21 work table



E-ACA /// TEACHER COLLABORATION ROOM



size

250 SF

capacity

teachers

teachers' assistants

parents/volunteers

ancillary spaces

staff restroom

storage

spatial relationships

near academic core classrooms

access to staff restroom(s) from within

access to storage from within

program activities

team staff meetings

lesson planning and grading

scheduling appointments

record keeping

develop and review teacher materials

plumbing

sink connection

LEGEND ///

● **fixed equipment**

F1 base/wall cabinets and shelving

F4 marker board

F5 tackable/magnet wall surface

F6 soap dispenser

F7 towel dispenser

F9 classroom sink

F49 lockers

F57 kitchenette

◻ **loose furnishings**

L15 task chair (6)

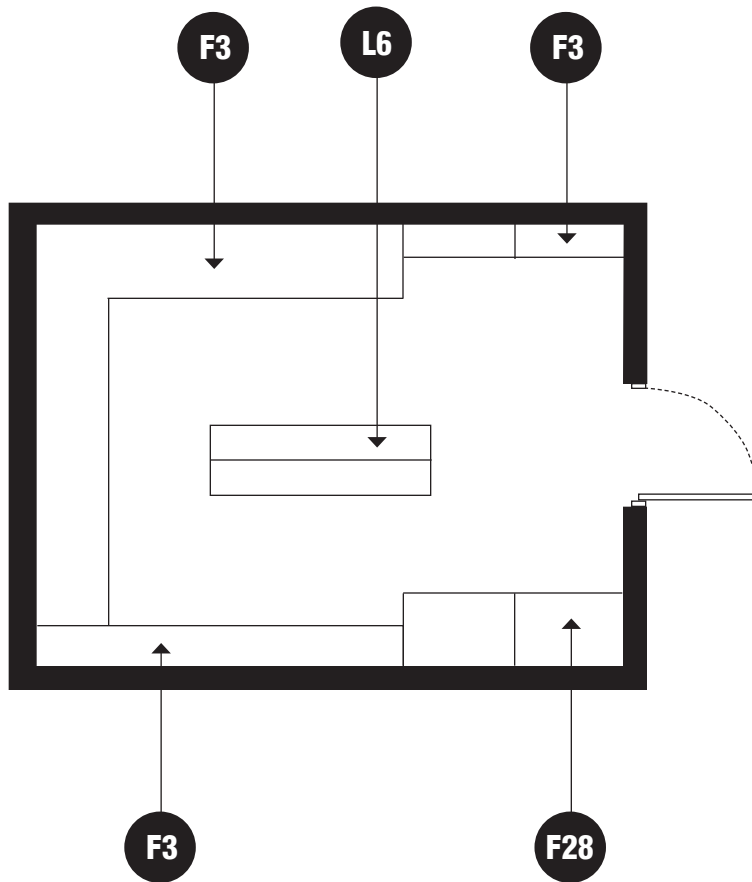
L17 printer station

L19 conference table

L26 refrigerator

■ **miscellaneous**

M2 color printer



size

200 SF

capacity

staff members

ancillary spaces

n/a

spatial relationships

near core academic classrooms

program activities

storing and retrieving books/supplies

LEGEND ///

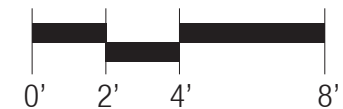
● **fixed equipment**

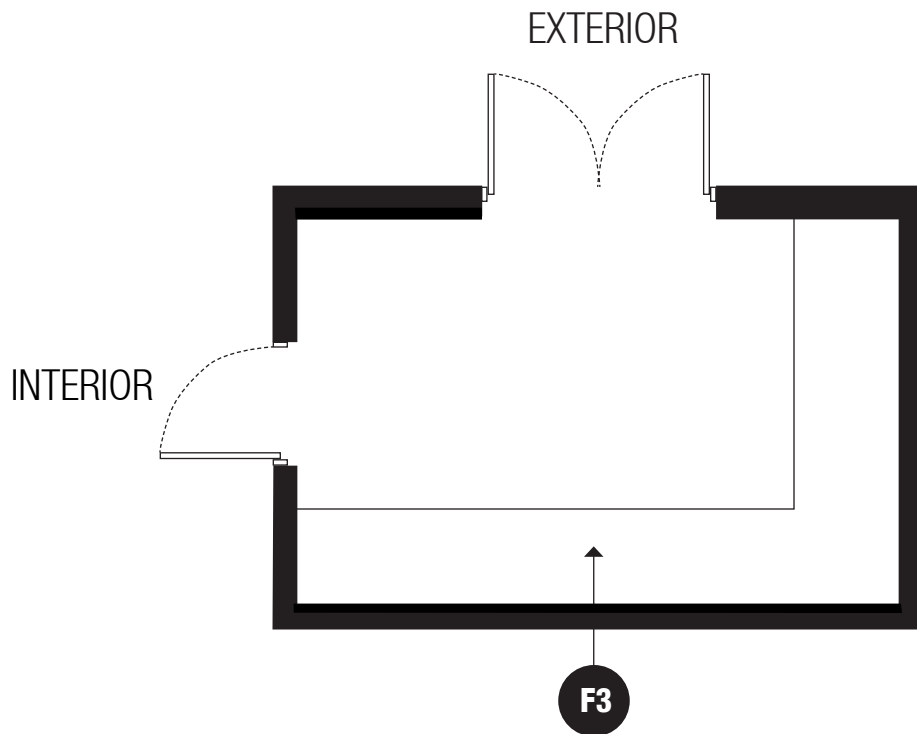
F3 wall shelving (12" and 24" deep)

F28 base cabinets

◻ **loose furnishings**

L6 mobile shelving





size

200 SF

capacity

staff members

ancillary spaces

n/a

spatial relationships

direct access to outdoors

near early childhood classrooms

direct access to interior corridor

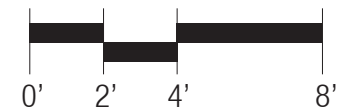
program activities

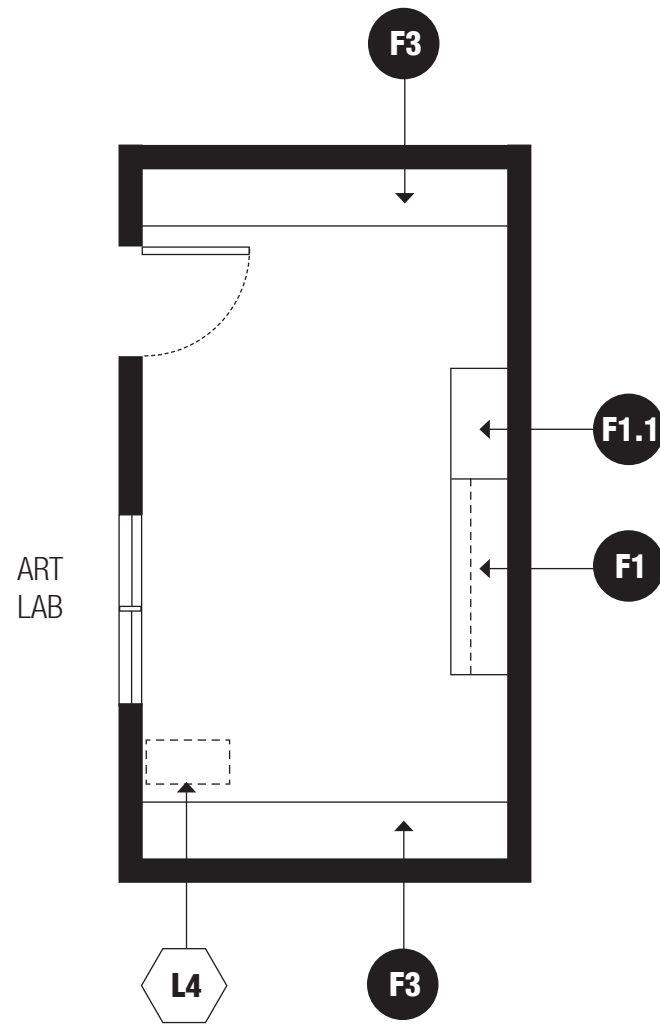
storage of portable outdoor play equipment

LEGEND ///

● **fixed equipment**

F3 wall shelving (10'-16' total, 84" high, 12", 24," or 30" deep)





size

200 sf

capacity

1 teacher

ancillary spaces

art lab

spatial relationships

direct access to art lab

visual access to art lab

second storage room provided adjacent to
early childhood dining / ELA space

program activities

storage of equipment and supplies

LEGEND ///

● **fixed equipment**

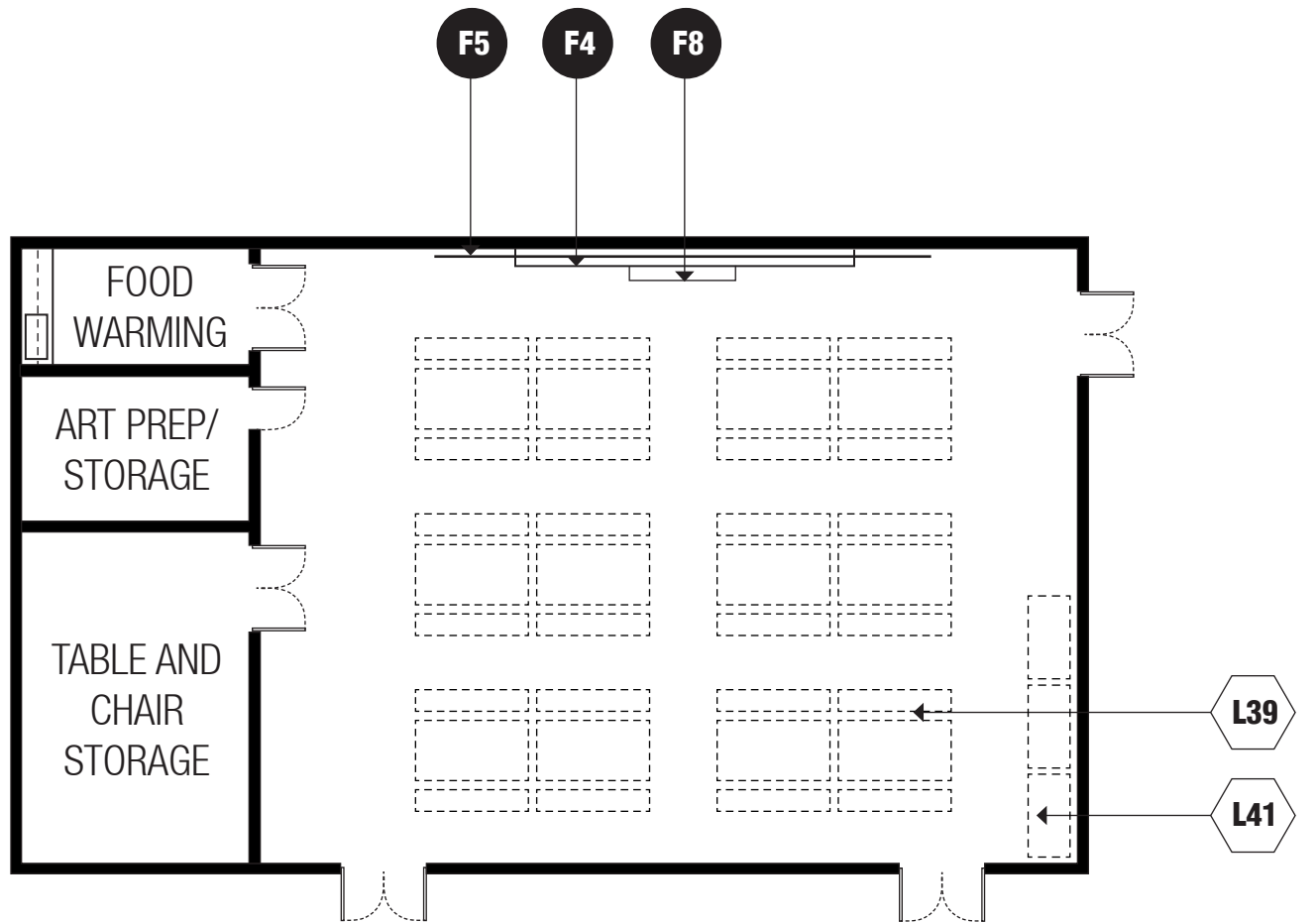
F1 base/wall cabinets and shelving (paper
storage cabinets. one cabinet for
hazardous materials)

F1.1 casework

F3 wall shelving (18" deep, metal)

◡ **loose furnishings**

L4 four-drawer lateral file cabinet



size

2,000 SF

capacity

Pre-K- Kindergarten: two lunch periods

3-6 staff members

ancillary spaces

ECE Classrooms

Storage

Art storage

spatial relationships

integrated into circulation

located within classroom clusters

program activities

early childhood dining

early childhood art

small group learning centers

story telling

team activities and project based learning

individual activities

environmental considerations

cleanable surfaces

windows to provide ample natural light

good sight lines to all areas of the room

for supervision

window treatment to darken room for AV

presentation

electric outlets for food serving equipment

LEGEND ///

● **fixed equipment**

F4 marker board (two 8 LF boards with electric outlet below)

F5 tackable or magnetic wall surface

F8 wall mounted, interactive, electronic presentation device

◡ **loose furnishings**

L39 cafeteria tables (tables and seating to accomodate for 130 children ages 4-6)

L41 chair dollies

three sinks:adult hand washing, child hand washing, utility

E-MC /// **MEDIA CENTER**

READING / LEARNING / CIRCULATION
TECHNICAL PROCESSING ROOM
COMBINED OFFICE/WORKROOM
DEVICE CHARGING ROOM
STORAGE
SMALL GROUP ROOM

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|------------------------------|-----------------|-----------|--------------|--------------|
| MEDIA CENTER | | | | |
| Reading/Learning/Circulation | 1 | 2792 | 2792 | |
| Technical Processing Room | 1 | 200 | 200 | |
| Combined Office/Workroom | 1 | 200 | 200 | |
| Device Charging Room | 1 | 150 | 150 | |
| Storage | 1 | 200 | 200 | |
| Small Group Room | 2 | 150 | 300 | |
| Total | | | 3842 | |

Comments //

Spaces within the Media Center may vary up to 15% and may be combined to facilitate circulation and supervision. The overall square footage may be +/- 10%.

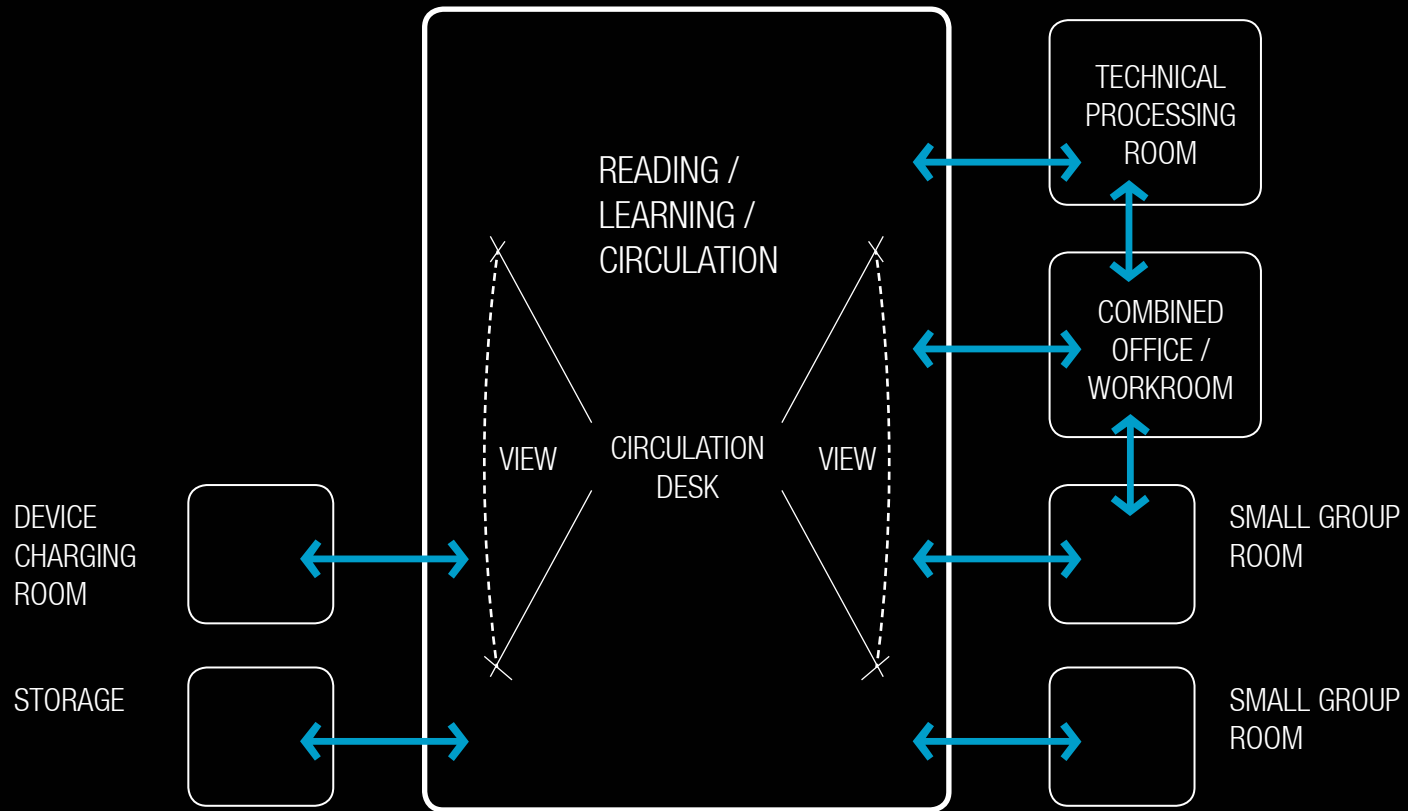
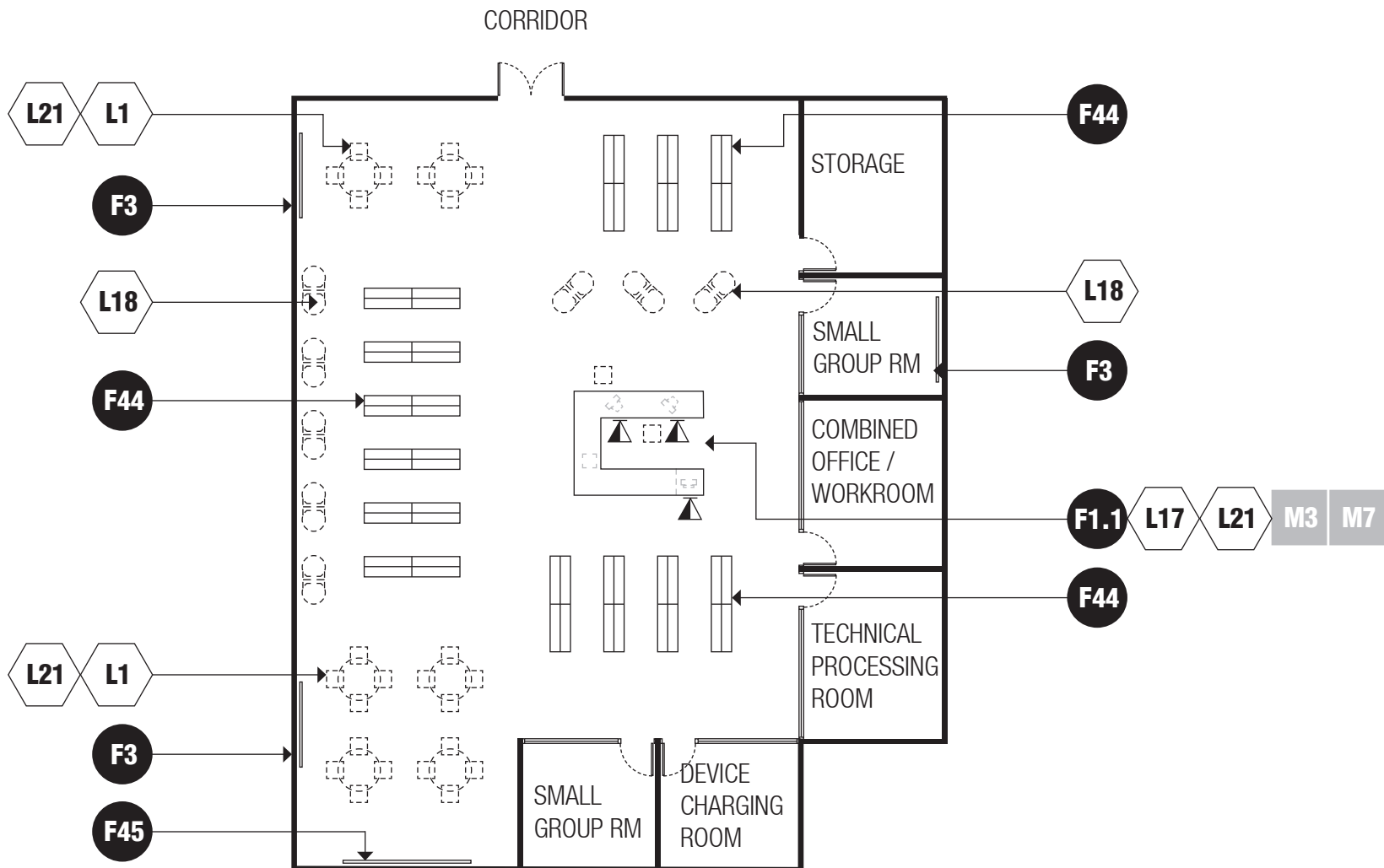


FIG. 8.0 // MEDIA CENTER ADJACENCY DIAGRAM



E-MC /// READING / LEARNING / CIRCULATION



size

3000 sf

capacity

75 students

1 media specialist

community patrons after school hours

ancillary spaces

technical processing room

device charging room

combined office/workroom

storage

small group room

spatial relationships

circulation area located close to
entrance / exit

program activities

reading and research

circulation of materials and resources

including online catalogs

large group and small group instruction

provide meeting areas for community,
staff, and parents

dramatic reading and storytelling

informal small group interaction

environmental considerations

recessed floor outlets at tables

adequate ventilation

lighting appropriate to task with switches

to dim separate zones of media
center

environmental sound control:

wall minimum: STC 45

ceiling minimum: CAC35

electrical outlets at entrance for future
security system

electrical outlets at column locations

windows to provide natural sunlight

security of school when center is in use
during after school hours

ceiling height in proportion to room
dimensions

open flow for traffic in reference/
professional/periodical areas

electrical outlets in toe space of wall
shelving

window treatment to darken room for AV
presentation

mix of lounge furniture

finishes

flooring: carpet

LEGEND ///

● **fixed equipment**

F1.1 casework (circulation desk)

F3 marker board (in two locations, 8 LF ea)

F44 library case work*

F45 motorized projection screen

◻ **loose furnishings**

L1 stackable/nesting chairs (32-55
per student enrollment)

L17 printer station

L18 lounge chairs

L21 work table (6-10 with various
heights)

■ **miscellaneous**

M3 bar code reader

M7 desktop computer (2)

▶ data drop

***shelving calculations per 3' shelves**

Picture thin: 20 books per foot /

60 books per shelf

Standard size: 9 books per foot /

30 books per shelf

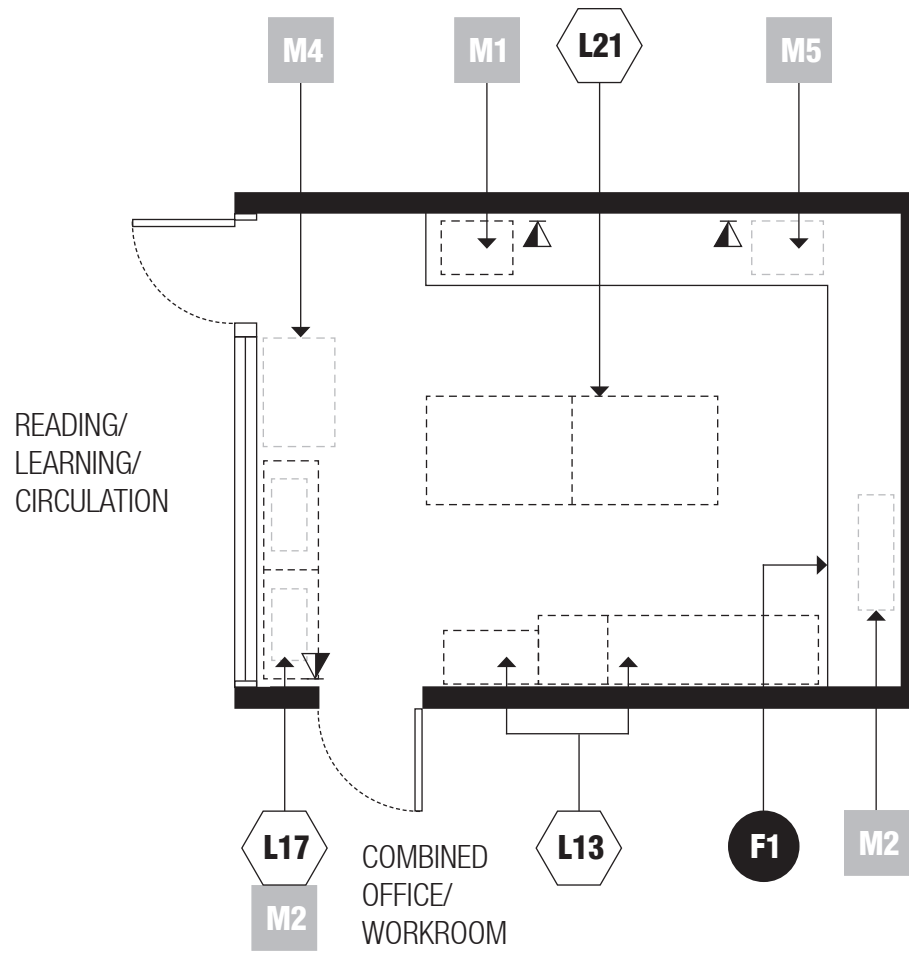
Reference books: 6 books per

foot / 18 books per shelf

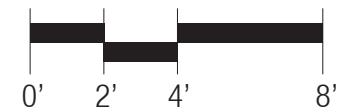
Periodicals: 1 per foot for display
purposes

to calculate how many linear feet of shelving are required for a collection, take the total number of volumes and divide by the number of books per foot. For example, a primary collection of 5,000 volumes consisting of picture and thin books would require a total of 250 linear feet of shelving. shelves should only be two-thirds full. to allow for this, multiply the number of linear feet required by 1.33. example: $250 \times 1.33 = 332.5$ or 333 linear feet of shelving.

*VA guidelines recommend free standing shelving 36" in height or less.



E-MC /// TECH PROCESSING ROOM



size

200 sf

capacity

5 students

2 teachers

ancillary spaces

reading/learning/circulation

combined office/workroom

spatial relationships

n/a

program activities

scanning, digitizing, desktop publishing,
copying, and collating

environmental considerations

uniform lighting with an appropriate visual
comfort level

environmental sound control:

wall minimum: STC 45

ceiling minimum: CAC 40

electrical outlets for equipment

due to the changing nature of technology,

a media production room is to be
designed for flexibility of use.

provide visual control from media center

LEGEND ///

● **fixed equipment**

F1 base/wall cabinets and shelving

(peripheral counters with storage below)

⬡ **loose furnishings**

L13 small table (several and various, for
scanners and other equipment)

L17 printer station (2)

L21 work tables (2)

■ **miscellaneous**

M1 high speed and/or large format printers

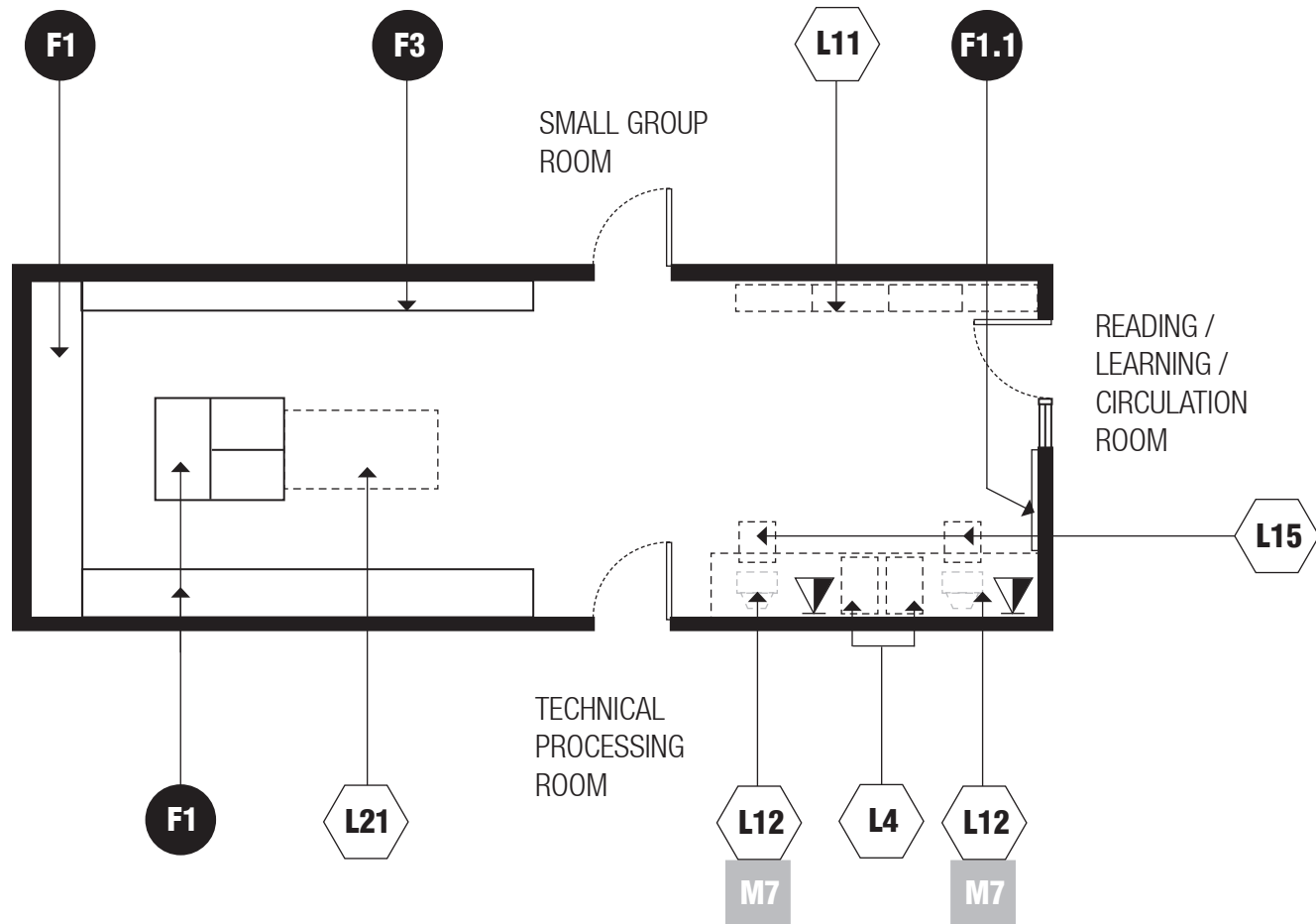
M2 color printers

M4 photocopy machine

M5 digital scanner

M6 laminator

▶ **data drop**



E-MC /// COMBINED OFFICE / WORKROOM



size

200 sf

capacity

media specialists

ancillary spaces

reading/learning/circulation

small group room

spatial relationships

adjacent and access to reading/
learning/circulation

adjacent to and access to office

adjacent to access to technical
processing room

located behind circulation desk and
wholeclass zone

program activities

storage of materials

storage of a/v materials and videotapes

scanning

digitizing

LEGEND ///

● fixed equipment

F1 base/wall cabinets and shelving (base
cabinets with power)

F1.1 casework (poster/map storage)

F3 wall shelving

⬡ loose furnishings

L4 four drawer lateral file cabinet (1-2)

L11 adjustable height bookshelves

L12 admin workstation (2)

L15 task chair (2)

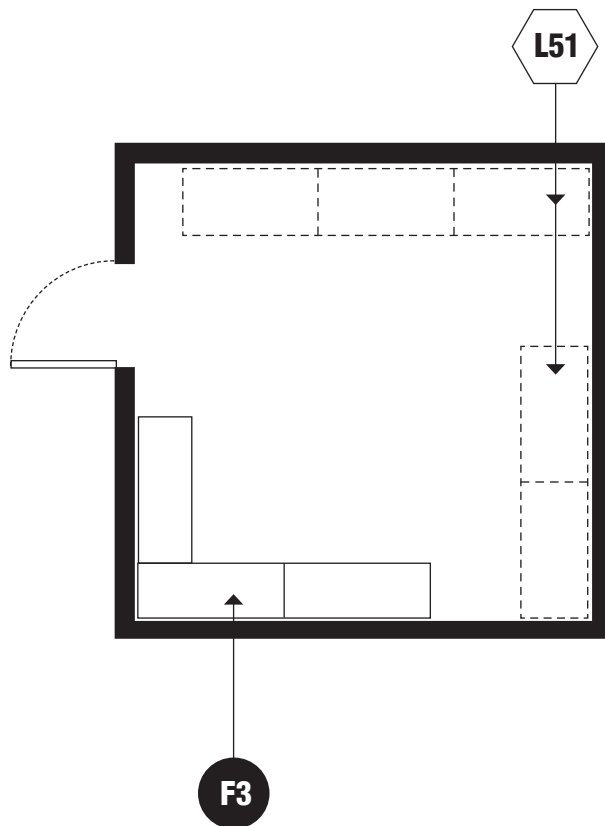
L21 work table

■ miscellaneous

M7 desktop computer (2)

▶ data drop

READING /
LEARNING /
CIRCULATION



size

150 sf

capacity

staff

ancillary spaces

n/a

spatial relationships

adjacent and access to reading/learning
/circulation

program activities

overnight secure charging area for
laptops/tablets

environmental requirements

secure metal door
electrical outlets designed around a
'parking' strategy for 5-6 laptop
charging carts

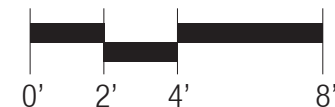
LEGEND ///

● **fixed equipment**

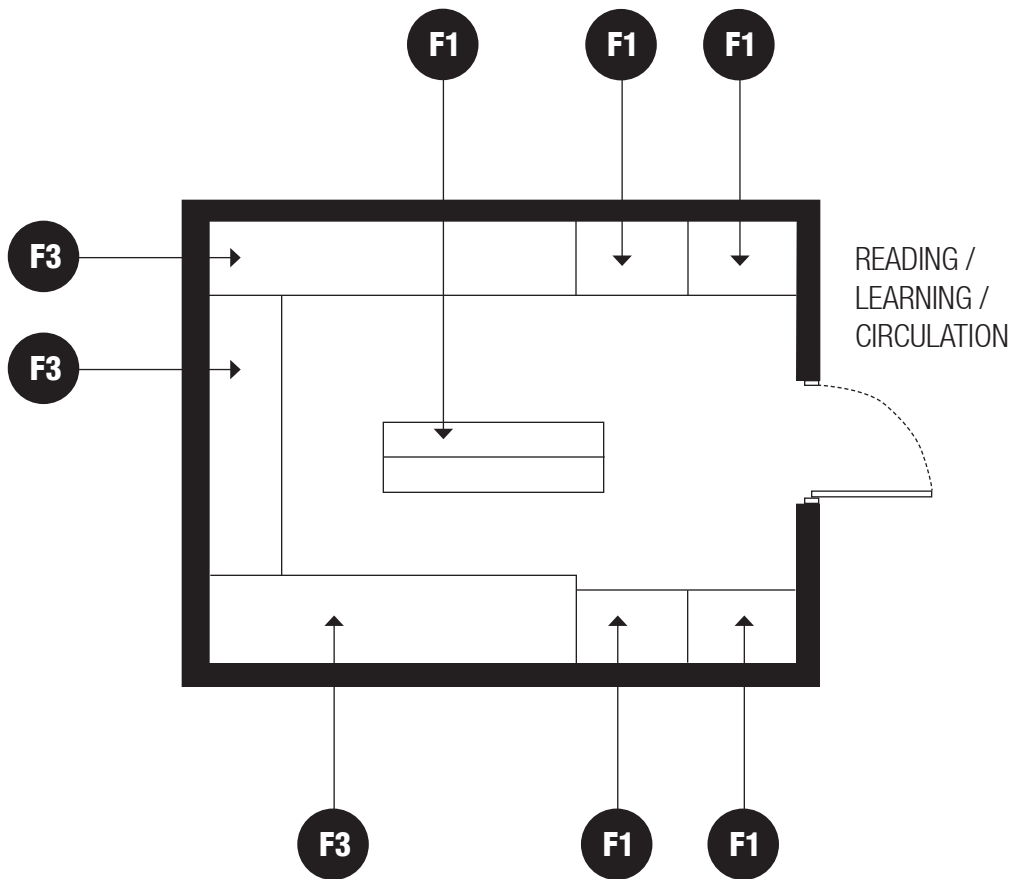
F3 wall shelving (no lower shelves)

⬡ **loose furnishings**

L51 laptop charging cart (5-6)



E-MC /// **DEVICE CHARGING ROOM**



size

200 sf

capacity

staff

ancillary spaces

n/a

spatial relationships

near core classrooms

program activities

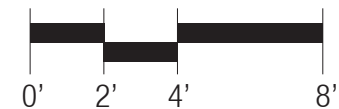
storing and retrieving books / supplies

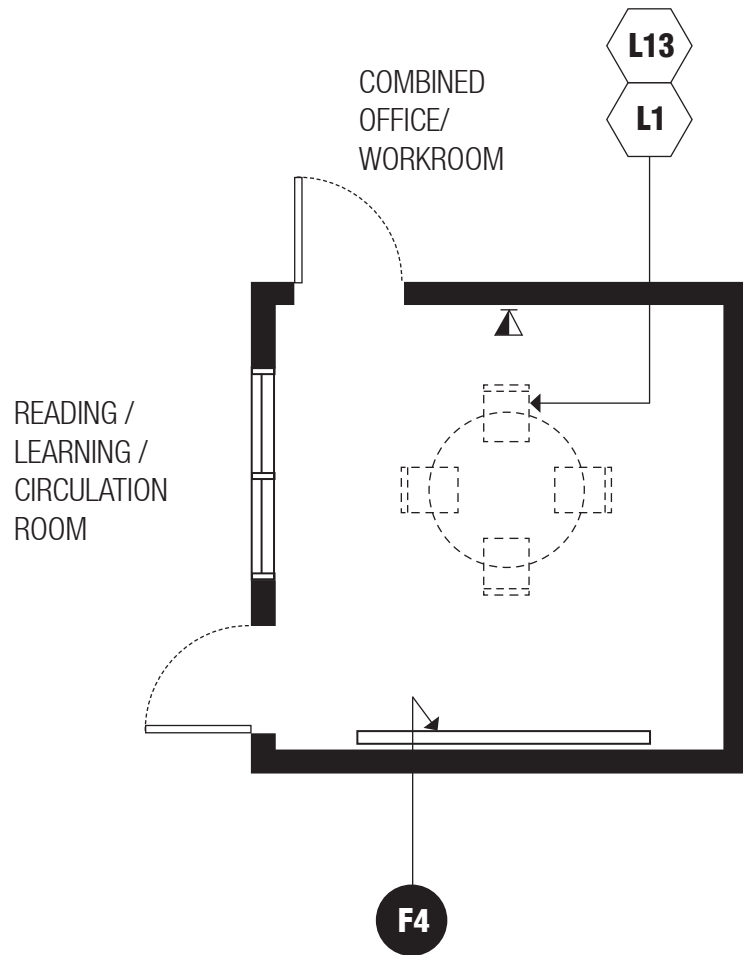
LEGEND ///

● **fixed equipment**

F1 base/wall cabinets and shelving

F3 wall shelving (variety of 12" and 24" deep shelving)





size

150 sf

capacity

up to 8 persons

ancillary spaces

n/a

spatial relationships

adjacent and access to reading / learning
/ circulation area

program activities

group research projects
meetings
listening and viewing

LEGEND ///

● **fixed equipment**

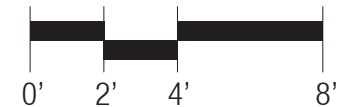
F4 marker board (8 LF)

⬡ **loose furnishings**

L1 stackable/nesting chairs (4)

L13 small table

▶ data drop



E-MC /// SMALL GROUP ROOM

THIS PAGE IS LEFT BLANK INTENTIONALLY

E-VA /// **VISUAL ARTS**

ART LAB
KILN ROOM

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|--------------------|-----------------|-----------|--------------|--------------|
| VISUAL ARTS | | | | |
| Art Lab | 1 | 1200 | 1,200 | |
| Kiln Room | 1 | 75 | 75 | |
| Total | | | 1,275 | |

Comments //

The overall total for the Instructional area may be +/-10%.

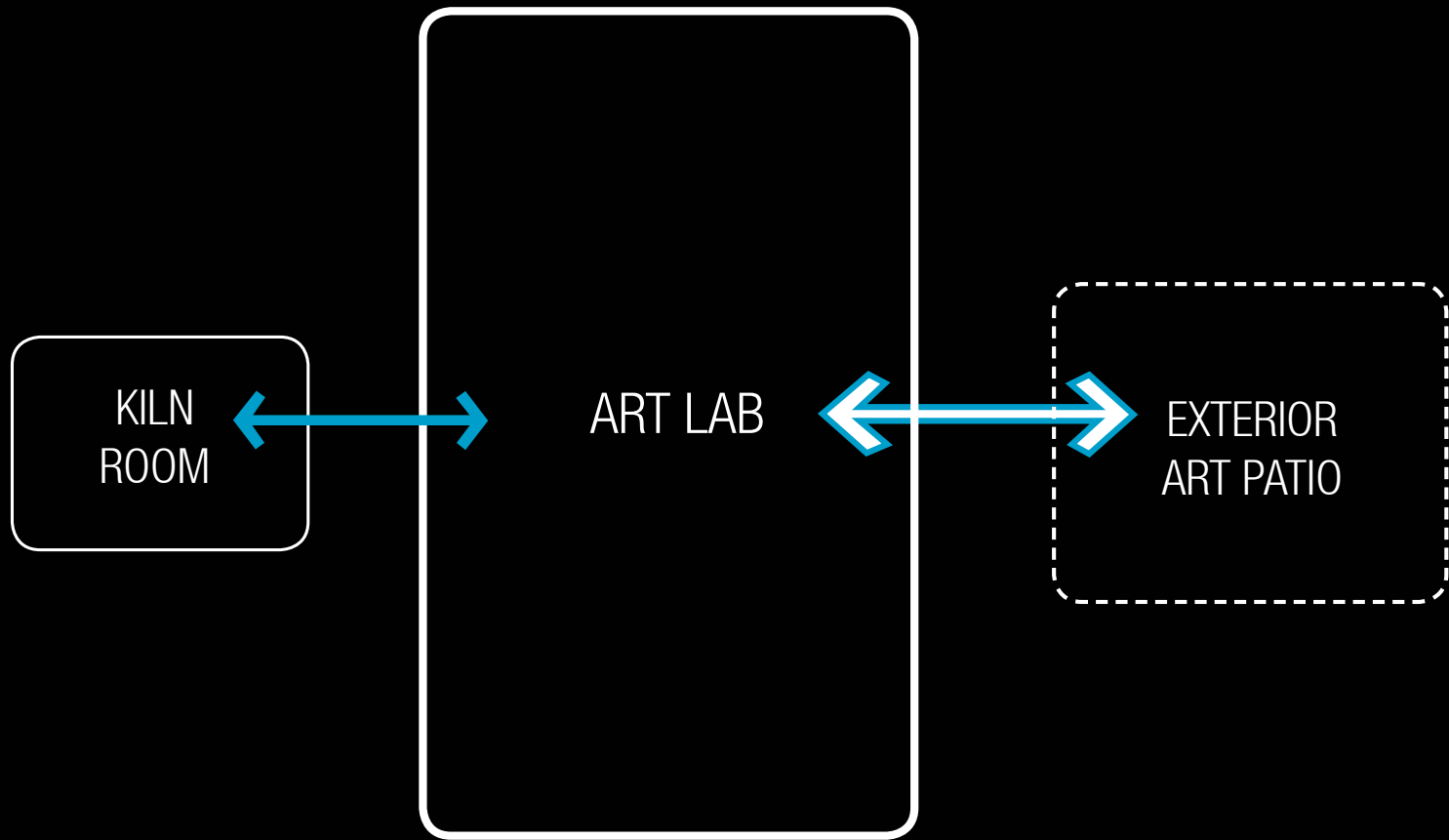
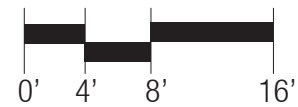
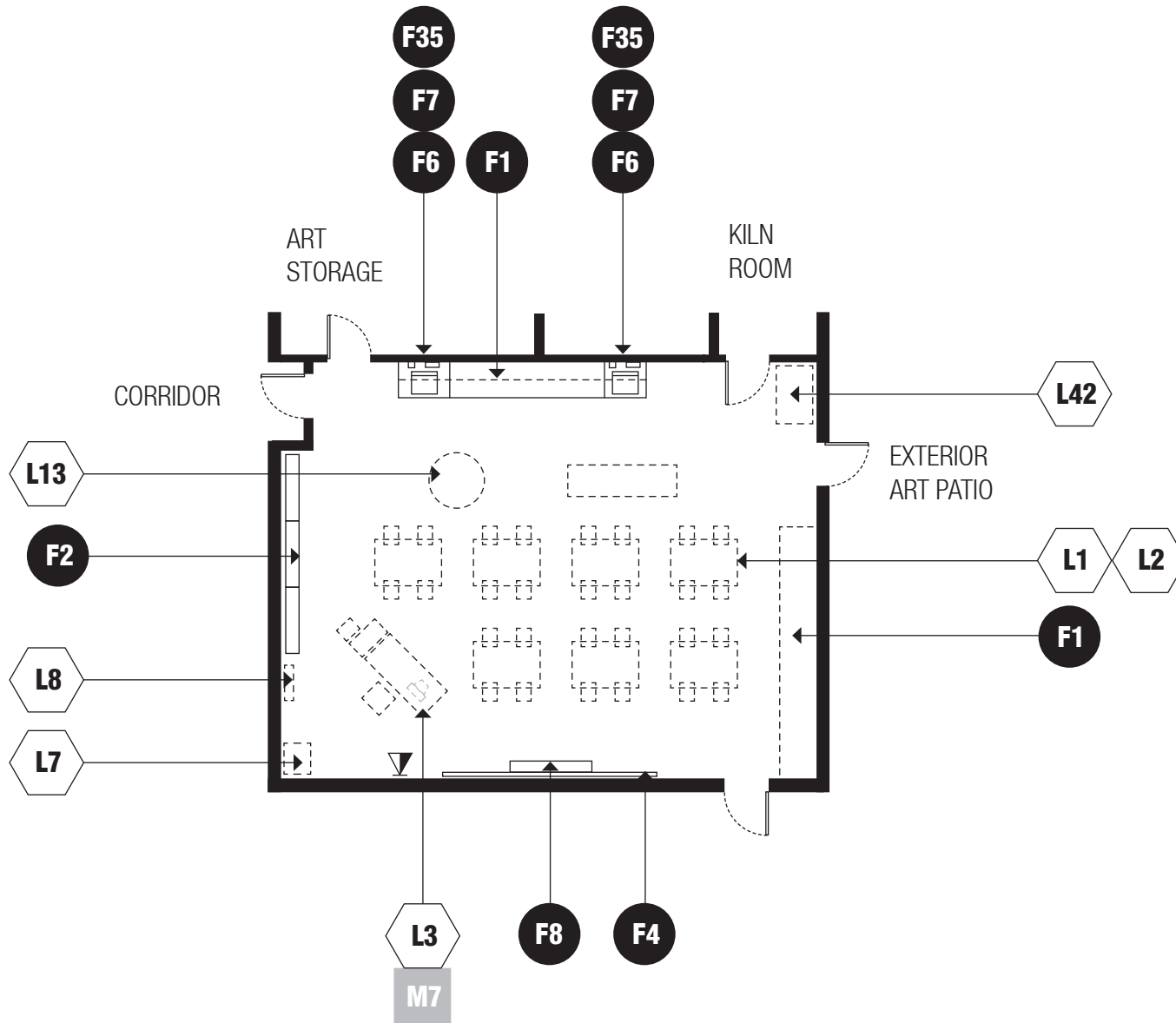


FIG. 9.0 // VISUAL ARTS ADJACENCY DIAGRAM



size

1200 sf

capacity

20-24 students

1 teacher

1 student teacher

parent volunteers

ancillary spaces

kiln room

art storage

spatial relationships

centrally located with convenient access to core academic classrooms

if two labs - one will be located in the early childhood area and be furnished with age appropriate furniture

direct access to art patio - with overhang adjacent and access to kiln room

program activities

drawing, painting, and print making sculpture, model-making, collage, and assembly

ceramics-clay (age appropriate)

computer graphics and mixed media work

viewing prints/slides/movies/art videos

individual and cooperative group work

storage of supplies, projects, and small equipment

environmental considerations

uniform lighting/track and display lighting

windows to provide natural light and egress, preferably northern exposure include outlets on the wall above counter spaces in raceway provide one ceiling hung, retractable electrical outlet window treatment to darken room for av presentation is required

finishes

ceiling:

exposed structure, painted with acoustical treatment

walls:

painted concrete masonry units or dry wall one tackable wall

plumbing

2 large, deep sinke (separated by at least 5 ft)

plumbing connections

hvac

manually controlled general exhaust

LEGEND ///

● fixed equipment

F1 base wall cabinets and shelving (12 LF of 30"high base cabinets w/wall cabinets above paper storage cabinets. Two sinks with different heights)

F2 student cubbies

F4 marker board (16 LF)

F6 soap dispenser (at each sink)

F7 towel dispenser (at each sink)

F8 wall mounted interactive electronic presentation device

F35 hand sink

⬡ loose furnishings

L1 stackable/nesting chairs (24-30)

L2 stackable/nesting tables (7)

L3 teacher work surface with mobile storage and two chairs

L7 teacher's lockable wardrobe

L8 tall cabinet with shelves

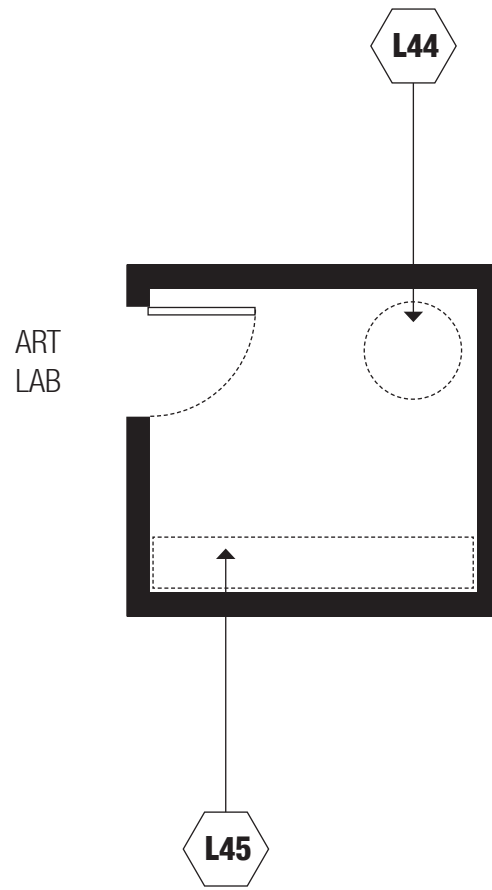
L13 small table

L42 drying rack (40-80 slats)

■ miscellaneous

M7 desktop computer

▶ data drop



E-VA /// KILN ROOM



size

75 sf

capacity

1-2 persons

ancillary spaces

art lab

spatial relationships

direct access to art lab

program activities

store 3d sculptural work

house kiln equipment

environmental considerations

ventilation controlled by a thermostat

adequate ventilation with vents to the
outside for kiln

electrical outlets for equipment

lighting appropriate to task

consider safety in plumbing room layout

LEGEND ///

⬡ **loose furnishings**

L44 kiln (28+” opening, 27” deep, and
ventilation)

L45 greenware shelving

E-MU /// **MUSIC**

GENERAL MUSIC ROOM
INSTRUMENTAL MUSIC ROOM
(BAND AND ORCHESTRA)
GENERAL MUSIC STORAGE
INSTRUMENT STORAGE

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|--|-----------------|-----------|--------------|------------------|
| MUSIC | | | | |
| General Music Room | 1 | 1200 | 1200 | |
| Instrumental Music Room (Band and Orchestra) | 1 | 1000 | 1000 | Choral and Drama |
| General Music Storage | 1 | 150 | 150 | |
| Instrument Storage | 1 | 250 | 250 | |
| Total | | | 2,600 | |

Comments //

The overall total for the instructional area may be +/- 10%. See stage for third teaching stations.

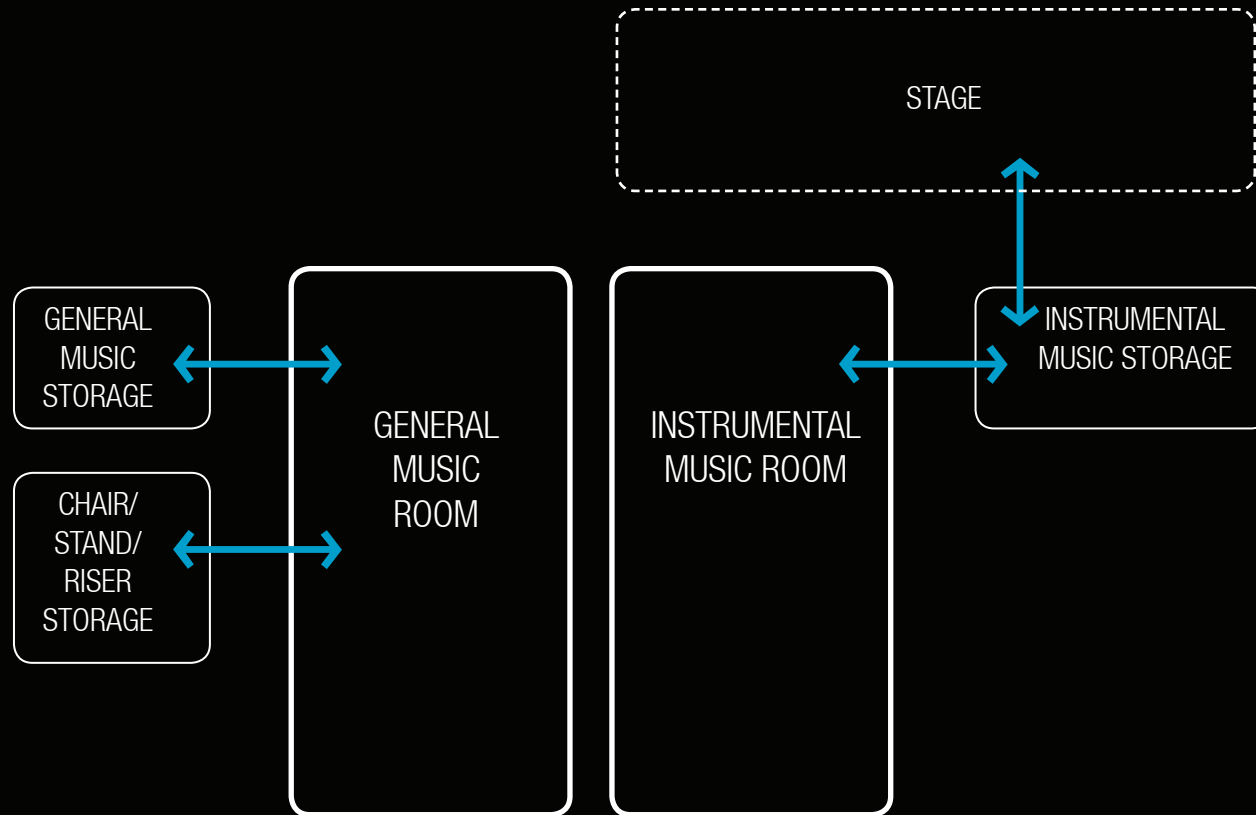
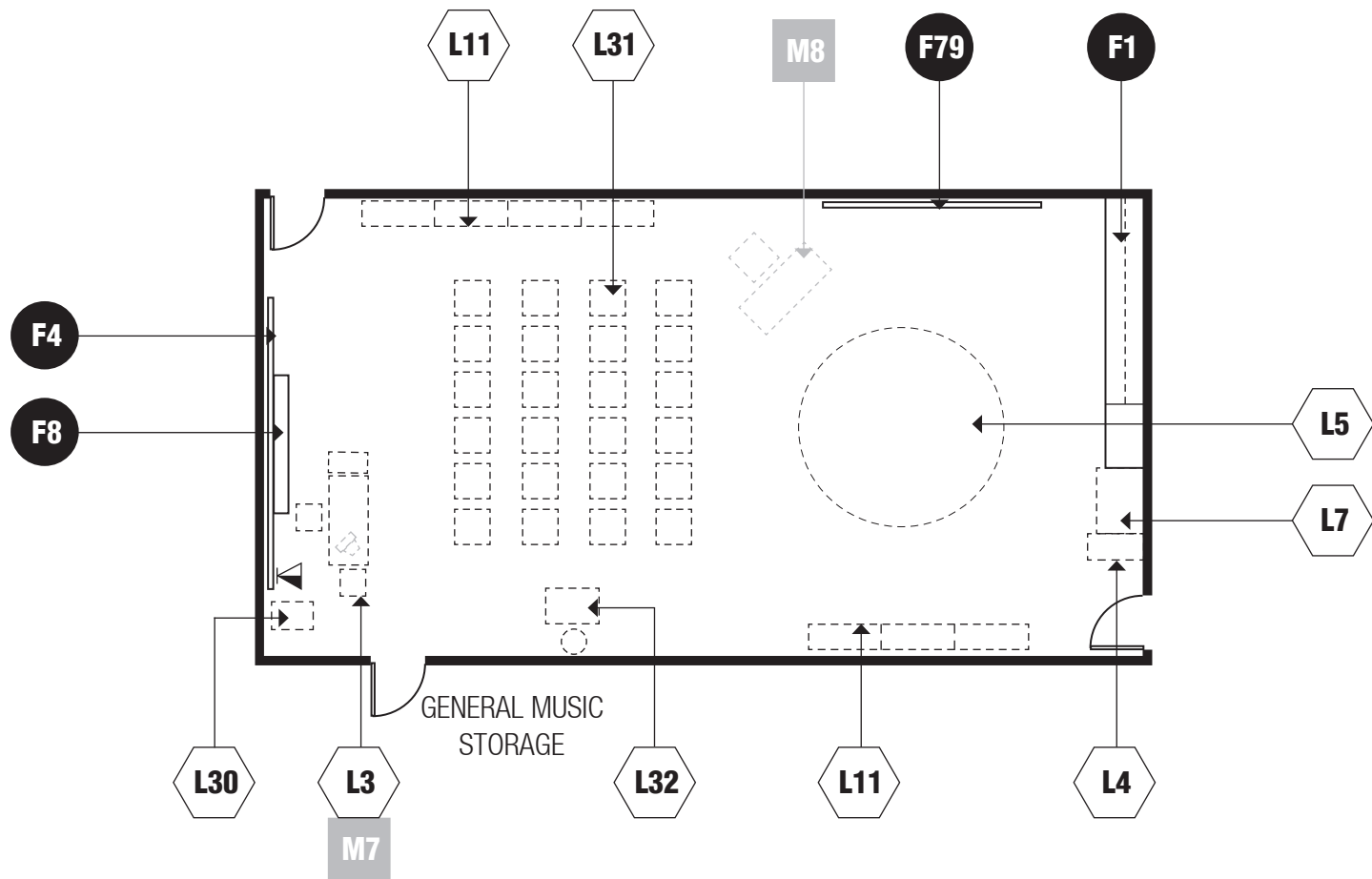
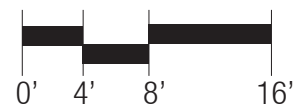


FIG. 10.0 // MUSIC ARTS ADJACENCY DIAGRAM



E-MU /// GENERAL MUSIC ROOM



size

1200 sf

capacity

20-30 music students

1 teacher

parents/volunteers

ancillary spaces

general music storage

near other music rooms

chair/stand/riser storage

general storage

spatial relationships

co-located near similar functions/noise levels

adjacent instrumental music and general music

program activities

listen, analyze, describe, and compose music

sing alone and with others (solos, duets, trios, ensembles, large groups)

guest speakers and performers (solo and ensembles)

group instruction

choral, speech, theatrics (musicals, operas)

view educational videos for music enrichment

extra-curricular after school activities (i.e. Odyssey of the Mind)

audio recording and playback

environmental considerations

uniform lighting and (optional) theatrical lighting

environmental sound control:

wall minimum: STC 50

ceiling minimum: CAC 35

sound insulation in walls and ceiling (extended above ceiling to underside of deck)

acoustical wall treatments

drinking fountain and sink in classroom

finishes

flooring:

carpet

plumbing

plumbing connections

drinking fountain

sink

LEGEND ///

● fixed equipment

F1 base/wall cabinets and shelving (music storage cabinet)

F4 marker board (16 LF)

F8 wall mounted interactive electronic presentation device

F79 tackable surface (12 LF)

◻ loose furnishings

L3 teacher workstation with mobile storage

L4 four drawer lateral file cabinet

L5 bound group rug

L7 teacher's lockable wardrobe

L11 adjustable height bookshelves (for instrument storage around periphery)

L30 mobile a/v cabinet

L31 music posture chairs (24-36)

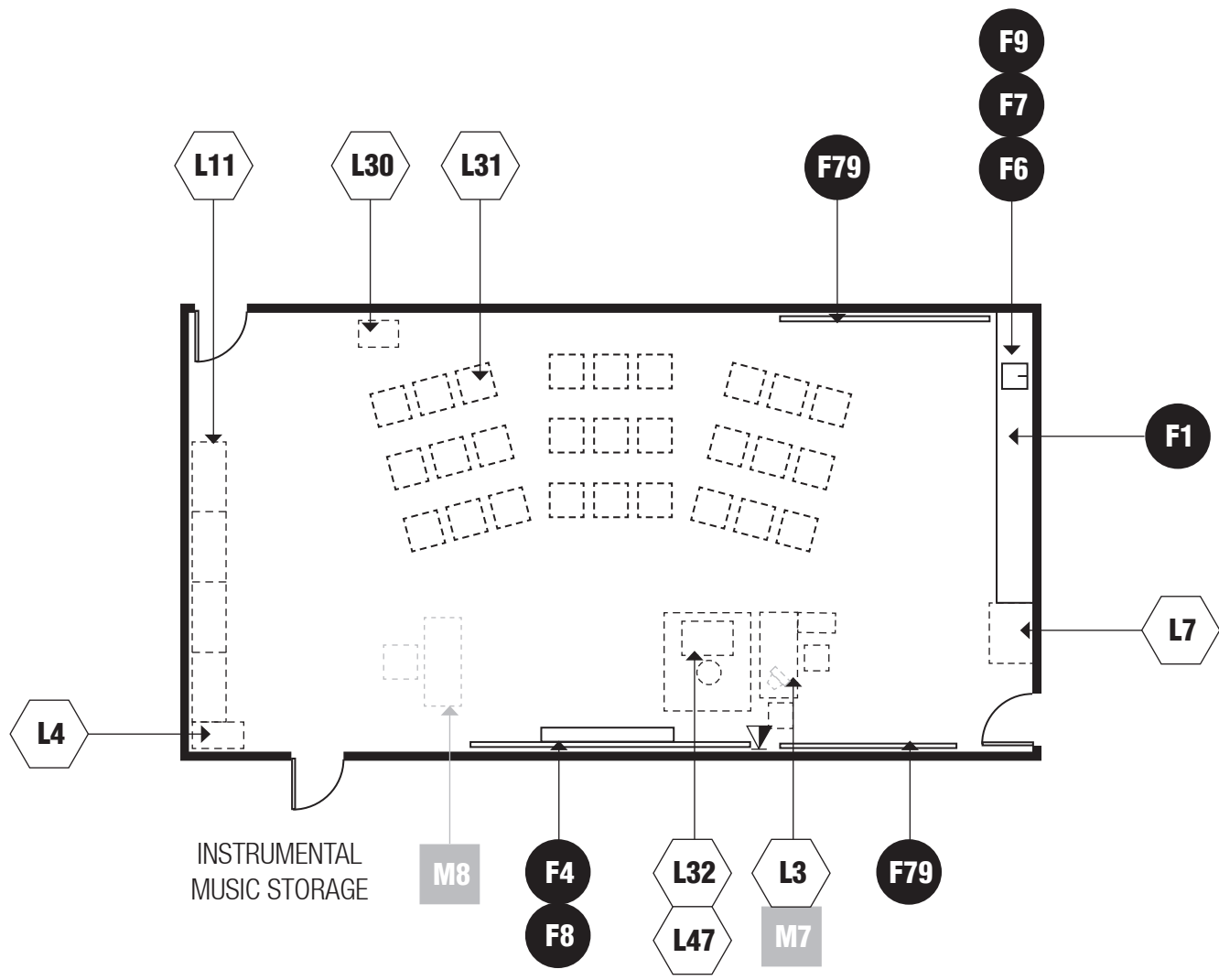
L32 conductor podium and stool

■ miscellaneous

M7 desktop computer

M8 upright piano

▶ data drop



E-MU /// INSTRUMENTAL MUSIC ROOM

size

1000 sf

capacity

20-60 students

1 teacher

ancillary spaces

instrument storage

near cafetorium

spatial relationships

adjacent to general music room

adjacent and access to instrument

storage

program activities

teaching and learning to read music

individual practice

performance of music

students will practice in large groups,
small groups, and individually

environmental considerations

environmental sound control:

wall minimum: STC 50

ceiling minimum: CAC 50

sound insulation in walls (extended above
ceiling to underside of roof deck)

acoustical wall treatments

double doors with removable mullions

finishes

flooring:

carpet

LEGEND ///**● fixed equipment**

F1 base/wall cabinets and shelving (paper
storage cabinets)

F4 marker board (16 LF)

F6 soap dispenser

F7 towel dispenser

F8 wall mounted interactive electronic
presentation device

F9 classroom sink

F79 tackable surface (on two walls)

⬡ loose furnishings

L3 teacher work surface with mobile storage

L4 four drawer lateral file cabinet

L7 teacher's lockable wardrobe

L11 adjustable height bookshelves
(for instrument storage around periphery)

L30 mobile a/v cabinet

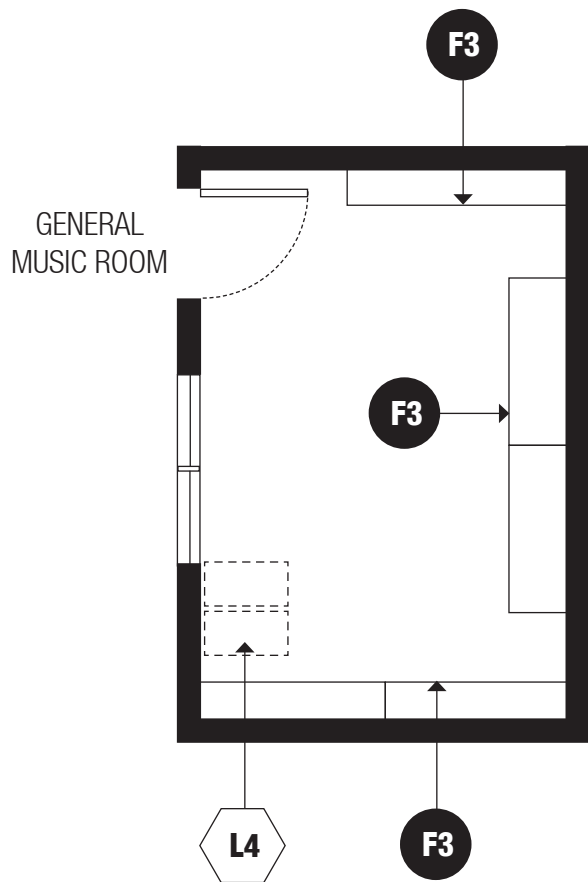
L31 posture chair (24-50)

L32 conductor's podium and stool

■ miscellaneous

M7 desktop computer

M8 upright piano



size

100 sf

capacity

students
teachers

ancillary spaces

general music room
stage

spatial relationships

n/a

program activities

storage and simple repair of accessories
and equipment

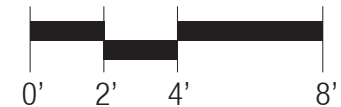
LEGEND ///

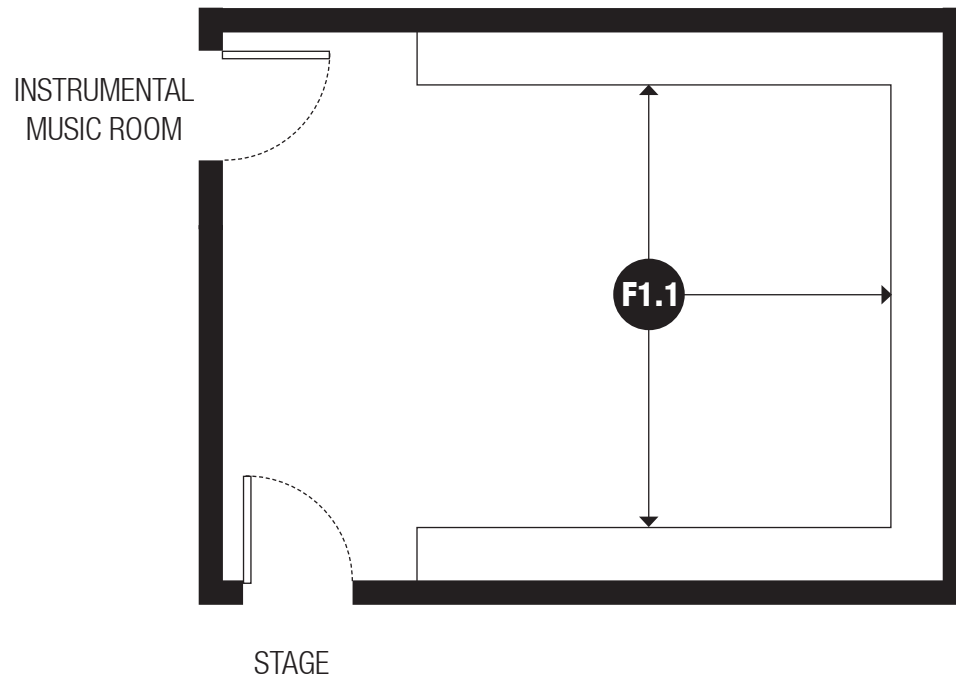
● **fixed equipment**

F3 wall shelving (variety of 12" and 18" deep)

⬡ **loose furnishings**

L4 four drawer lateral file cabinet (2)





size

250 sf

capacity

teacher
students

ancillary spaces

instrumental music room
near stage

spatial relationships

n/a

program activities

storage

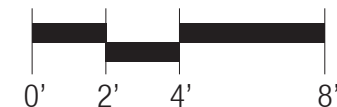
environmental considerations

na

LEGEND ///

● **fixed equipment**

F1.1 casework (adjustable open cubbies for medium and small instruments)



E-PE /// **PHYSICAL EDUCATION**

GYMNASIUM

PE OFFICE

PE STORAGE

MULTI-PURPOSE/AFTER SCHOOL SPACE

PLAYGROUNDS

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|----------------------------------|-----------------|-----------|--------------|--------------------------------|
| PHYSICAL EDUCATION | | | | |
| Gymnasium | 1 | 6,500 | 6,500 | |
| PE Office | 2 | 150 | 300 | |
| PE Storage | 2 | 250 | 500 | |
| Multi-Purpose/After School Space | 1 | 1,500 | 1,500 | |
| Playgrounds | | | | See pages for more information |
| Total | | | 8,800 | |

Comments //

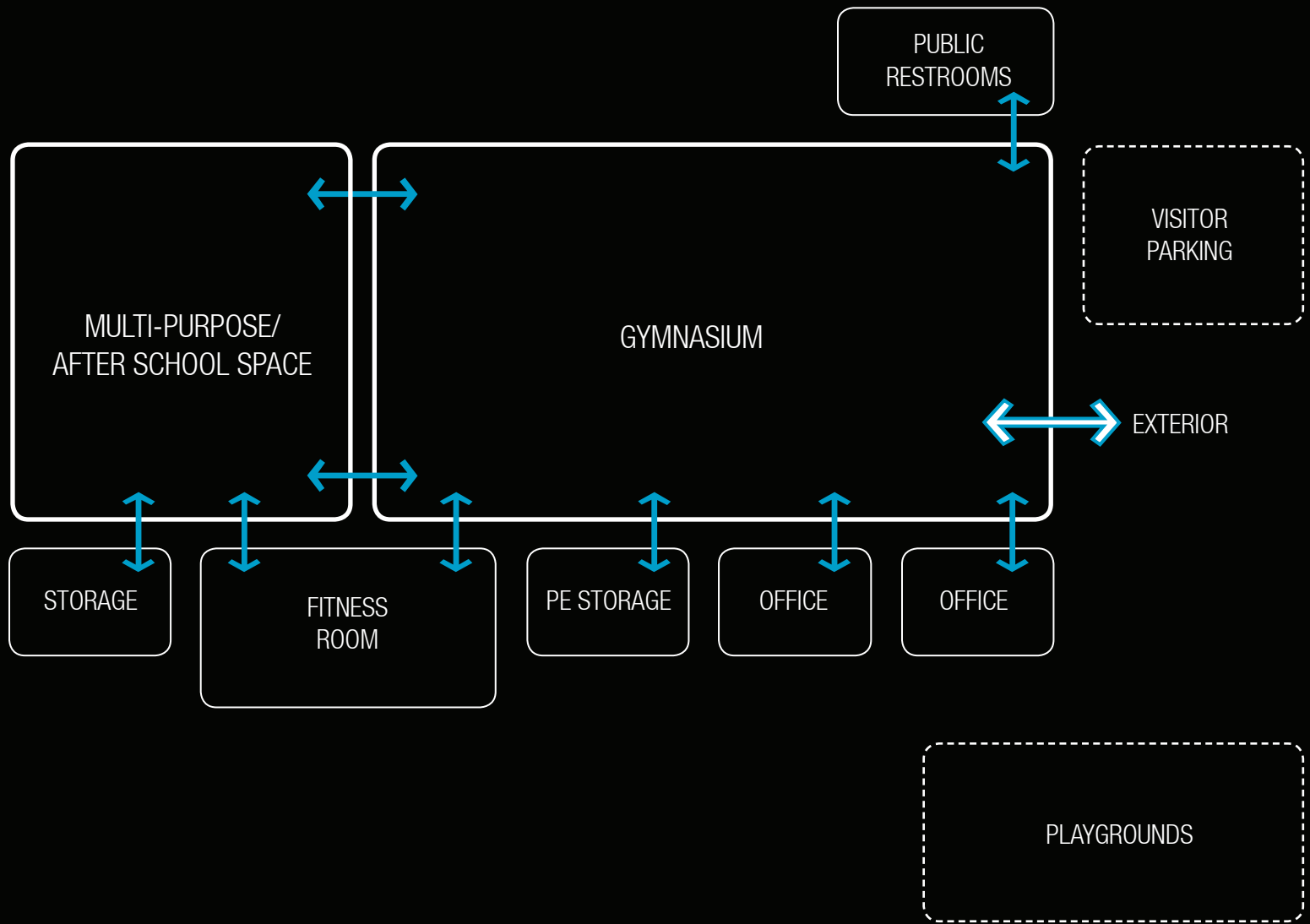
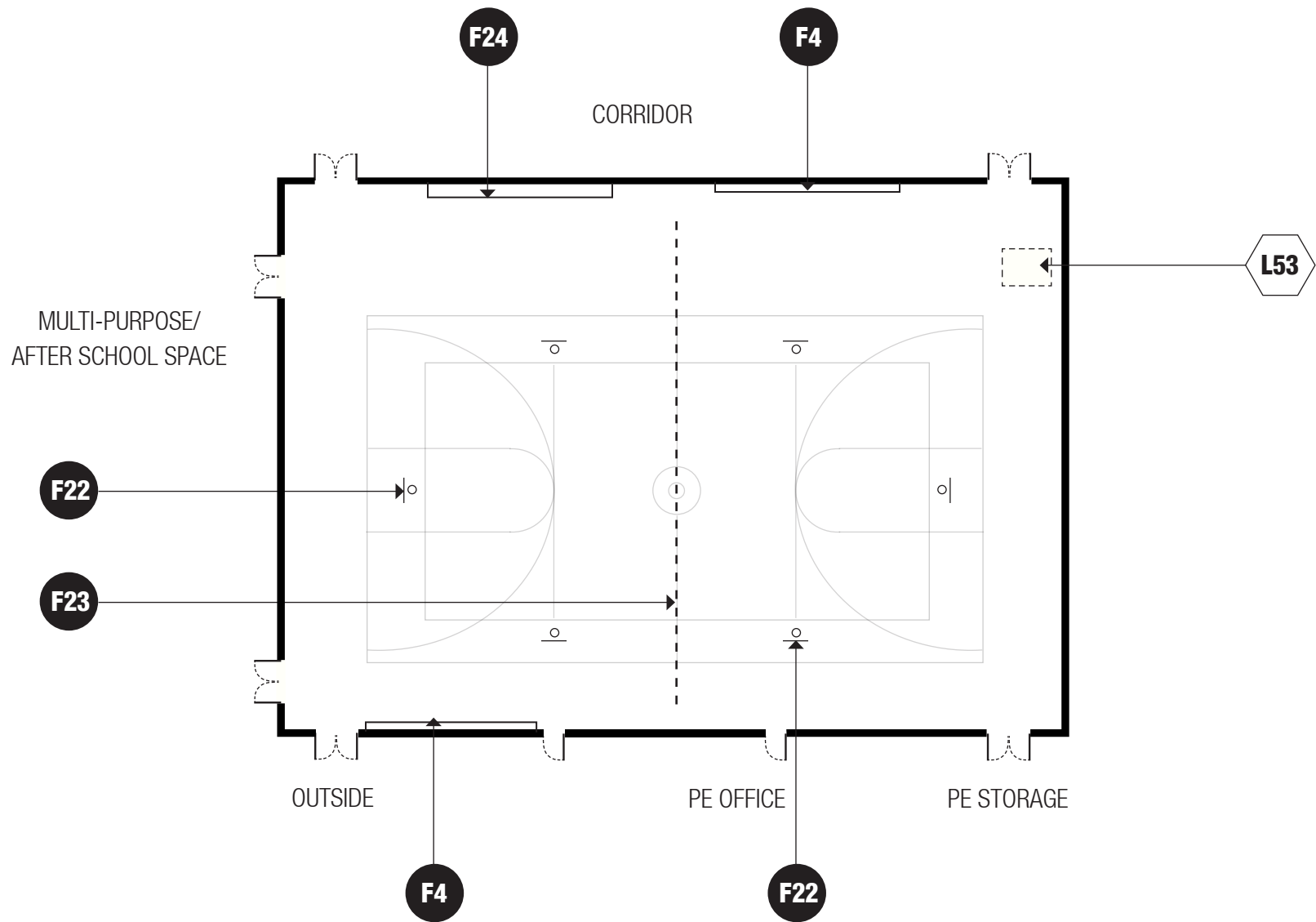


FIG. 11.0 // PHYSICAL EDUCATION ADJACENCY DIAGRAM



E-PE /// GYMNASIUM



size

6,500 SF

capacity

20-24 students per class

2-3 teachers

parents and community members for meetings

assemblies to accomodate at least 1/2 of the student body

finishes

flooring: wood strip flooring for athletic applications or resilient athletic flooring

base: vented resilient base

ceiling: painted exposed structure on acoustical deck

walls: painted concrete masonry units acoustical wall treatment and/or sound absorbing concrete masonry units

padding on lower levels

spatial relationships

near public restrooms

access to outdoor physical education play areas

near visitor parking

located with easy access to rest of school, but must be able to close off area for security during evening activities

adjacent and access to PE office

adjacent and access to PE storage

adjacent to multi-purpose room

program activities

athletic skills and leader games

adaptive physical education

student assemblies and programs

lectures/teaching

community use

environmental considerations

environmental sound control:

wall minimum: STC 50

adequate sound control/acoustics

clear height of 20' from floor to nearest obstruction

electrical outlets for equipment

drinking fountain and open cubbies in adjacent lobby area

structure, lighting, and ducts designed not to trap PE balls; wire gaurds on light fitures

ceiling heights should be proportional to room volume

LEGEND ///

● **fixed equipment**

F4 marker board (8 LF 2 sides of gym with electrical outlet below)

F22 basketball goals (adjustable height, ceiling hung or portable)

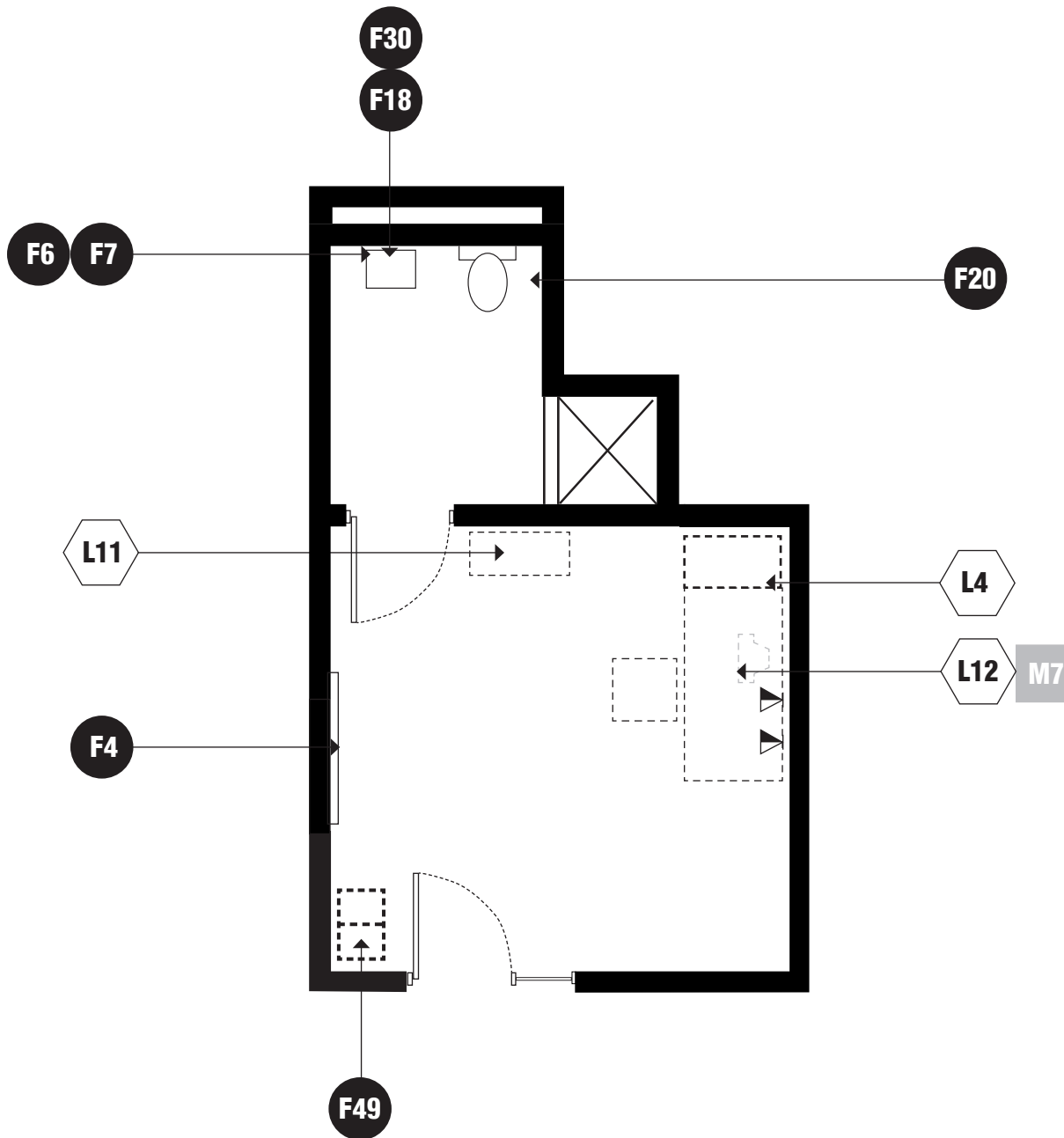
F23 operable partition- motorized

F24 climbing wall



loose furnishings

L53 portable sound system



E-PE /// PE OFFICE



size

150 SF

capacity

1-2 teachers

student teachers

ancillary spaces

gymnasium

near adult restrooms

spatial relationships

adjacent and access to gymnasium

near restrooms

program activities

ordering

scheduling

planning

maintaining records

meetings

plumbing

wall mounted lavatory

wall mounted water closet

floor drains in restroom and shower

LEGEND ///

● **fixed equipment**

F4 marker board (4 LF)

F6 soap dispenser

F7 towel dispenser

F18 mirror (24" x 60")

F20 bathroom accessories

F30 bathroom sink

F49 lockers (2)

◻ **loose furnishings**

L4 four drawer lateral file cabinet

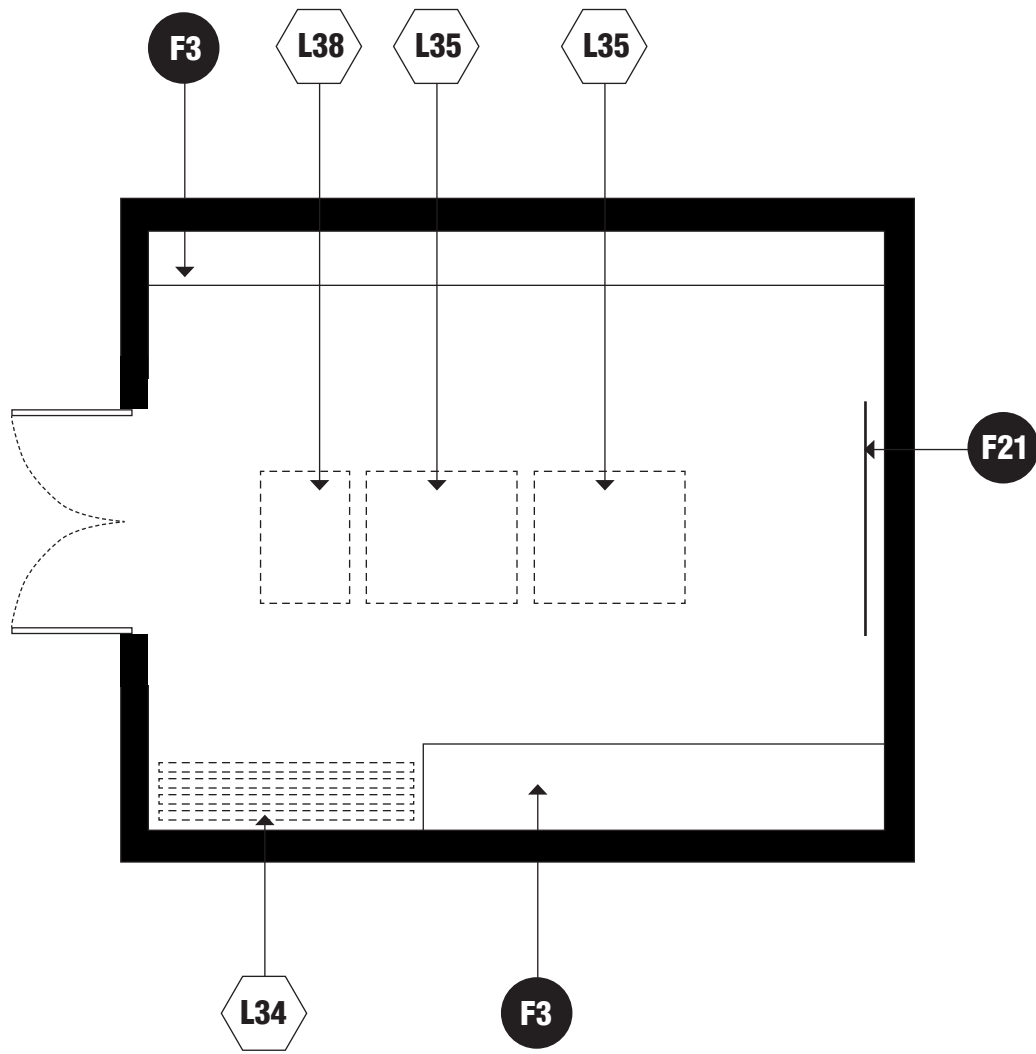
L12 admin workstation and chair

L11 adjustable height bookshelves

■ **miscellaneous**

M7 desktop computer

▶ data drop



size

250 SF

capacity

1-2 teachers
student teachers

ancillary spaces

gymnasium
near direct access to exterior for access
to outdoor equipment

program activities

storage

environmental considerations

leave space below shelving on one wall
for portable bins

LEGEND ///

● **fixed equipment**

F3 wall shelving (12" and 18" deep)
F21 pegboard (4 LF)

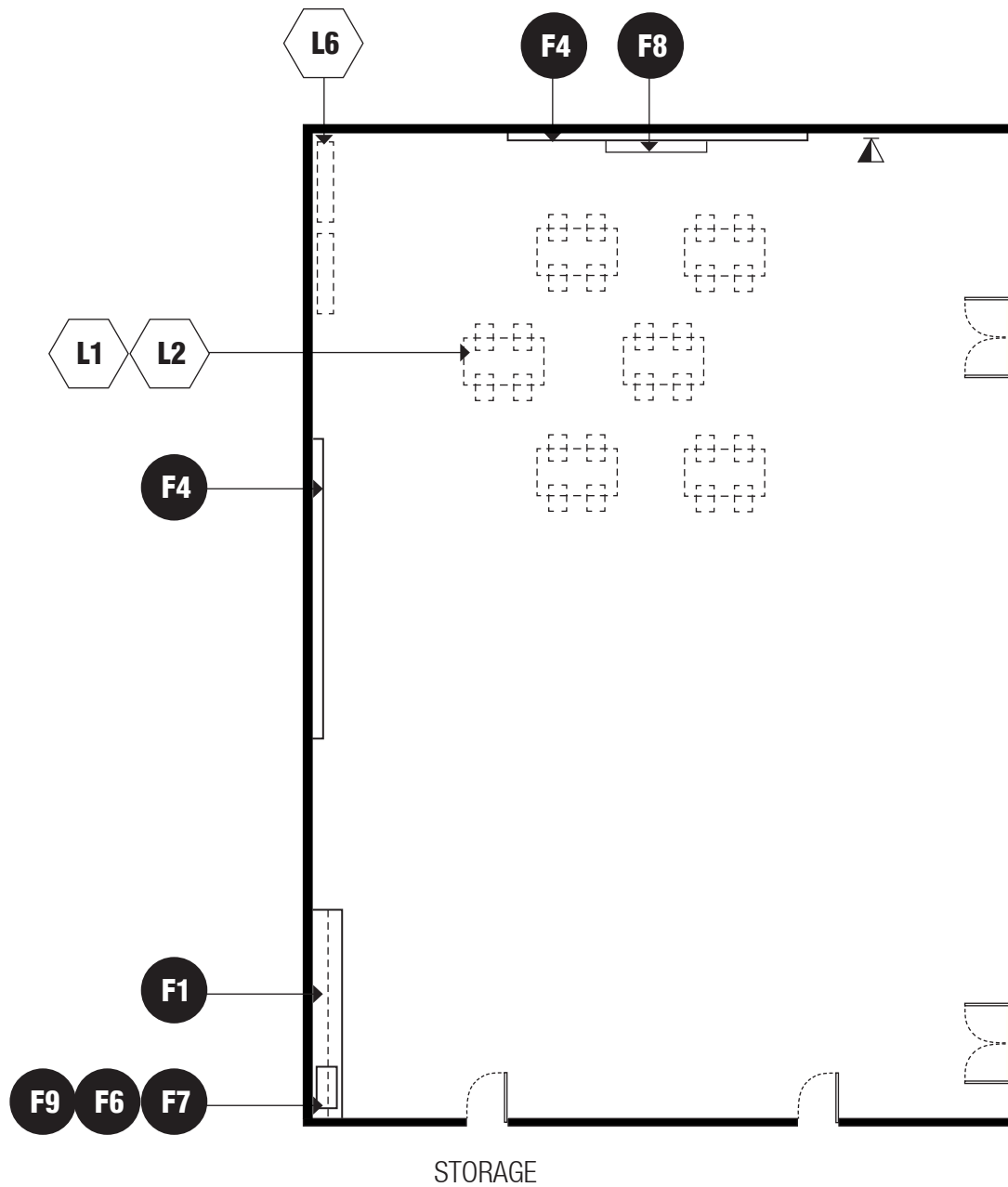
⬡ **loose furnishings**

L34 tumbling mats
L35 ball bins
L38 play equipment



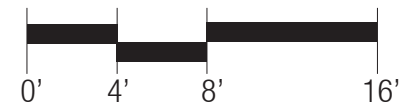
E-PE /// PE STORAGE

THIS PAGE IS LEFT BLANK INTENTIONALLY



STORAGE

E-PE /// MULTI-PURPOSE/AFTER SCHOOL SPACE



size

1,500 SF

capacity

students
teachers and staff
after school staff
community

finishes

flooring: resilient athletic flooring

spatial relationships

near after school entrance to building
near parking area
adjacent and access to after school
storage area

program activities

back-up physical education teaching
wellness area
after school staff to tutor and counsel
students
quiet area for students to play cards, work
on homework, read
office space for after school staff

plumbing

connections for sink with gooseneck
faucet

environmental considerations

elevated ceiling, +/- 18 LF
uniform lighting
flexibility of space
adequate ventilatio and ceiling fans
electrical outlets for equipment

must be able to isolate from the rest of
the school after hours
drinking fountain in adjacent corridor
windows to provide natural light

● LEGEND ///

fixed equipment

- F1 base/wall cabinets and shelving
- F4 marker board (on 2 walls, 16 LF each)
- F6 soap dispenser
- F7 towel dispenser
- F8 wall mounted interactive electronic
presentation device
- F9 classroom sink

⬡ **loose furnishings**

- L1 stackable/nesting chairs (22-26)
- L2 stackable/nesting tables (6)
- L6 mobile shelving

- loose furnishings for after school staff TBD

▶ data drop

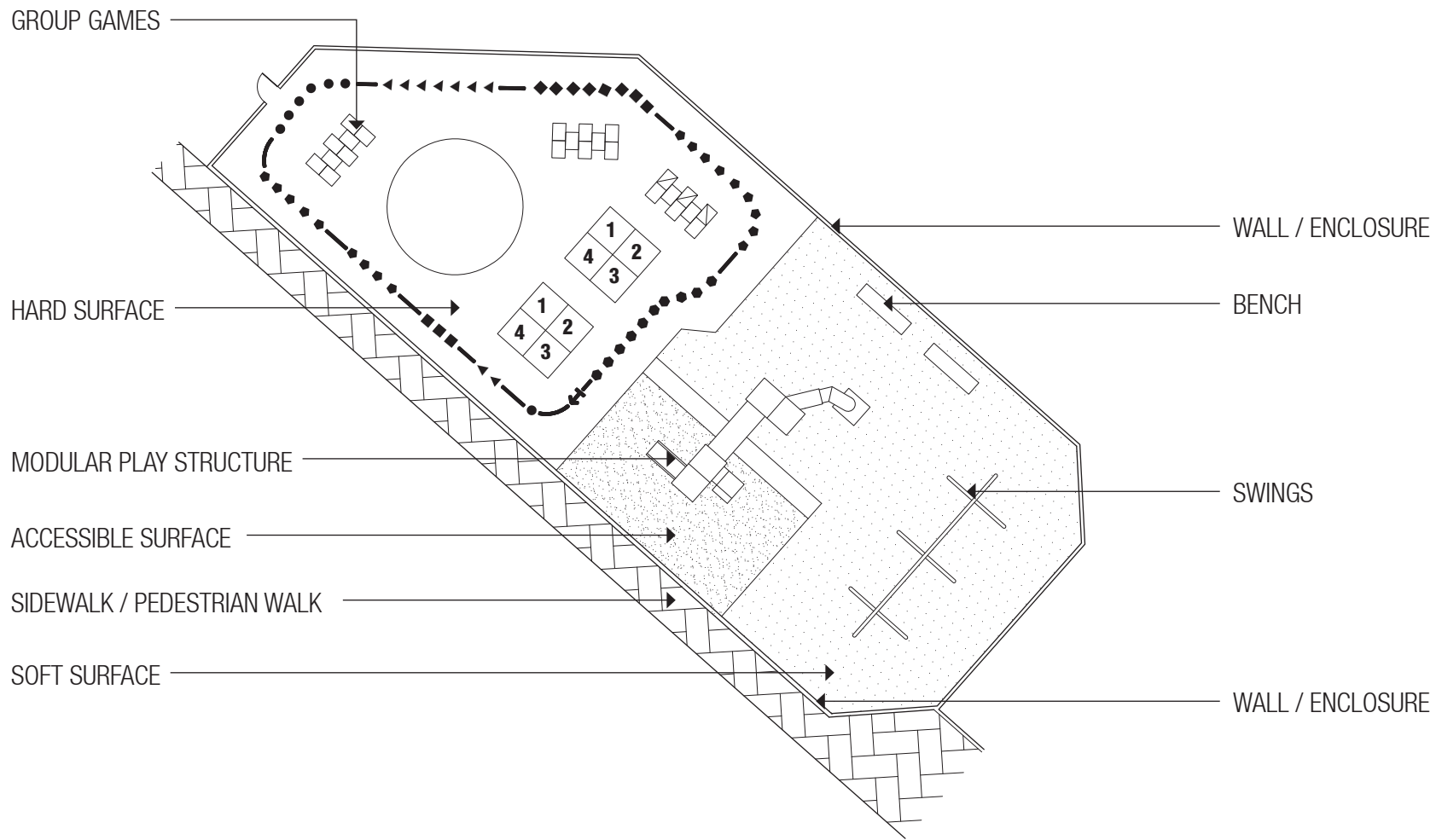
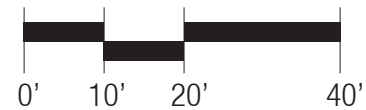


FIG. 7.0 // **PRE-K PLAYGROUND DIAGRAM**



general requirements

provide playground areas to allow for difference in age, ability, and varying interests. follow applicable safety guidelines for different age groups.

pre-kindergarten to grade 1 play area (figure 7.0)

plan for play activities that include rocking, balancing, climbing, and sliding.
include tables and chairs for age group
Locate equipment with moving parts, at the perimeter of the play area. use fence or planting beds to prevent children from inadvertently stepping into path of moving equipment.

primary play area (figure 7.2)

design for grades 1 - 3.
plan for play activities that include rocking, swinging, balancing, climbing, and sliding.
plan for upper-body strengthening devices such as a parallel bar and overhead ladder play equipment.

intermediate play area (figure 7.3)

design for grades 4 - 5.
intermediate play area may be combined with primary play area and a 'tot

track' designed around both play areas

Include an outdoor science classroom that may include a garden.
plan for 1 full basketball court (50 feet by 84 feet) or 2 half courts (50 feet by 42 feet).

soft surface play area //

soft surfaces are provided under play equipment and must be handicapped accessible.
surfacing is to be a poured polyurethane surface.
avoid using black surfacing.

accessibility standards (figure 7.1)

plan for ramps and/or transfer points on composite play structures for access to play components on elevated decks.
meet the Americans with Disabilities Act guidelines
for percentage of components that are to be accessible by ramp and by transfer deck.
provide table and benches along accessible route.
provide upper-body strengthening devices as appropriate for age group and amount of supervision.

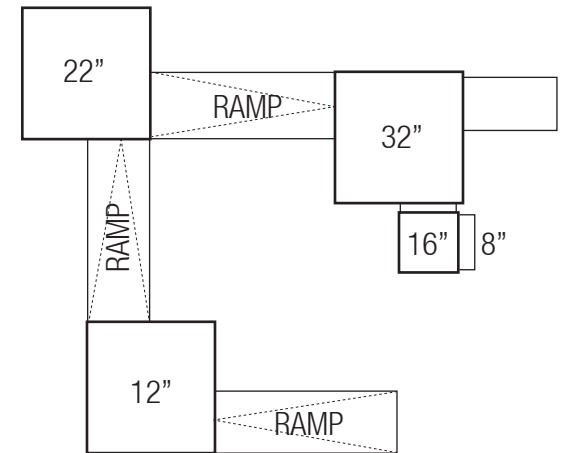


FIG. 7.1 //
TYPICAL RAMP AND TRANSFER DECK

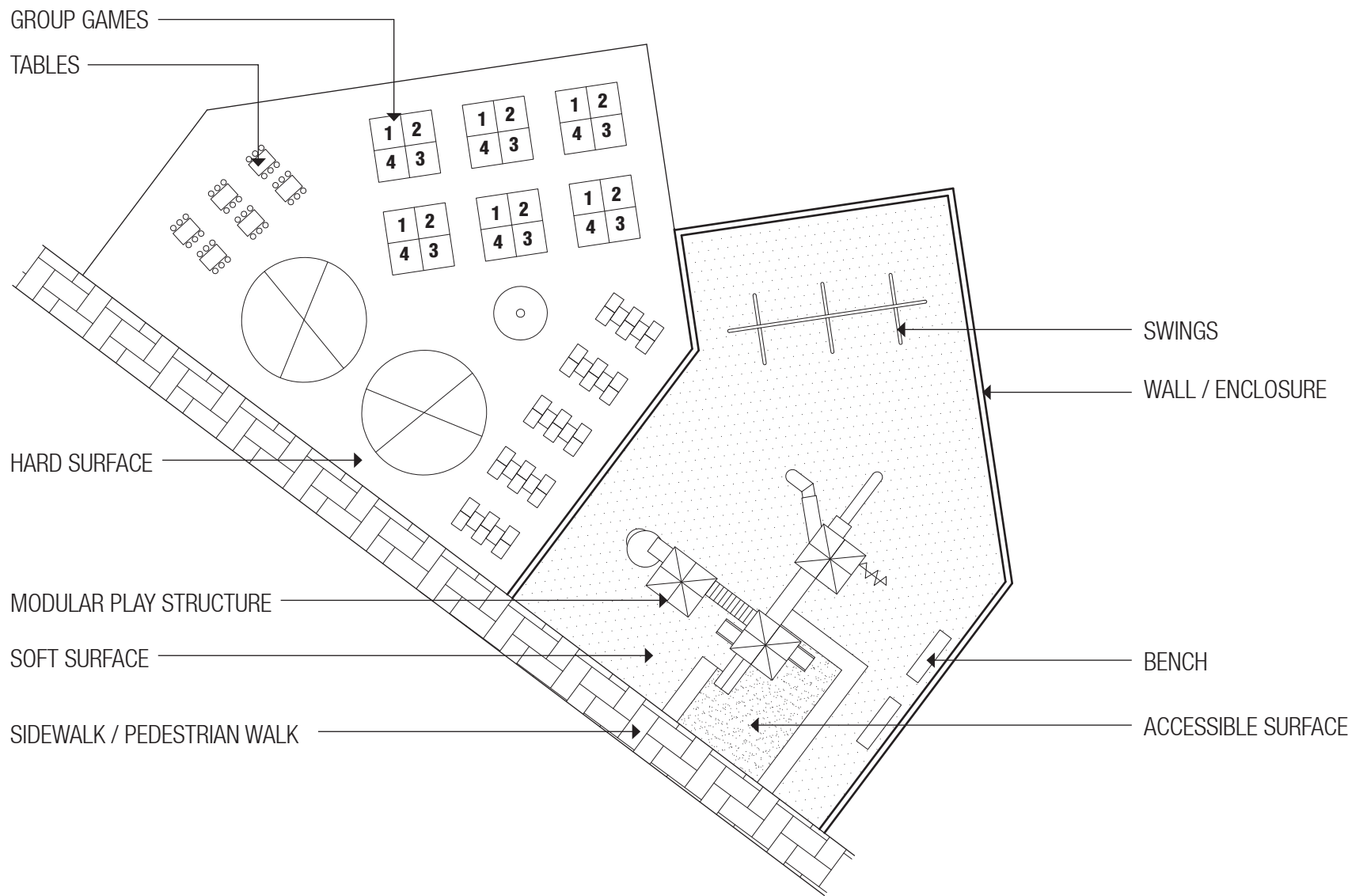
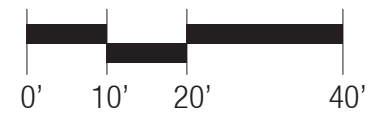


FIG. 7.2 // **PRIMARY PLAYGROUND DIAGRAM**



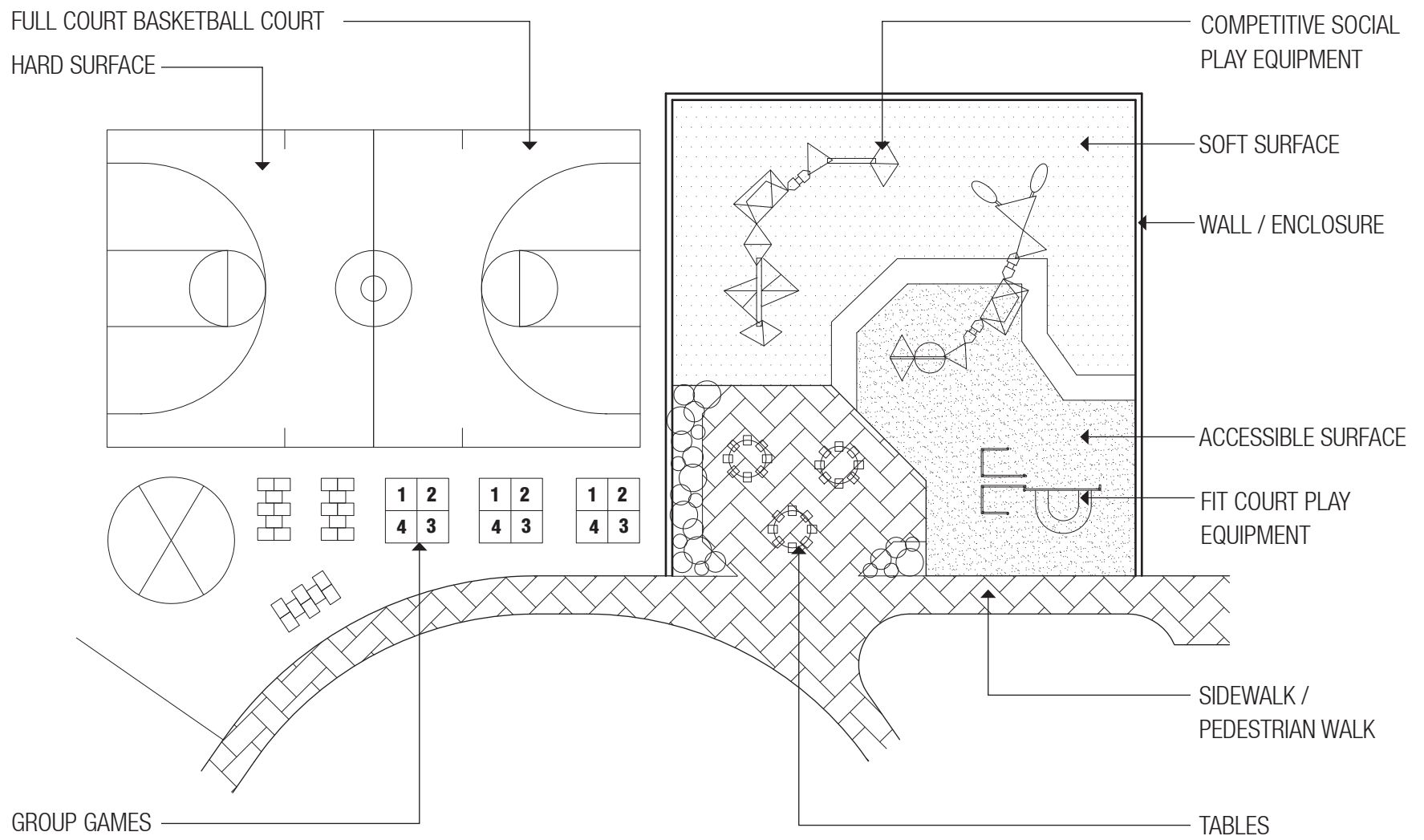
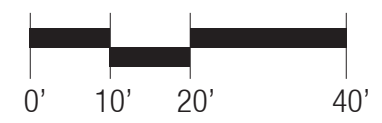


FIG. 7.3 // **INTERMEDIATE PLAYGROUND DIAGRAM**



E-AD /// **ADMINISTRATION**

LOBBY/GATHERING AREA
WELCOME CENTER
CONFERENCE ROOM
PRINCIPAL'S OFFICE
ASST. PRINCIPAL'S OFFICE
ADMINISTRATIVE WORKROOM
MAILROOM
RECORDS ROOM
FAMILY AND COMMUNITY ENGAGEMENT CENTER
STAFF TOILET
STUDENT SERVICES OFFICE
STUDENT SERVICES CONF RM
HEALTH SUITE
 OFFICE AREA
 WAITING/TREATMENT AREA
 COTS
 STORAGE
 TOILET
AFTER SCHOOL OFFICE AND STORAGE

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|--|-----------------|-----------|--------------|--|
| ADMINISTRATION | | | | |
| Lobby/Gathering area | 1 | 700 | 700 | |
| Welcome Center | 1 | 450 | 450 | welcoming area, work area for administrative asst. |
| Conference Room | 1 | 250 | 250 | |
| Principals' Office | 1 | 180 | 180 | |
| Assistant Principal's Office | 1 | 150 | 150 | |
| Administrative Workroom | 1 | 200 | 200 | |
| Mailroom | 1 | 125 | 125 | |
| Records Room | 1 | 150 | 150 | needs to be a secure space |
| Family and Community Engagement Center | 1 | 300 | 470 | parent liaison office 120 SF/PTA storage 50 SF |
| Staff Toilet | 1 | 50 | 50 | |
| Student Services Office | 2 | 150 | 300 | |
| Student Services Conference | 1 | 200 | 200 | |
| Health Suite | | | | |
| Office Area | 1 | 100 | 100 | |
| Waiting/Treatment Area | 1 | 575 | 575 | |
| Cots | 1 | 150 | 150 | |
| Storage | 1 | 25 | 25 | |
| Toilet | 1 | 50 | 50 | |
| After School Office and Storage | 1 | 250 | 250 | |
| Total | | | 4,375 | |

Comments //

The overall total for the administration area may be + or - 10 percent. Some areas may be combined to facilitate circulation. Some areas (*) may be located outside of the suite to make the best use of the existing building.

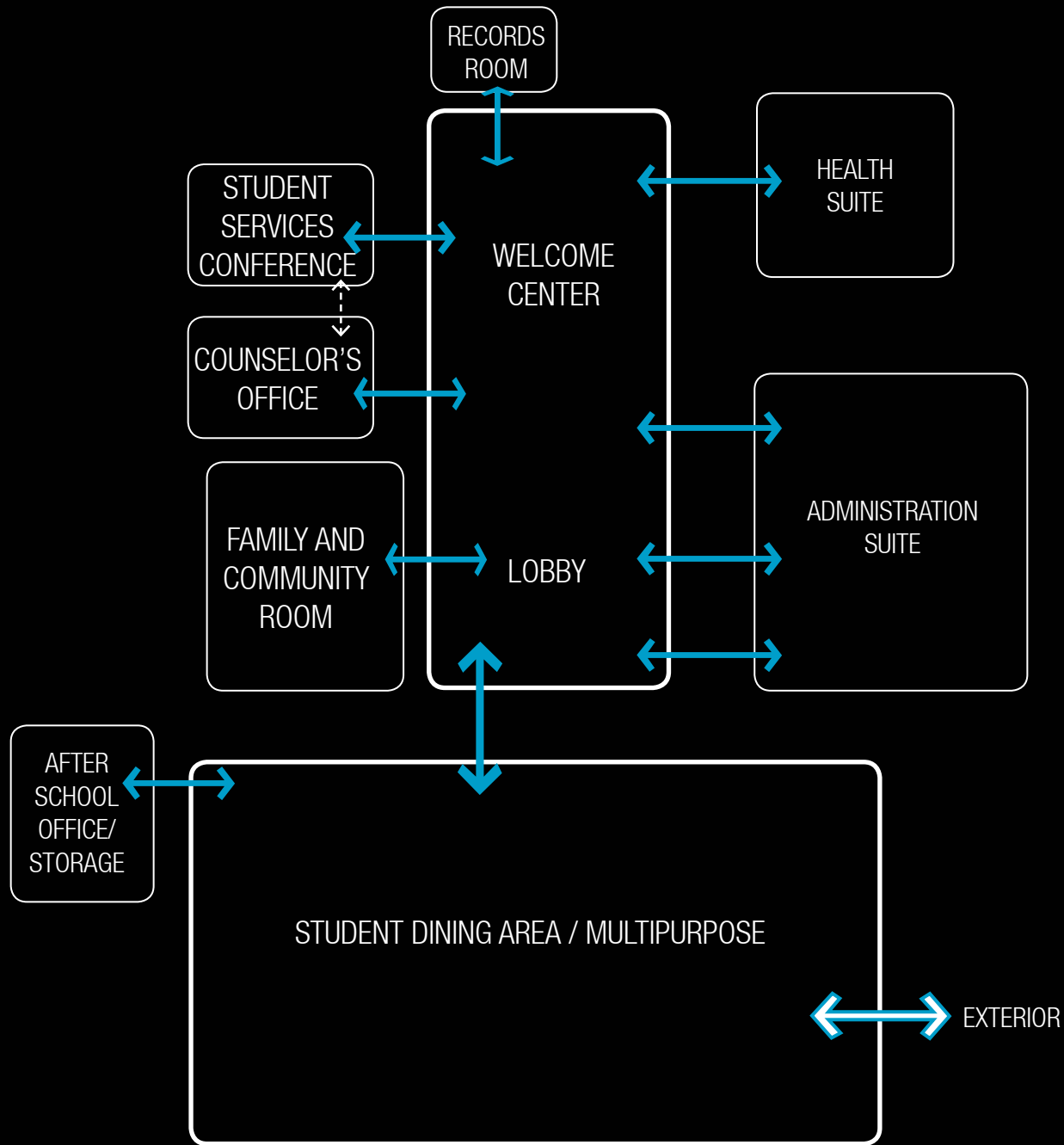
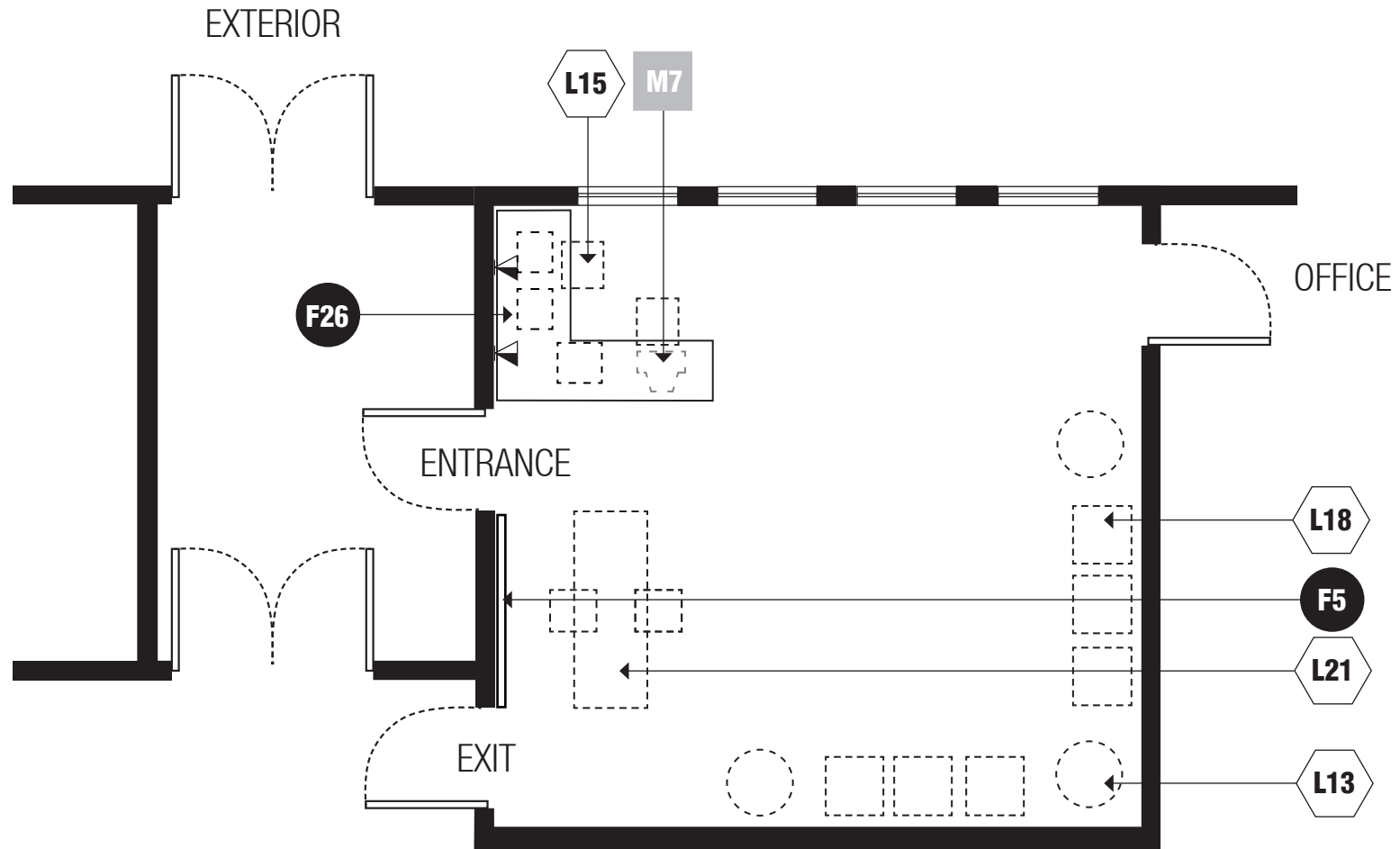
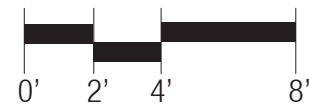


FIG. 12.0 // ADMINISTRATION ADJACENCY DIAGRAM



E-AD /// WELCOME CENTER



size

450 SF

capacity

administrative assistants
visitors/parents
students

spatial relationships

see illustration opposite page
located inside the main administrative
area directly accessible from entry
vestibule
near public restrooms
maximize views to exterior and main entry
public address alcove
closet (lockable)

program activities

greeting visitors
student waiting/pick up area
workstation for administrative assistant
second and final access control point
prior to accessing the main school
security check-point

LEGEND ///

● fixed equipment

F5 tackable/magnet wall surface (8 LF)
F26 reception counter (Finish carpentry)

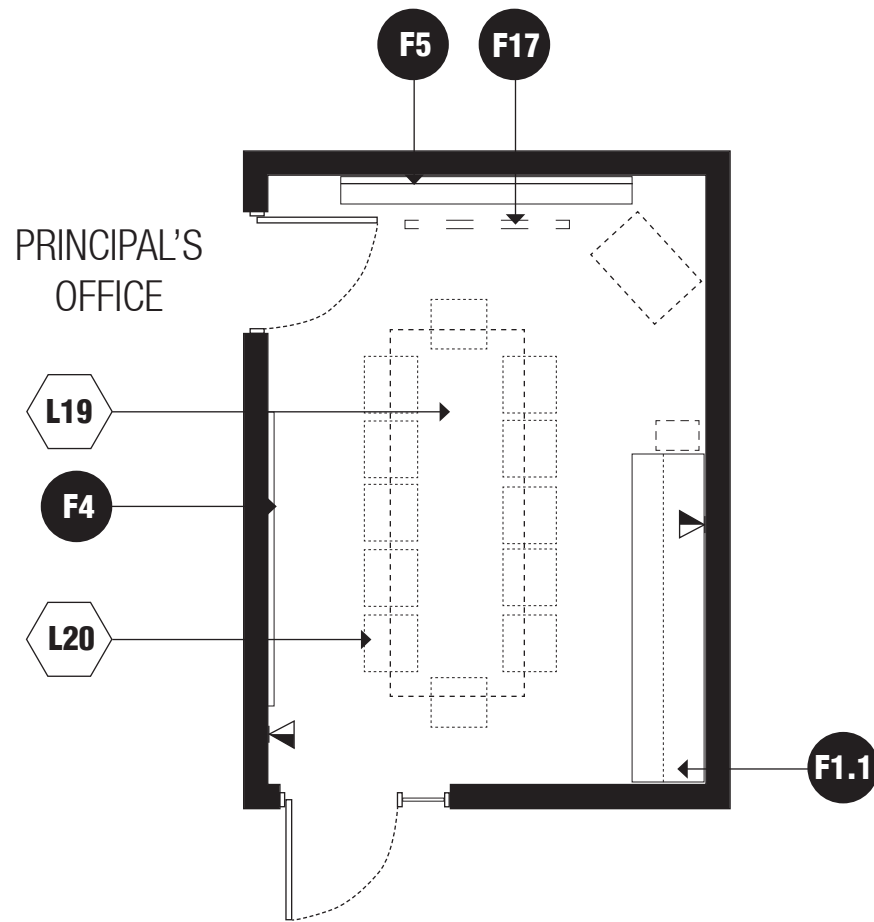
⬡ loose furnishings

L13 small table (3)
L15 task chair (2)
L18 lounge chairs (4-6)
L21 work table for check-in station

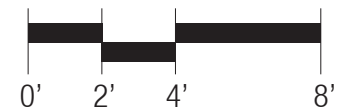
■ miscellaneous

M7 desktop computer

▶ data drop



E-AD /// CONFERENCE ROOM



size

250 SF

capacity

staff

ancillary spaces

n/a

spatial relationships

near welcome center

centrally located within administrative area

adjacent and access to principal's offices

program activities

conferences with staff, students, parents, and visitors

LEGEND ///

● **fixed equipment**

F1.1 casework (6 LF)

F4 marker board (8 LF)

F5 tackable/magnet wall surface (8LF)

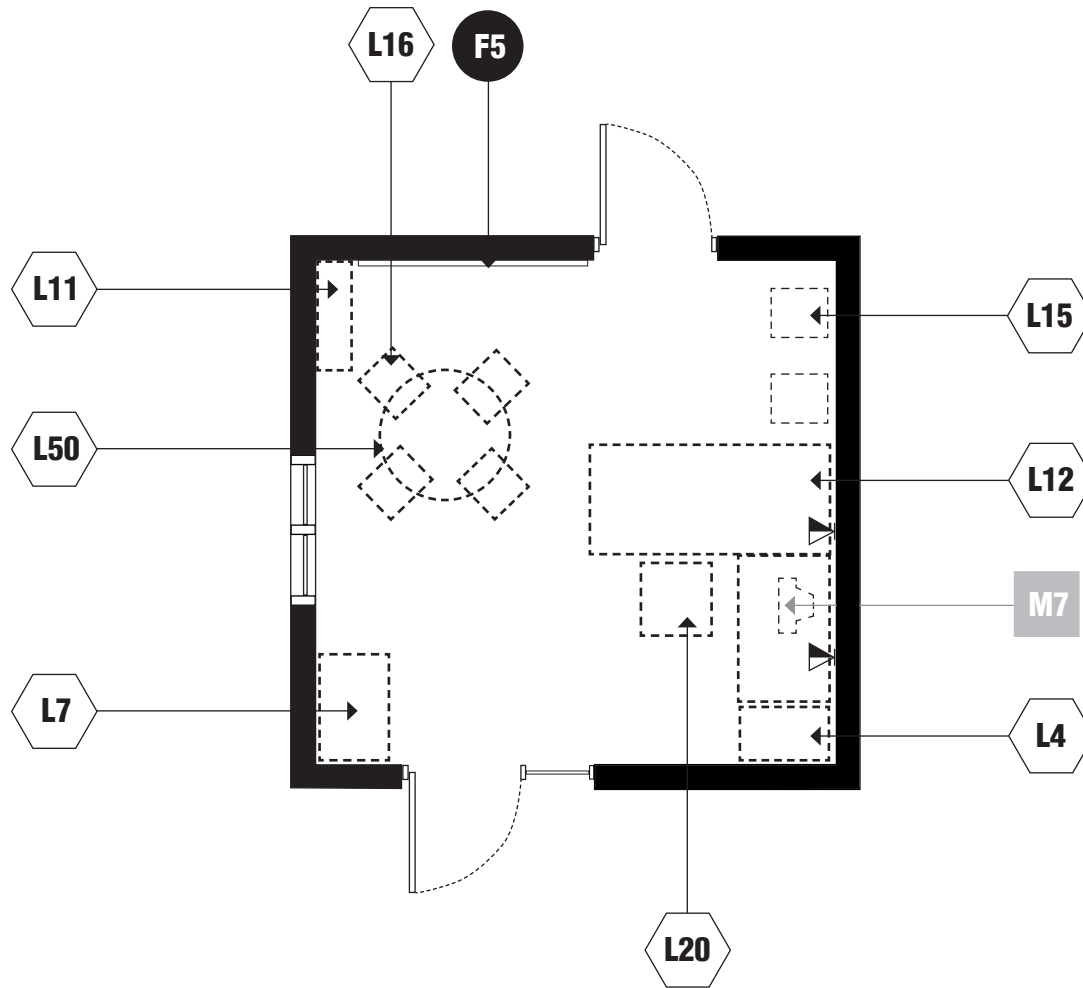
F17 audio/video recording and playback equipment

⬡ **loose furnishings**

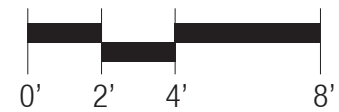
L19 Conference table (with table technology installations-VGA jacks, data outlets, power outlets, etc.)

L20 Executive chairs (12)

▶ data drop



E-AD /// PRINCIPAL'S OFFICE



size

180 SF

capacity

principal

ancillary spaces

conference Room

spatial relationships

near main entry

near administrative assistant

adjacent and access to conference room

back door to secondary corridor, desirable

program activities

conferences with students, parents,

teachers, staff, and visitors

curriculum development

research and planning

telephone communications

dealing with personnel issues

coordination of school and support

services

LEGEND ///

● **fixed equipment**

F5 tackable/magnet wall surface

⬡ **loose furnishings**

L4 four-drawer file cabinet

L7 teacher's lockable wardrobe

L11 adjustable height bookshelves (12 LF)

L12 admin workstation

L15 task chair (4-6)

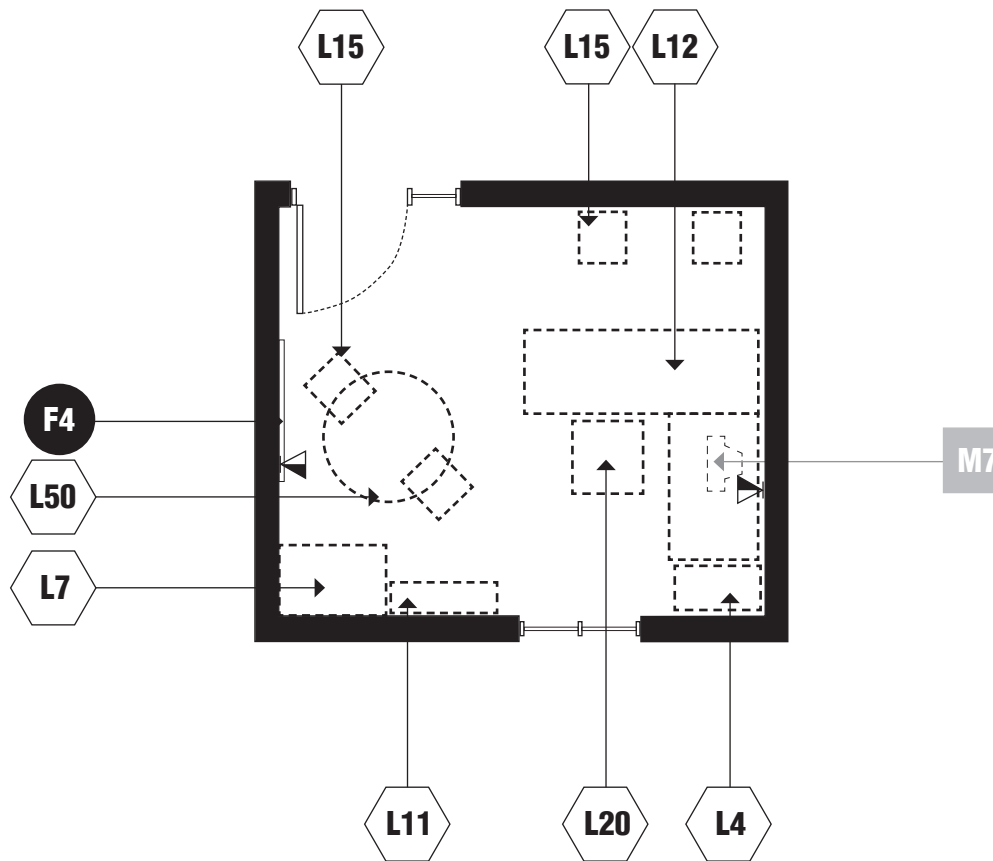
L20 executive chair

L50 small conference table

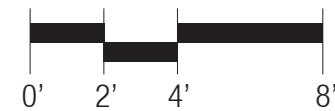
■ **miscellaneous**

M7 desktop computer

▶ data drop



E-AD /// ASST. PRINCIPAL'S OFFICE



size

150 SF

capacity

assistant principal

ancillary spaces

n/a

spatial relationships

may be located near Academic Core for supervision

may be located near administration suite

program activities

conferences with parents

student interaction

conferences with individual teachers or small groups

telephone communications (private)

research and planning

coordination of school and support services

LEGEND ///

● **fixed equipment**

F4 marker board

⬡ **loose furnishings**

L4 four-drawer file cabinet

L7 teacher's lockable wardrobe

L11 adjustable height bookshelves (12 LF)

L12 admin workstation

L15 task chair (2-4)

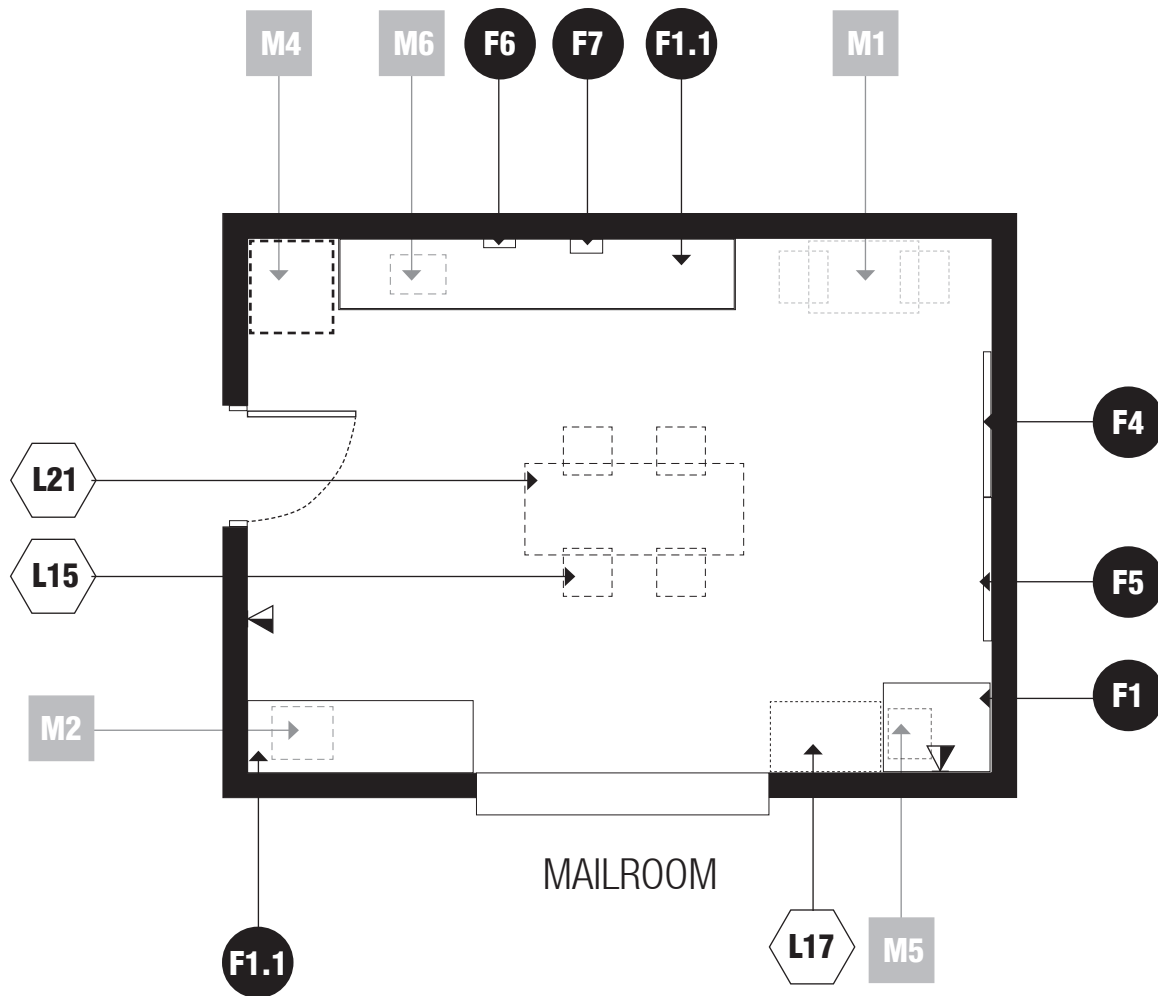
L20 executive chair

L50 small conference table

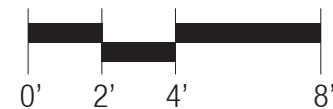
■ **miscellaneous**

M7 desktop computer

▶ data drop



E-AD /// ADMINISTRATIVE WORKROOM



size

200 SF

capacity

secretaries and administrators
volunteers
staff

ancillary spaces

n/a

spatial relationships

near welcome center
adjacent to mail room

program activities

copying
collating
sorting of files
preparing communications for mailing
binding reports
telephone communications

plumbing

plumbing connections
sink, single/deep bowl

LEGEND ///

● **fixed equipment**

- F1 base/wall cabinets and shelving
- F1.1 casework (base/wall cabinets and shelving)
- F4 marker board (4 LF)
- F5 tackable/magnet wall surface (4 LF)
- F6 soap dispenser
- F7 towel dispenser

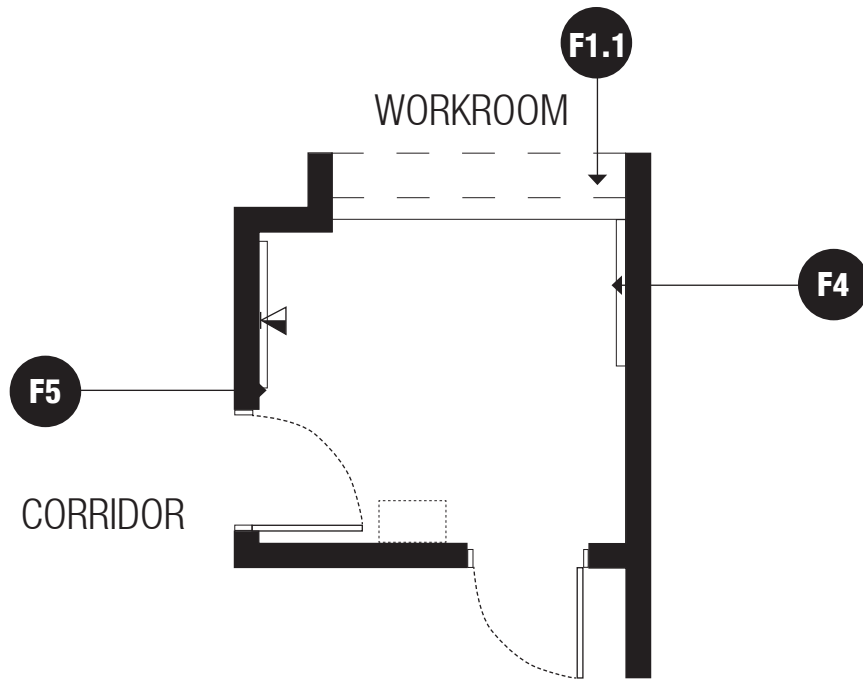
⬡ **loose furnishings**

- L15 task chair (4)
- L17 printer station
- L21 work table

■ **miscellaneous**

- M1 high speed and/or Large format printers
- M2 color printers
- M4 photocopy machine
- M5 digital scanner
- M6 laminator

▶ data drop



size

125 SF

capacity

staff

faculty

ancillary spaces

n/a

spatial relationships

adjacent to administrative workroom

located in administrative area

accessible from main corridor

program activities

delivery of general mail

LEGEND ///

● **fixed equipment**

F1.1 casework - mail slots

12" wide x 6" high x 15" deep

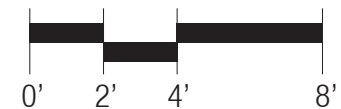
(65, 80, 95 total slots) pass-through

cabinets below

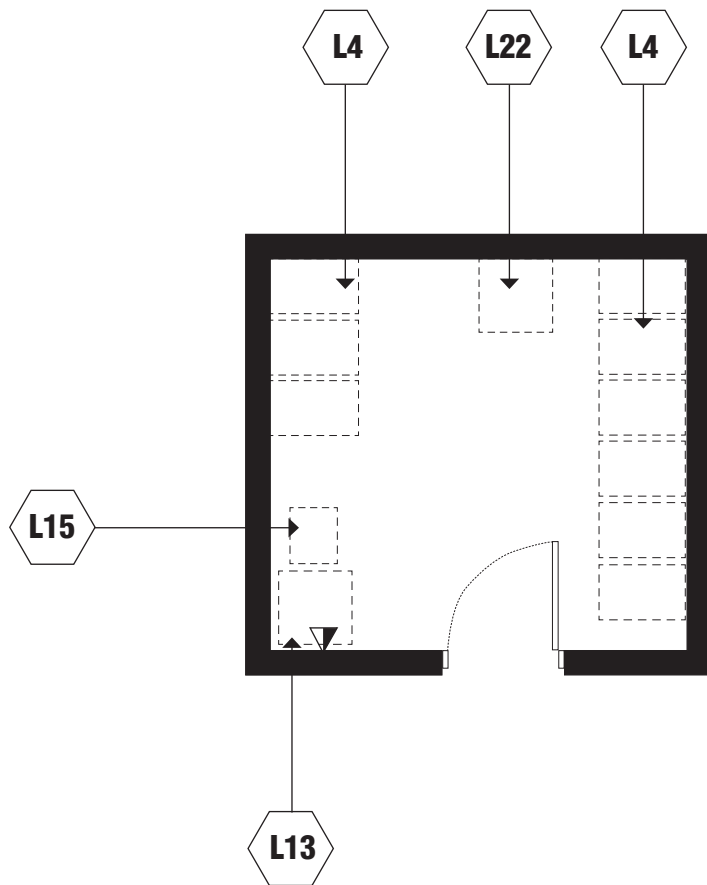
F4 marker board (4 LF)

F5 tackable/magnet wall surface (4 LF)

▶ data drop



E-AD /// MAILROOM



E-AD /// RECORDS ROOM

size

150 SF

capacity

secretaries
staff

ancillary spaces

n/a

spatial relationships

near main office

program activities

storing of money and other valuable items
storage of files and records
accessible to administration staff

LEGEND ///



loose furnishings

L4 four-drawer file cabinets (8-10 fireproof file cabinets)

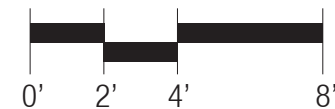
L13 small table

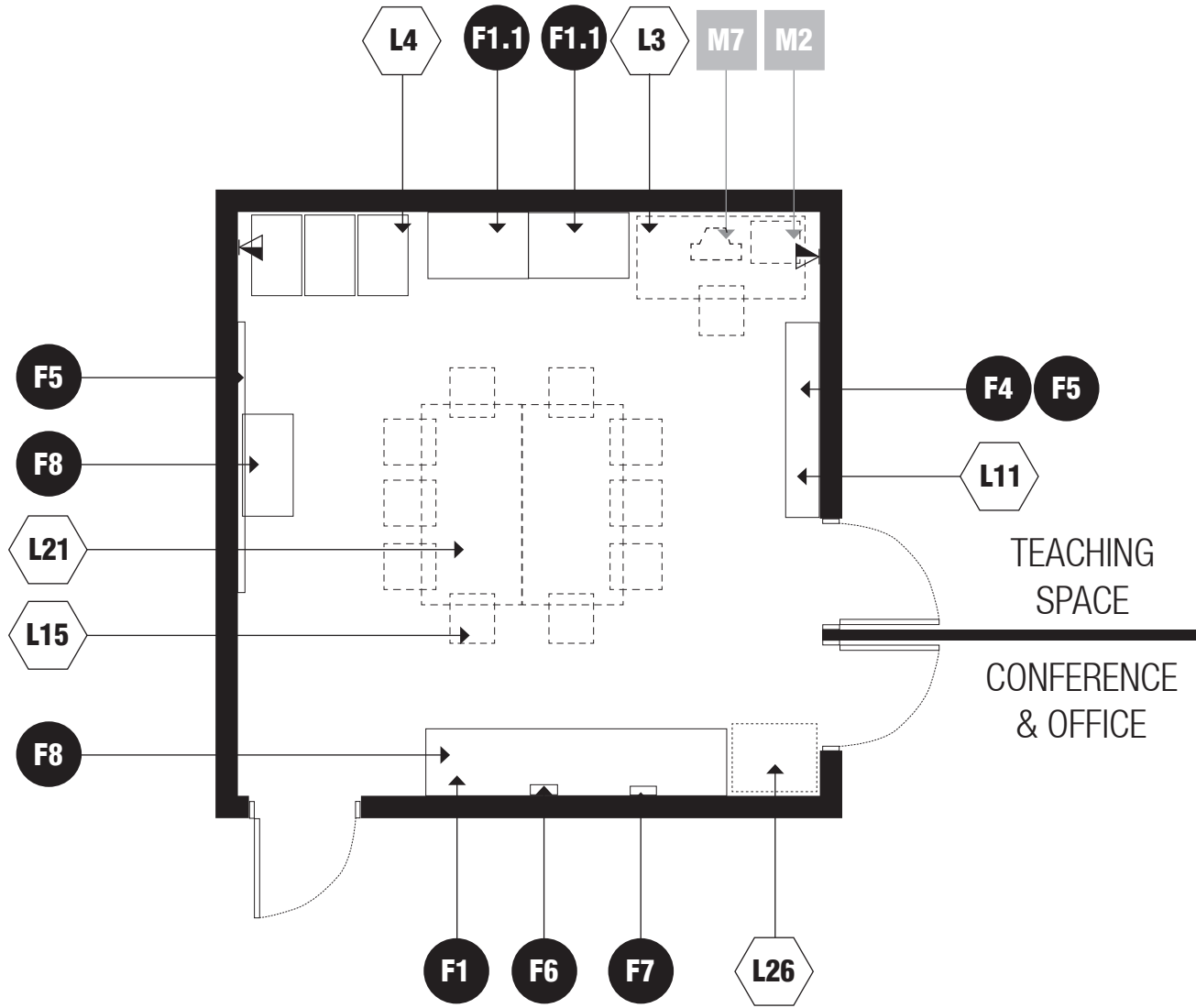
L15 chair

L22 safe



data drop





size

470 SF

capacity

8-10 parents

1- parent liaison

volunteers

ancillary spaces

n/a

spatial relationships

near lobby entrance

adjacent parent liaison office with

connecting door*

adjacent teaching space for up to 20

adjacent conference room

program activities

small group meetings

work area

storage for personal items

parent training

private consultation

parent employment research

volunteer registration

plumbing

sink w/ goose neck faucet

LEGEND ///

● **fixed equipment**

F1 base/wall cabinets and shelving (place for a refrigerator)

F1.1 casework (Wardrobe cabinet)

F1.1 casework (Storage cabinets)

F4 marker board (8 LF)

F5 tack board (8 LF)

F6 soap dispenser

F7 towel dispenser

F8 wall-mounted, interactive, electronic presentation device

⬡ **loose furnishings**

L4 four-drawer file cabinet

L11 adjustable height bookshelves (20 LF)-

workstation for computer/printer

L15 ten chairs

L18 lounge chairs

L21 two work tables (36" x 72")

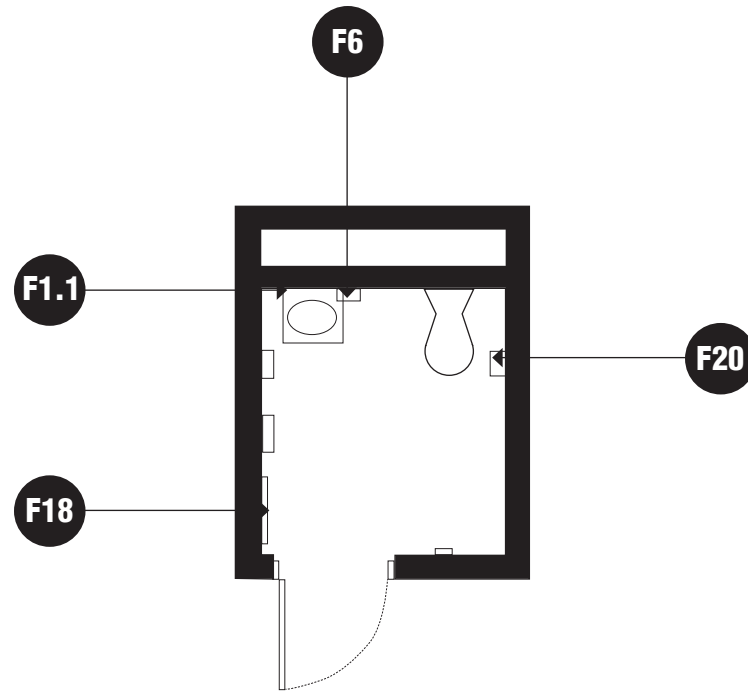
L26 refrigerator

■ **miscellaneous**

M7 desktop computer

▶ data drop

*Office for Parent liaison- see typical office description



E-AD /// STAFF TOILET



size

50 SF

capacity

staff

spatial relationships

near welcome center

near principal's office

plumbing

wall-mounted water closet

wall-mounted lavatory

plumbing connections

floor drain

LEGEND ///

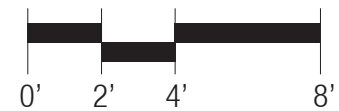
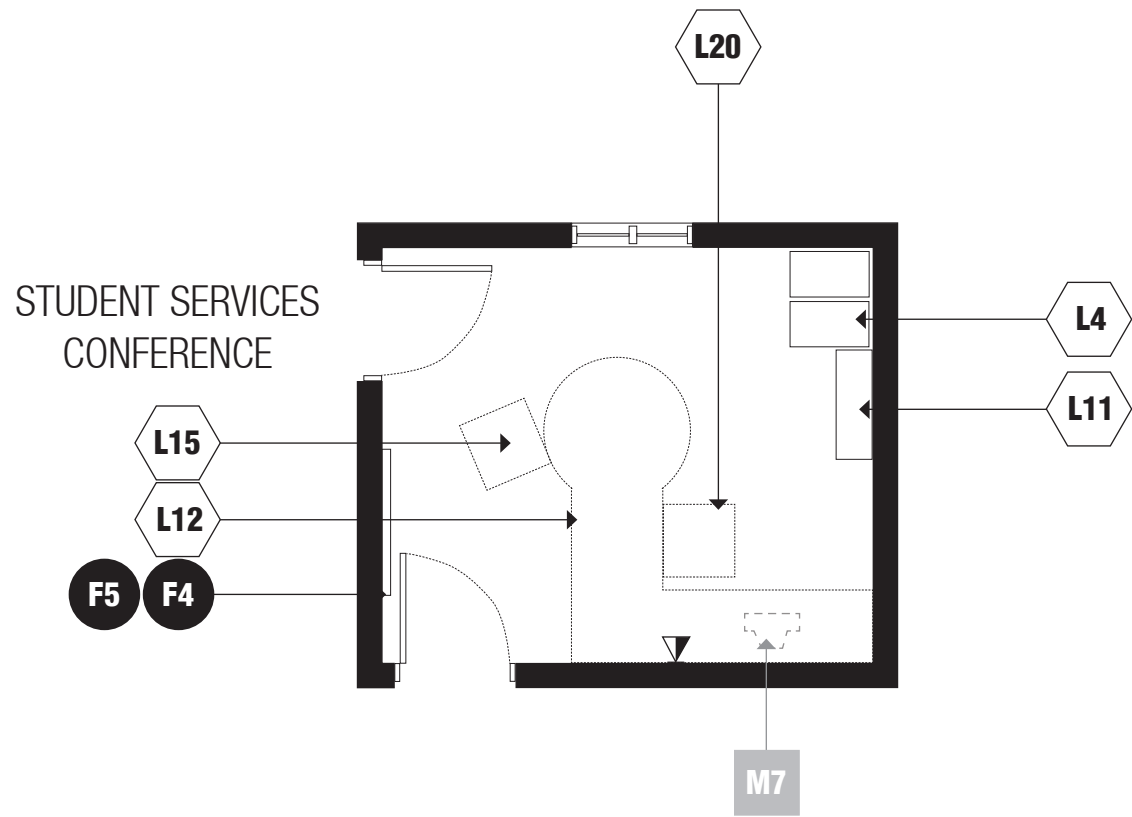
● **fixed equipment**

F1.1 casework (wall cabinet)

F7 towel dispenser

F18 mirror

F20 bathroom accessories



size

150 SF

capacity

- counselor
- intern
- psychologist
- social worker
- reading resource
- math resource
- science resource
- ESL

spatial relationships

- near student services conference room
- near welcome center

program activities

- counseling for students and parents
- administrative paperwork
- enrollment and orientation of new students

LEGEND ///

● **fixed equipment**

- F4 marker board (8 LF)
- F5 tackable/magnet wall surface (4 LF)

⬡ **loose furnishings**

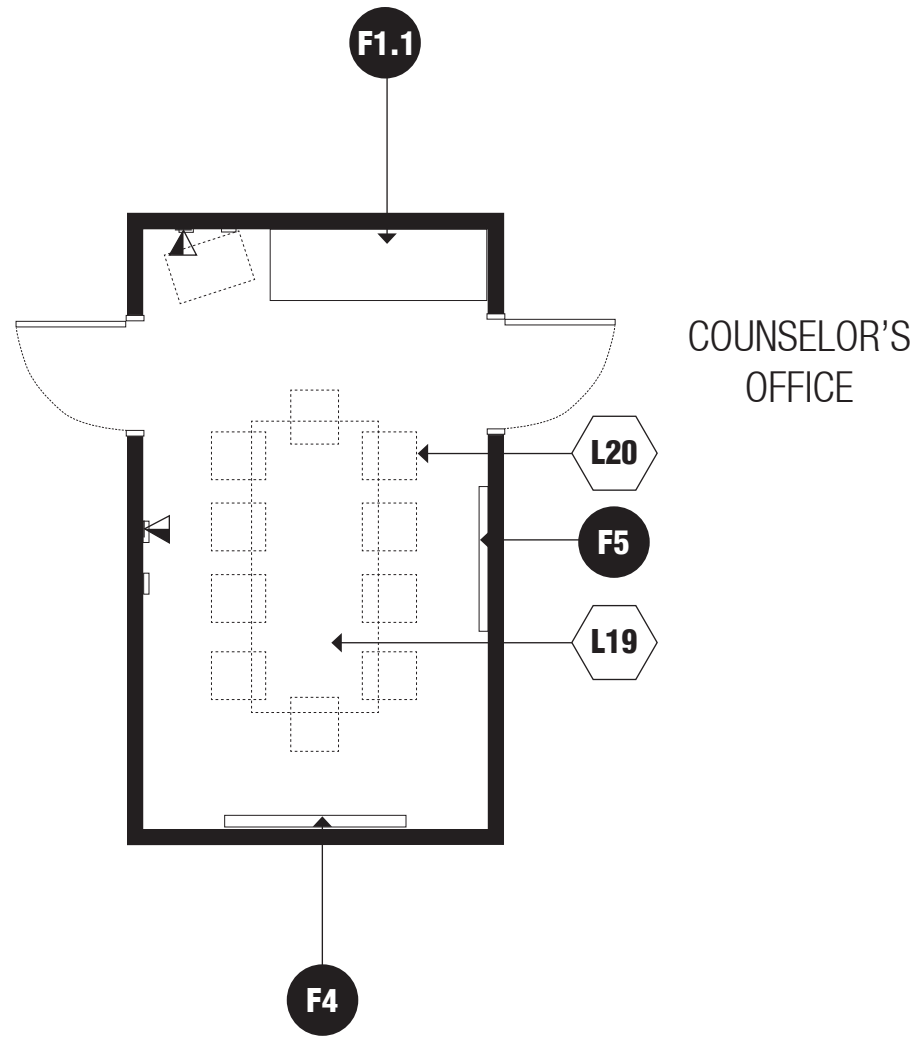
- L4 four-drawer file cabinet (2)
- L11 adjustable height bookshelves (12 LF)
- L12 admin workstation
- L15 task chair
- L20 executive chair

miscellaneous

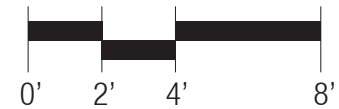
- M7 desktop computer

data drop





E-AD /// STUDENT SERVICES CONF RM



size

200 SF

capacity

staff

students

parents

visitors

ancillary spaces

n/a

spatial relationships

adjacent and access to counselor's office

adjacent to parent or welcome space

program activities

conferences with staff, students, parents,
and visitors

IEP meetings

LEGEND ///

● **fixed equipment**

F1.1 casework (6 LF)

F4 marker board (8 LF)

F5 tackable/magnet wall surface (4 LF)

⬡ **loose furnishings**

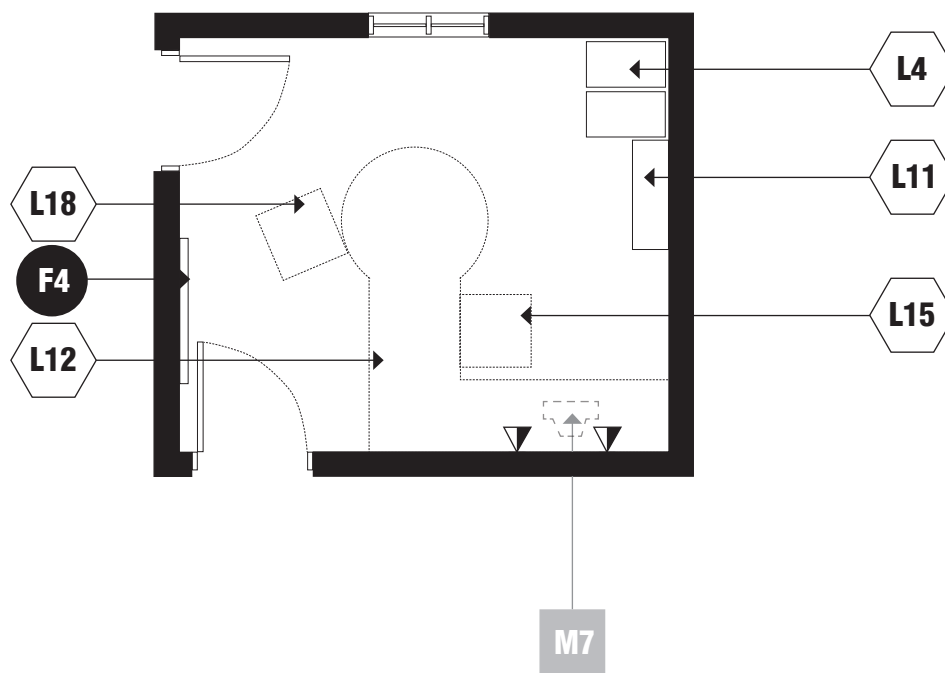
L19 conference table (with table technology

installations- VGA jacks, data outlets,

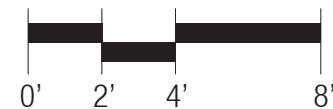
power outlets, etc.)

L20 executive chairs (10)

▶ data drop



E-AD /// HEALTH SUITE: OFFICE AREA



size

100 SF

capacity

Staff

Students

Parents

Visitors

ancillary spaces

Treatment area

Storage

program activities

Meeting area for students, parent or guardian

Administrative activities by school nurse

Private conversations

environmental conditions

Independent temperature controls and operable window

Health suites should comply with CDC requirements for number of air exchanges per hour to help prevent spreading illness

Prefer not to have automated or low-flow sinks

LEGEND ///

● **fixed equipment**

F4 Marker board

⬡ **loose furnishings**

L4 Four-drawer file cabinet

L11 Adjustable height bookshelves

L12 Admin workstation

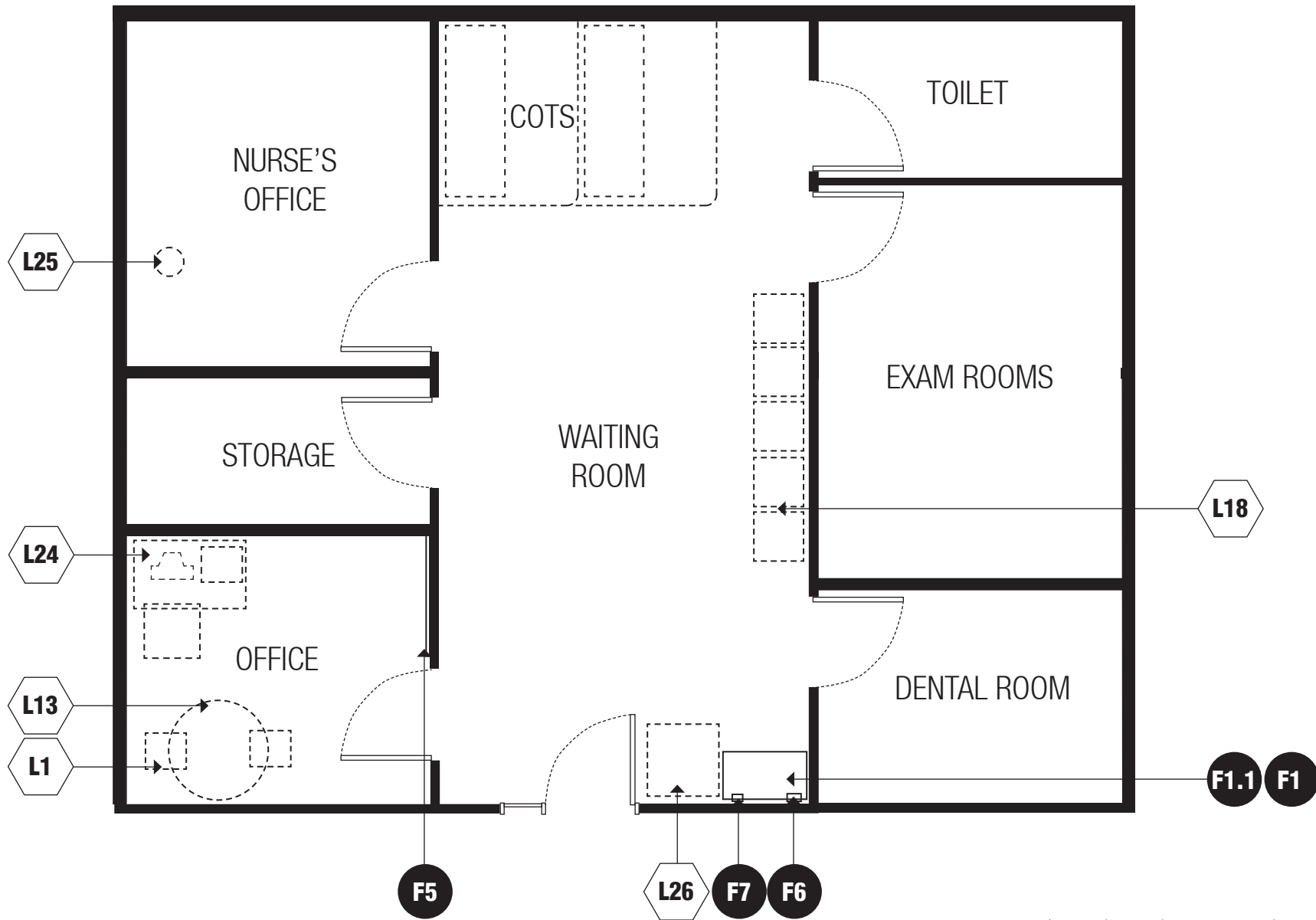
L15 Task chair

L18 Lounge chair

■ **miscellaneous**

M7 Desktop computer

▴ data drop



E-AD /// HEALTH SUITE: WAITING + TREATMENT AREA

size

575 SF

capacity

1 nurse
students

ancillary spaces

nurse's office
cots
storage
toilet/shower
waiting/area
office for partners
dental room

spatial relationships

near welcome center
near lobby entrance

program activities

first aid
consultation with students
health screening
medical treatments
medication administration
student resting while awaiting pick-up by
parent or guardian

environmental conditions

stain-resistant floor covering
sink with hot and cold water
adequate ventilation
visual control to office/waiting or
welcome center

plumbing

plumbing connections:

deep sink with hands-free gooseneck
hook-up for ice-maker for refrigerator

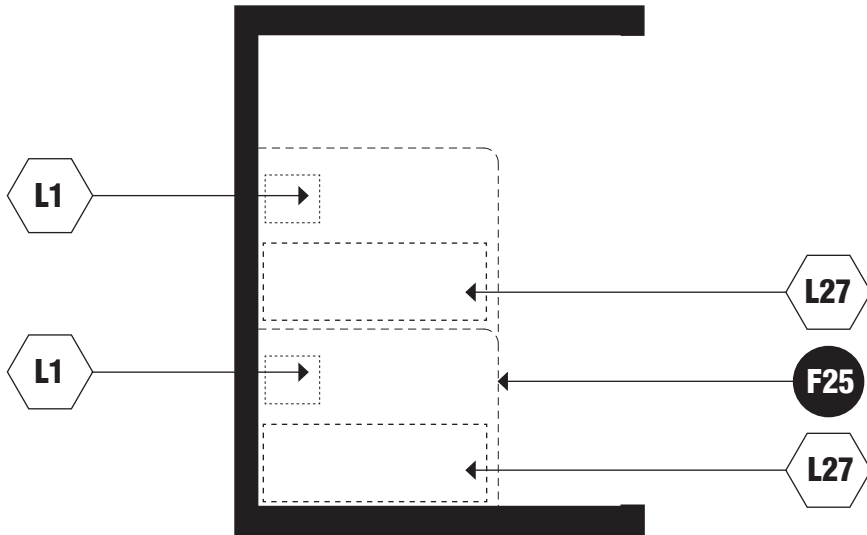
LEGEND ///

● **fixed equipment**

- F1 base/wall cabinets and shelving (place for refrigerator connected to back-up generator)
- F1.1 casework (seamless, non-porous counter)
- F5 tackable/magnet wall surface
- F6 soap dispenser
- F7 towel dispenser
- F25 treatment cubicle curtain

◻ **loose furnishings**

- L1 stackable/nesting chairs (2-3)
- L13 small table
- L18 lounge chairs
- L24 mobile exam table
- L25 nurse stool
- L26 refrigerator (lockable)



size

varies

capacity

staff

students

ancillary spaces

located near the toilet in the health suite

program activities

a resting place for students and staff
when feeling ill

LEGEND ///

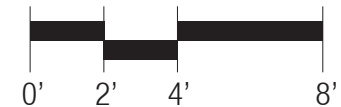
● **fixed equipment**

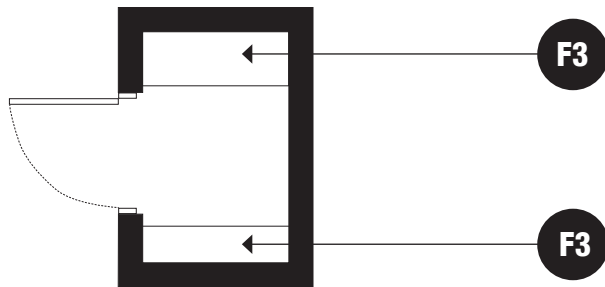
F25 treatment cubicle curtains

○ **loose furnishings**

L1 stackable/nesting chairs (2)

L27 health suite cot (2)





size

25 SF

capacity

staff

ancillary spaces

office/waiting area (E-AD-15)

program activities

storing chemicals, equipment, and supplies

environmental conditions

security of equipment, supplies, and

medicines

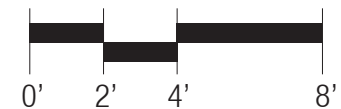
security of door

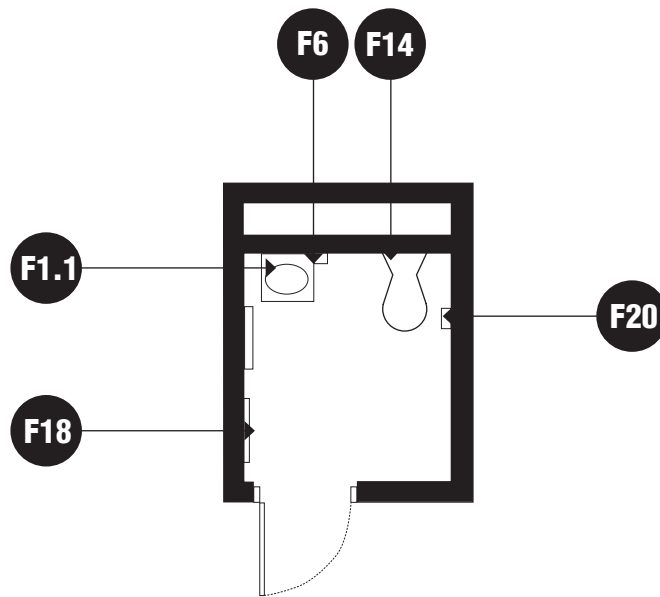
LEGEND ///

● **fixed equipment**

F3 wall shelving (12" deep)

F3 wall shelving (18" deep)





E-AD /// HEALTH SUITE: TOILET



size

50 SF

capacity

staff

students

ancillary spaces

located near the cots within the health suite

plumbing

wall mounted water closet (deep well)

wall mounted lavatory

shower

plumbing connections

floor drain

LEGEND ///

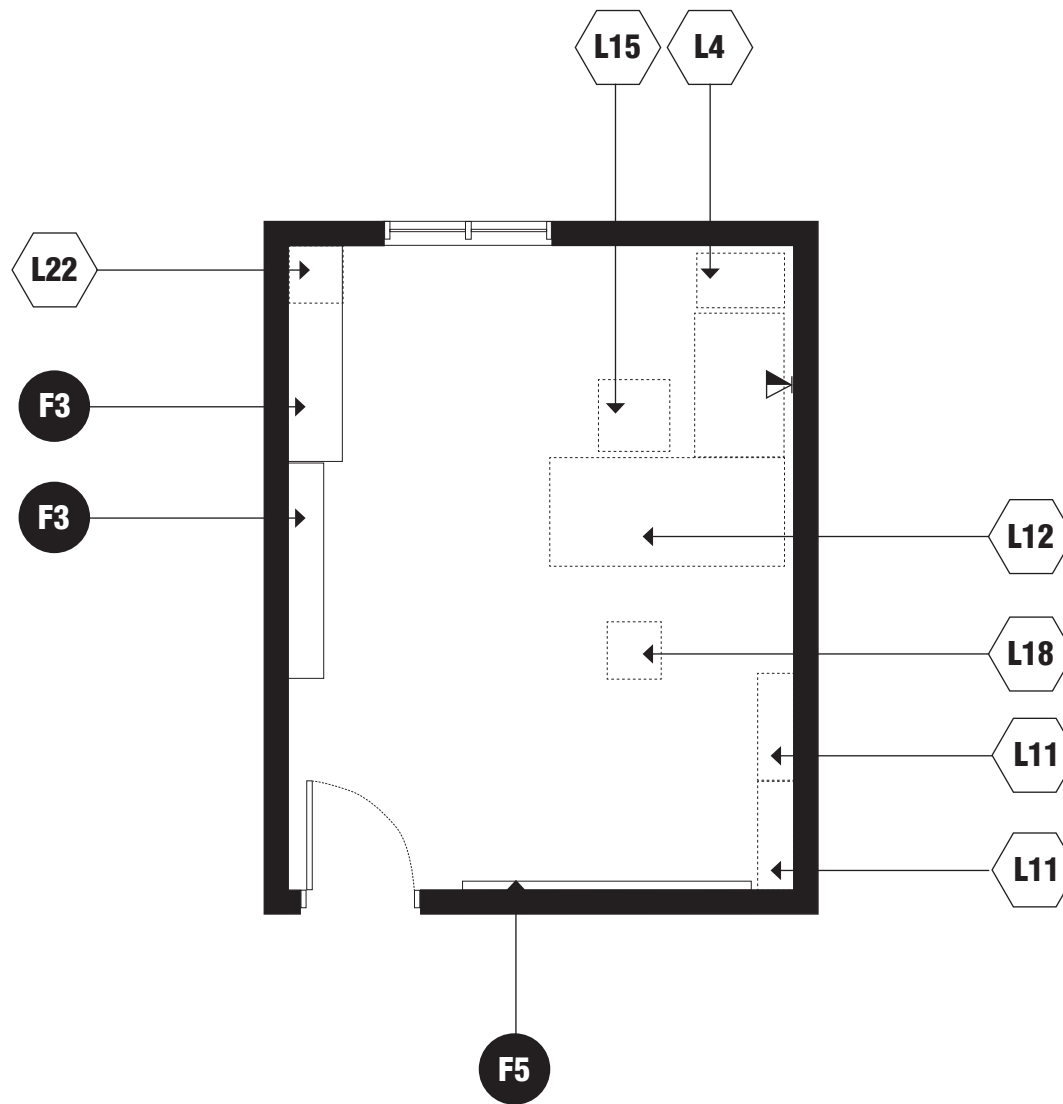
● **fixed equipment**

F1.1 casework: wall cabinet

F6 soap dispenser

F18 mirror (24"x60")

F20 bathroom accessories



E-AD /// AFTER SCHOOL OFFICE AND STORAGE



size

250 SF

capacity

staff

coordinators of after school program

parents/volunteers

spatial relationships

near public use spaces

near Gymnasium and student dining

area/multipurpose

access to main corridor

near FACE center

program activities

administrative duties

storing and retrieving supplies and

equipment

teaching/tutoring and counseling

LEGEND ///

● **fixed equipment**

F3 wall shelving (12" deep)

F3 wall shelving (18" deep)

F5 tackable/magnet wall surface (8 LF)

⬡ **loose furnishings**

L4 four-drawer file cabinet

L11 adjustable height bookshelves

L12 admin workstation

L15 task chair

L18 lounge chair

L22 safe

▶ data drop

note: consult caregiver on the quantity of storage. larger spaces should be outfitted like a standard classroom (white board, tack board, technology)

E-SD /// **STUDENT DINING**

DINING / MULTIPURPOSE
CHAIR STORAGE
LOCKERS / TOILET
COOKING KITCHEN
FOOD PREP AREA
FOOD SERVICE OFFICE
SERVING AREA
DRY FOOD STORAGE
FREEZER / COOLER
WARE WASHING
CLEANING STORAGE

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|-----------------------------------|-----------------|-----------|--------------|---|
| DINING AND FOOD SERVICES | | | | |
| Student Dining Area/Multi-purpose | 1 | 3,000 | 3,000 | grades 1-5 in 3 lunch periods; seats 185 at lunch seats 280 auditorium style |
| Chair and Table Storage | 1 | 350 | 350 | |
| Serving area | 1 | 700 | 700 | |
| Kitchen Suite | 1 | 2,150 | 2,150 | |
| Stage with storage | 1 | 1,100 | 1,100 | includes 200 SF chair and table storage |
| Total | | | 7,300 | |

Comments //

The overall total for the Dining and Food Services area may be + or – 10%. The existing dining area and kitchen are undersized for the proposed capacity. If these spaces are replaced, the school would like to keep the current dining as a multi-purpose area if feasible. If this area is expanded, the room should be dividable.

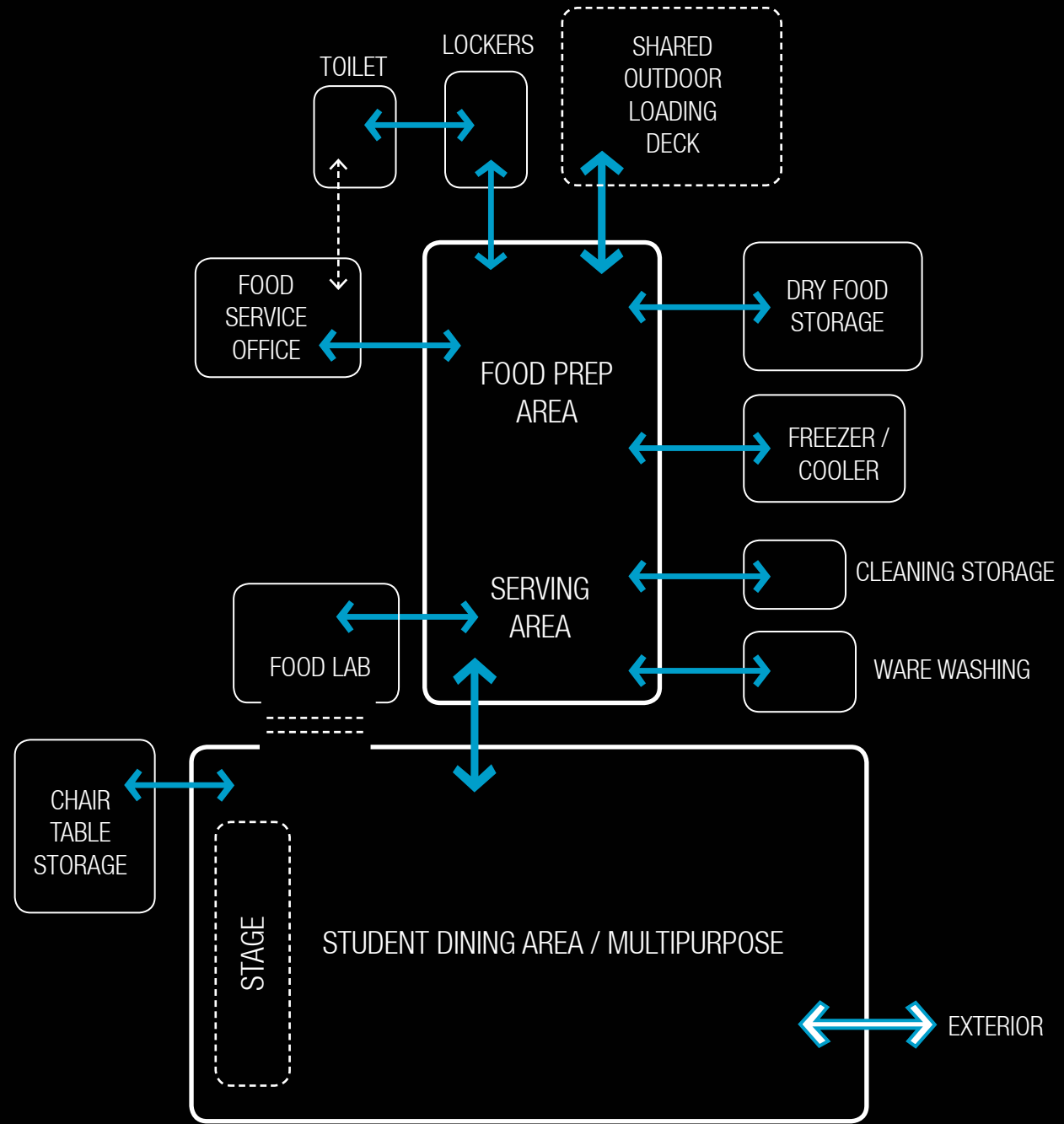
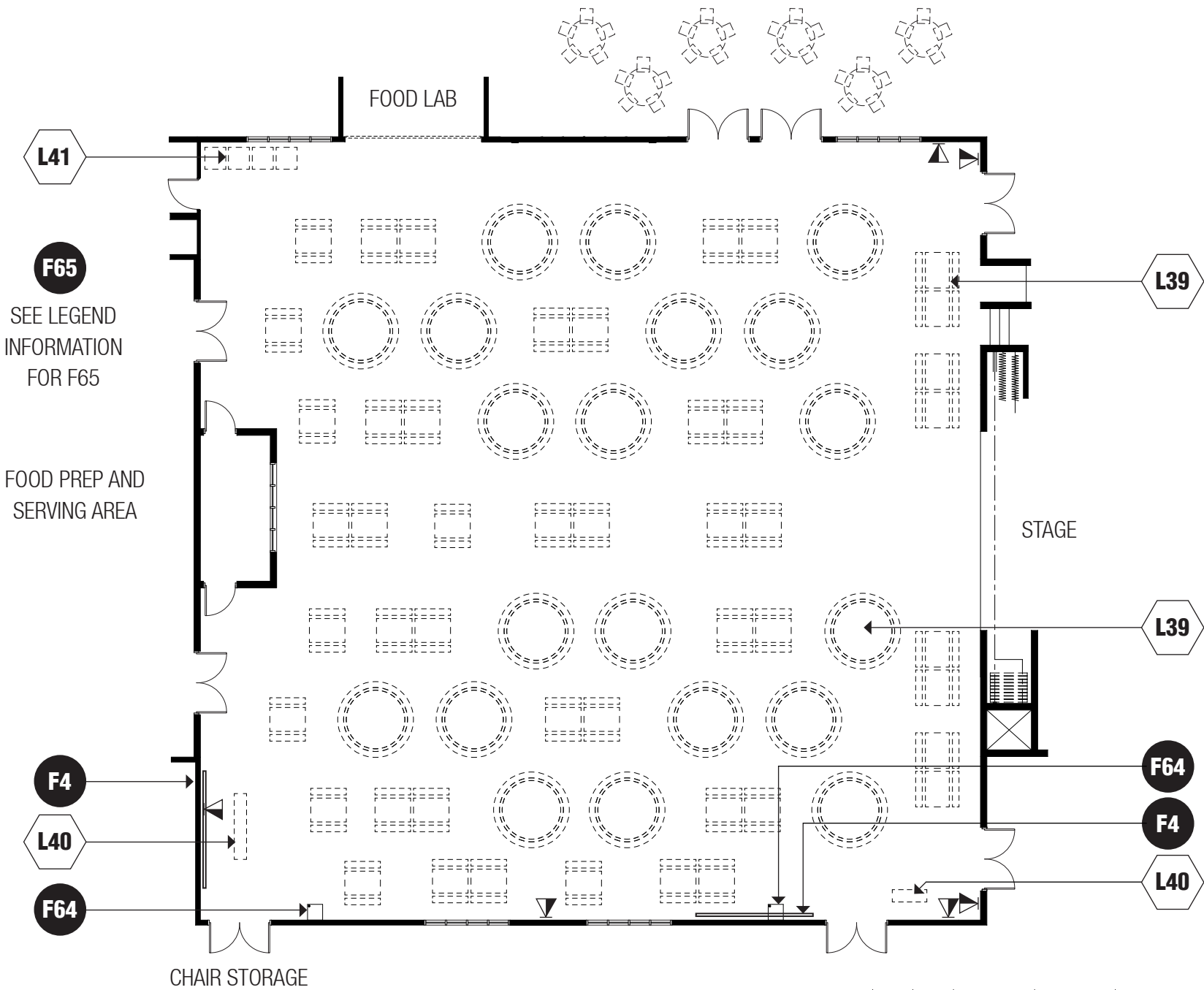
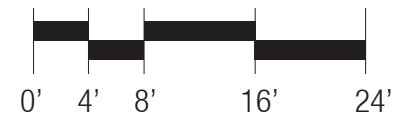


FIG. 13.0 // STUDENT DINING ADJACENCY DIAGRAM



E-SD /// DINING / MULTIPURPOSE (GRADES 1-5)



size

3,000 SF

capacity

1/3 of the projected capacity per lunch period

3-6 staff members

members of community (after hours)

configuration

consider two spaces - primary and intermediate – with separate serving lines

alternatively, consider a flexible wall varies, see table

ancillary spaces

serving area

stage (optional)

spatial relationships

centrally located to office area, classrooms, and media center near parking and entry to building near food lab classroom (consider overhead rolling door)

program activities

student dining

school and community programs

meetings and activities

environmental considerations

electrical outlets for student use

provide a sound system

provide large motorized projection screen with ceiling mounted projector

configure larger spaces to manage sound and for multiple users; configure serving lines for conversational voice higher than normal ceiling height if feasible, provide patio for outside seating options
cleanable building surfaces
windows to provide ample natural light
good sight lines to all areas of the room for supervision
window treatment to darken room for AV presentation; this is required if the stage is located in this area
outlets and data ports for salad bar and point of sale locations; flush to ground with cover

LEGEND ///

● **fixed equipment**

F4 marker board (on two walls - 16 LF each with electric outlet below)

F64 filtered water fountain w/ bubbler and goose neck bottle filler

F65 recycling center (work with food service staff on location and design)

◻ **loose furnishings**

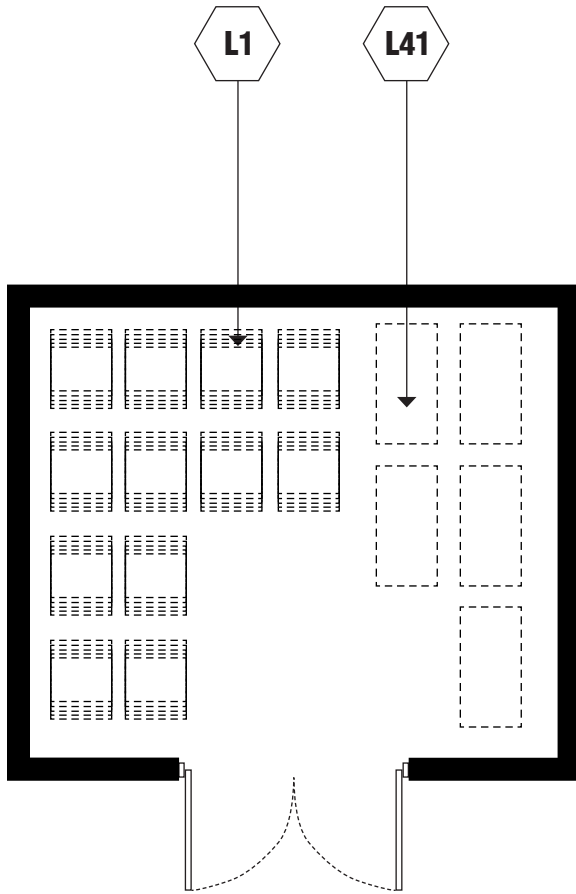
L39 cafeteria tables (tables and seating to

accommodate 1/3 of school capacity-vary seating options and heights

L41 chair dollies

L40 point of sale station

▶ data drop



size

varies

capacity

n/a

ancillary spaces

student dining area / multipurpose

spatial relationships

adjacent and access to student dining

area / multipurpose

may provide back of stage access

program activities

storage

environmental considerations

uniform lighting

cleanable and resilient building surfaces

accessibility for moving furniture in and

out

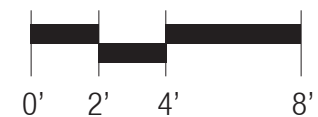
LEGEND ///



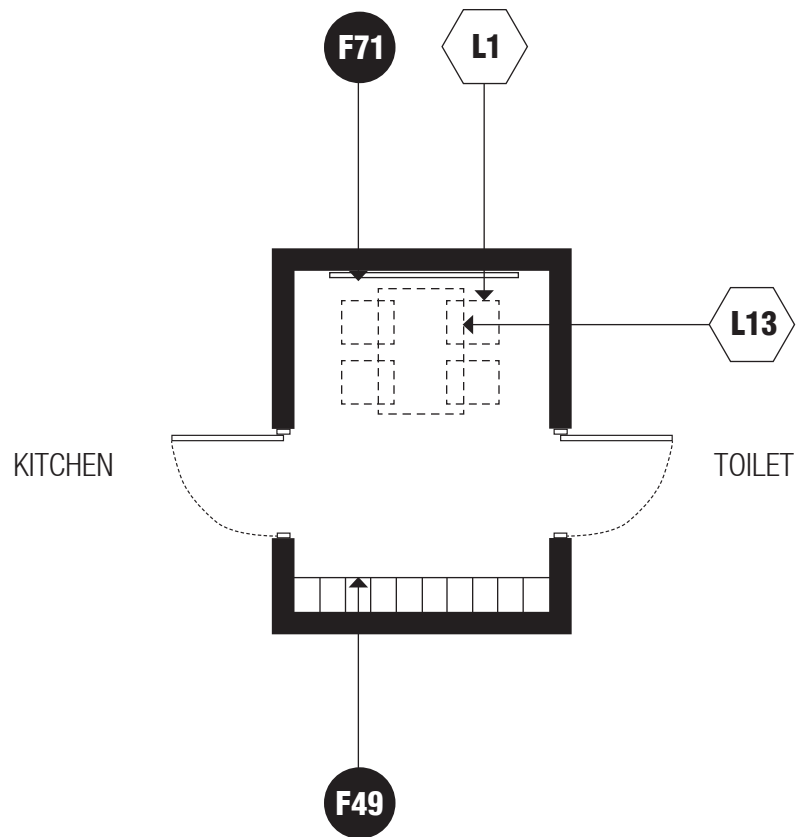
loose furnishings

L1 stackable/nesting chairs (stacked)

L41 chair dollies



E-SD /// CHAIR STORAGE



size

200 SF

capacity

food service personnel

ancillary spaces

kitchen

program activities

space for the storage of towels, aprons, etc.

space to allow food staff personnel to take breaks

LEGEND ///

● **fixed equipment**

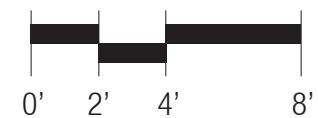
F49 lockers

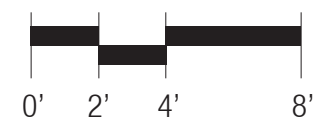
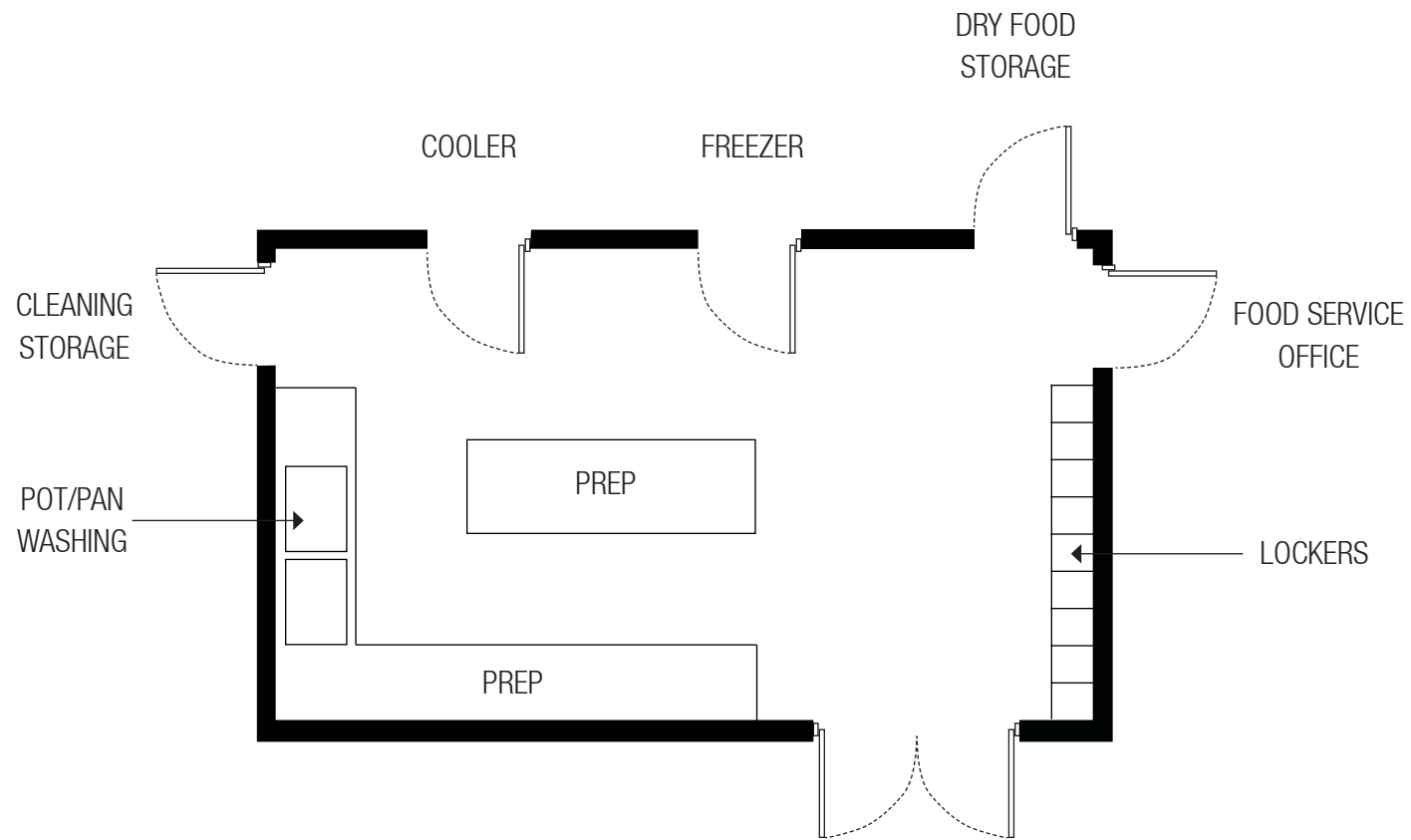
F71 tack board (4 LF)

⬡ **loose furnishings**

L1 stackable/nesting chairs (4-6)

L13 small table





E-SD /// COOKING KITCHEN

this space consists of the following areas //

- food preparation area
- dry food storage
- freezer & cooler
- pot/pan washing
- cleaning storage
- lockers
- food service office

a space plate follows for each of these areas

size

350 SF

capacity

students
staff

ancillary spaces

student dining area / multipurpose

spatial relationships

near loading dock to permit truck access
to docking and storage areas (site
specific)

adjacent and access to student dining
area / multipurpose

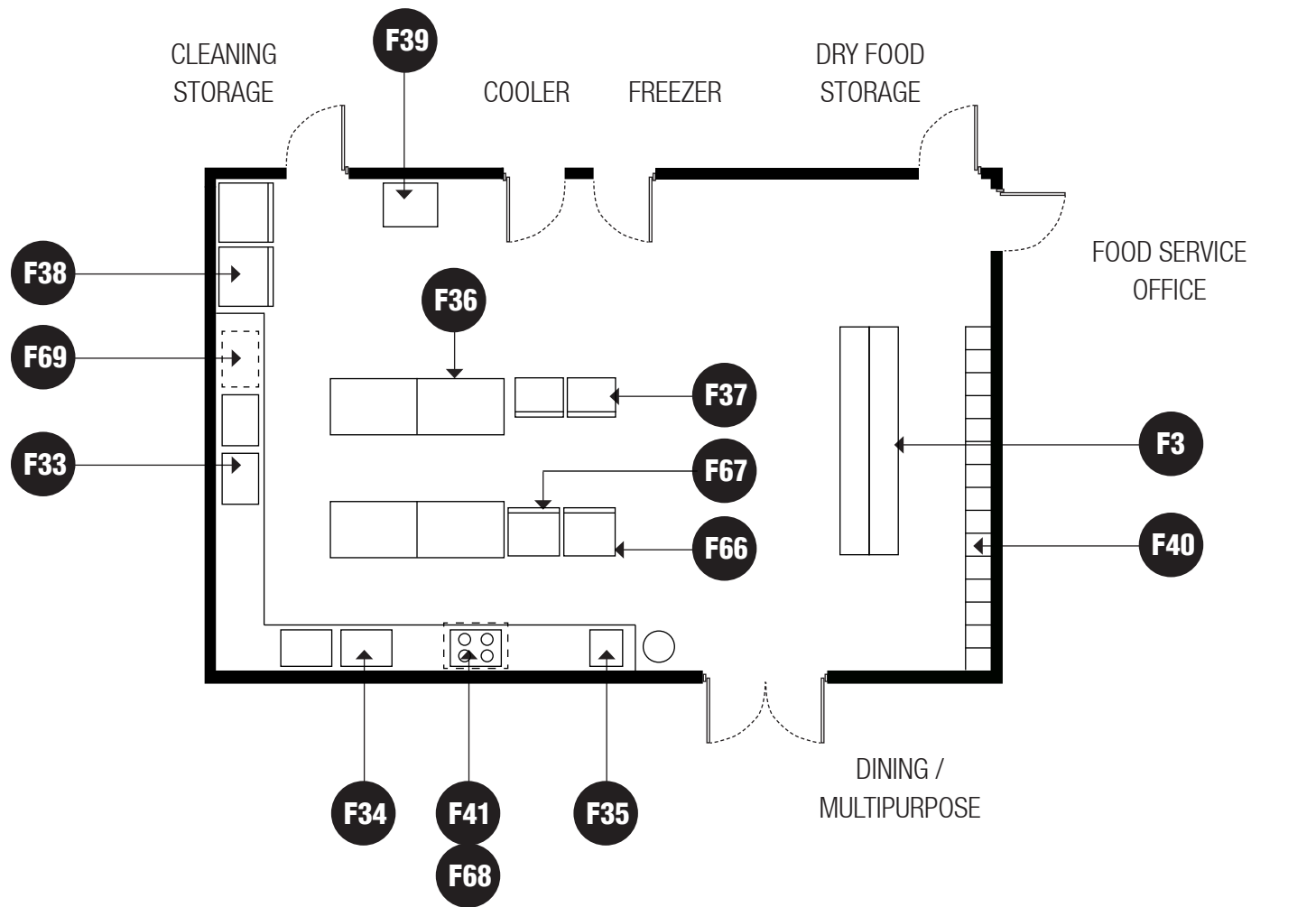
near dumpsters
cafeteria serving arrangement

program activities

prep food
serve food
storage
point of sale (in the dining area
associated with the serving area)

environmental considerations

durable seamless flooring
proper ventilation of space to remove
cooking odors
cleanable building surfaces



E-SD /// FOOD PREP AREA

size

varies

capacity

staff

ancillary spaces

kitchen

spatial relationships

adjacent to student dining area

multipurpose

open to serving area

program activities

prepare food

environmental considerations

uniform lighting

proper ventilation of space to remove

cooking odors

cleanable building surfaces

electrical/plumbing / mechanical

connections for food service

equipment

finishes

flooring

easy clean, non-slip flooring - single

surface

poured or rolled flooring

base

resilient base

ceiling

cleanable, suspended, acoustic

walls

epoxy-painted concrete masonry units

plumbing

connections to food service equipment

plumbing and gas connections

hand washing lavatory

floor drains

food preparation sink with adjacent trash bin

HVAC

supply/return air system

independent temperature control

kitchen canopy exhaust system

air conditioning

electrical

duplex receptacles

connections to food service equipment

single-level switching

clock

central sound system

LEGEND ///

● **fixed equipment**

F3 storage shelving

F33 pot washing sinks

F34 food preparation sinks

F35 hand sinks with adjacent trash bin

F36 work tables

F37 warming/holding/cabinets

F38 refrigeration/reach-ins

F39 mop washing sink

F40 lockable chemical storage

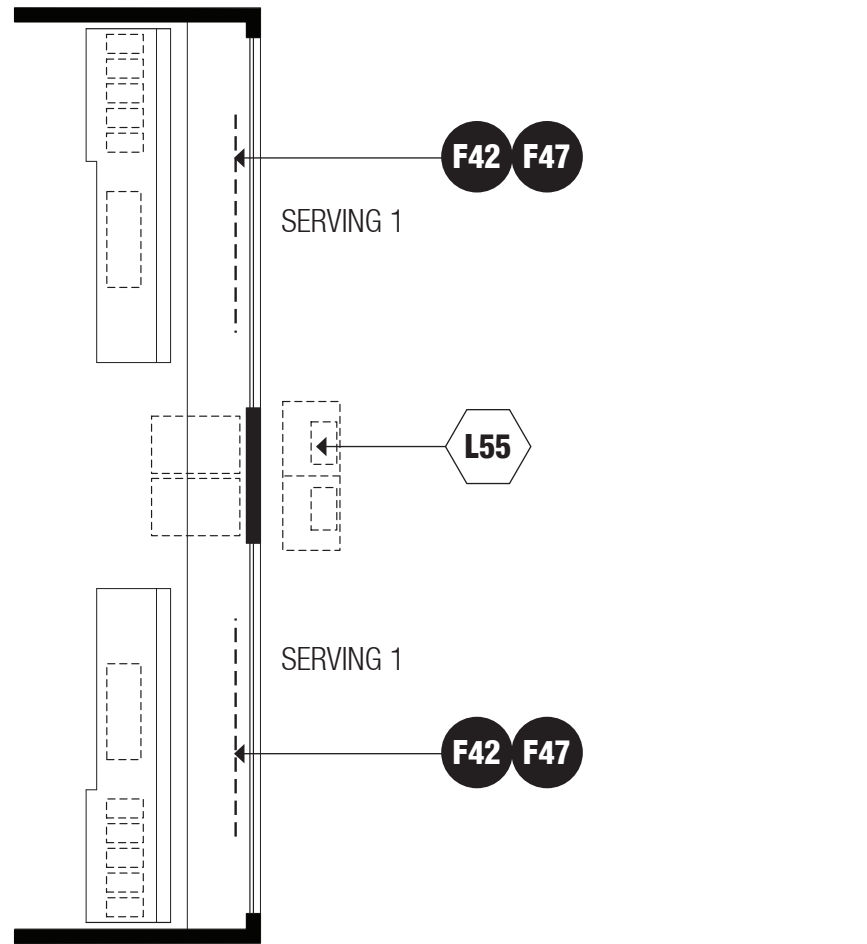
F41 exhaust hood systems, including fire suppression

F66 combi oven

F67 convection steamer

F68 range, with oven

F69 ware washing machine with appropriate accessories (tables, booster heater, disposer, etc.)



E-SD /// SERVING AREA

size

700 SF

capacity

students

staff

community

ancillary spaces

student dining area / multipurpose

kitchen

spatial relationships

within student dining area / multipurpose

or food preparation area

beginning of serving line should be

near entry door of students dining

area / multipurpose

open to food preparation area

program activities

serve food

*serving line configuration and design will be determined in consultation with School Nutrition Services

LEGEND ///

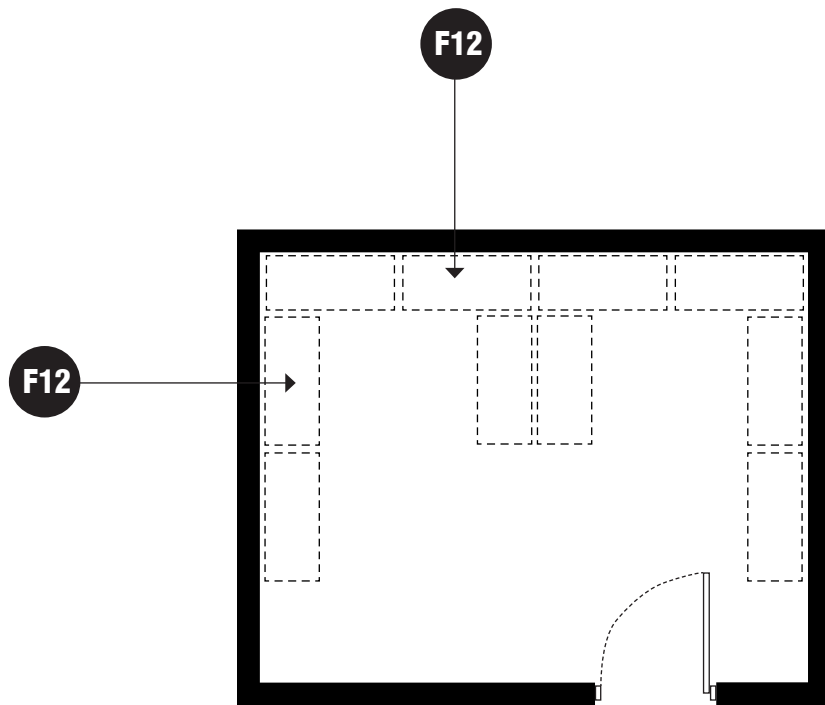
● **fixed equipment**

F42 drop-in individually controlled heated electric food wells and full service sneeze guard (student height) with over shelf

F47 drop-in self-contained refrigerated cold pan for side items (counter and sneeze guards are lower than normal for better viewing and service to elementary students)

⬡ **loose furnishings**

L55 milk coolers



size

varies

capacity

n/a

spatial relationships

near supply storage/receiving

adjacent and access to food prep area

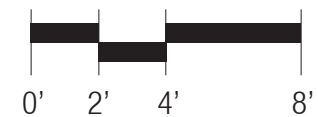
program activities

storage

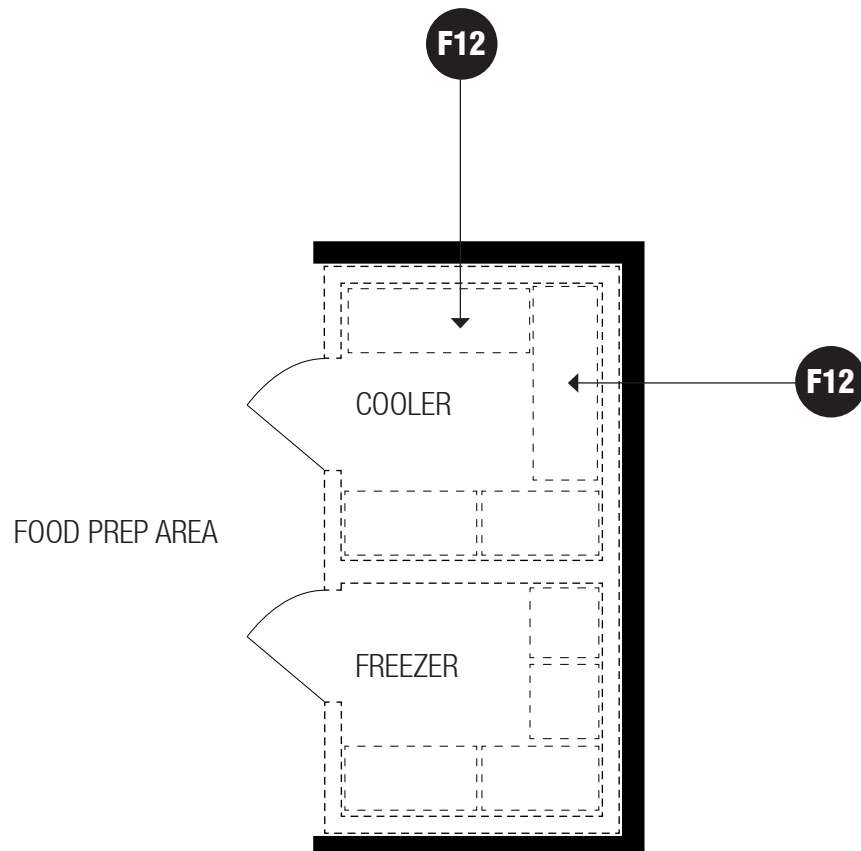
LEGEND ///

● **fixed equipment**

F12 rust resistant shelving and
dunnage racks (24" deep)



E-SD /// DRY FOOD STORAGE



E-SD /// FREEZER / COOLER

size

varies

capacity

n/a

ancillary spaces

kitchen

spatial relationships

adjacent and access to food prep area

near the supply storage/receiving

environmental considerations

ventilation for refrigeration machinery

equipment

floor to be flush with adjacent kitchen floor

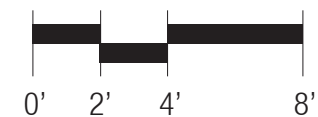
electrical service for refrigeration equipment

LEGEND ///

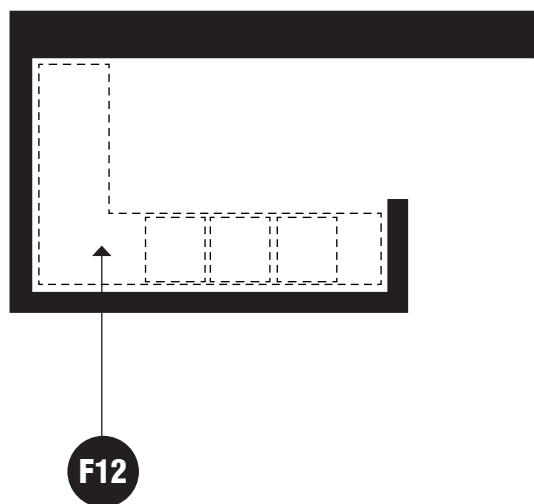
● **fixed equipment**

F12 rust resistant shelving and

dunnage racks (24" deep)



STUDENT DINING /
MULTIPURPOSE



NOTE //

This is an example of a ware washing area. Food service equipment will vary from school to school; confirm requirements with ACPS Food Service Department.

E-SD /// WARE WASHING

size

varies, see table

capacity

n/a

ancillary spaces

kitchen

spatial relationships

pass-through into student dining area/

multipurpose for tray drop-off

adjacent and access to food prep area

environmental considerations

proper ventilation of space to remove

steam and condensation

cleanable building surfaces

plumbing

connections to food service equipment

three compartment sink

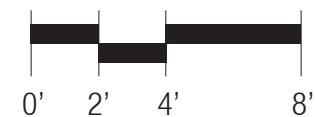
floor drain

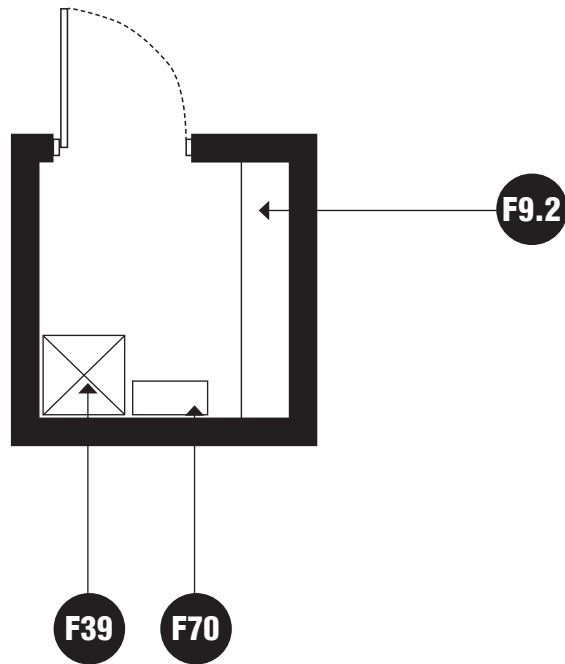
LEGEND ///

● **fixed equipment**

F12 rust resistant shelving and

dunnage racks (24" deep)





size

50 SF

capacity

food service staff

ancillary spaces

kitchen

spatial relationships

adjacent and access to kitchen

program activities

storing chemicals and equipment

environmental considerations

cleanable building surfaces

sensors for spilled chemicals

adequate exhaust/ventilation

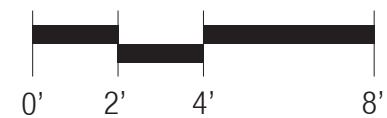
LEGEND ///

● **fixed equipment**

F9.2 rust resistant shelving

F39 mop sink

F70 mop rack



E-EC /// **MAINTENANCE & CUSTODIAL**

SUPPLY STORAGE / RECEIVING
TOILET / SHOWER / LOCKERS
CUSTODIAL OFFICE

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|-----------------------------|-----------------|-----------|--------------|--------------|
| BUILDING ENGINEERING | | | | |
| Supply Storage / Receiving | 1 | 600 | 600 | |
| Toilet / Showers / Lockers | 1 | 150 | 150 | |
| Custodial Office | 1 | 100 | 100 | |
| Total | | | 850 | |

Comments //

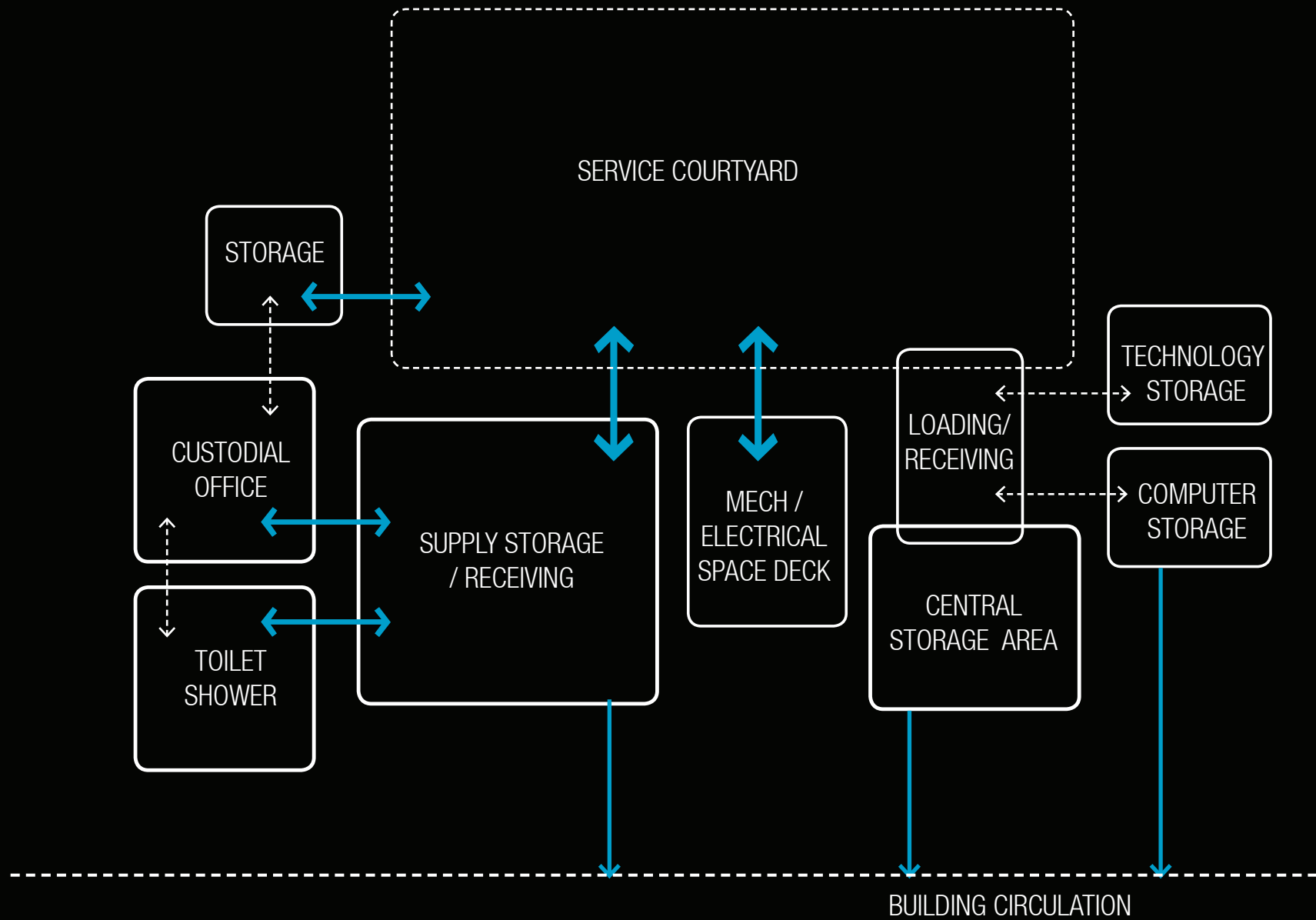
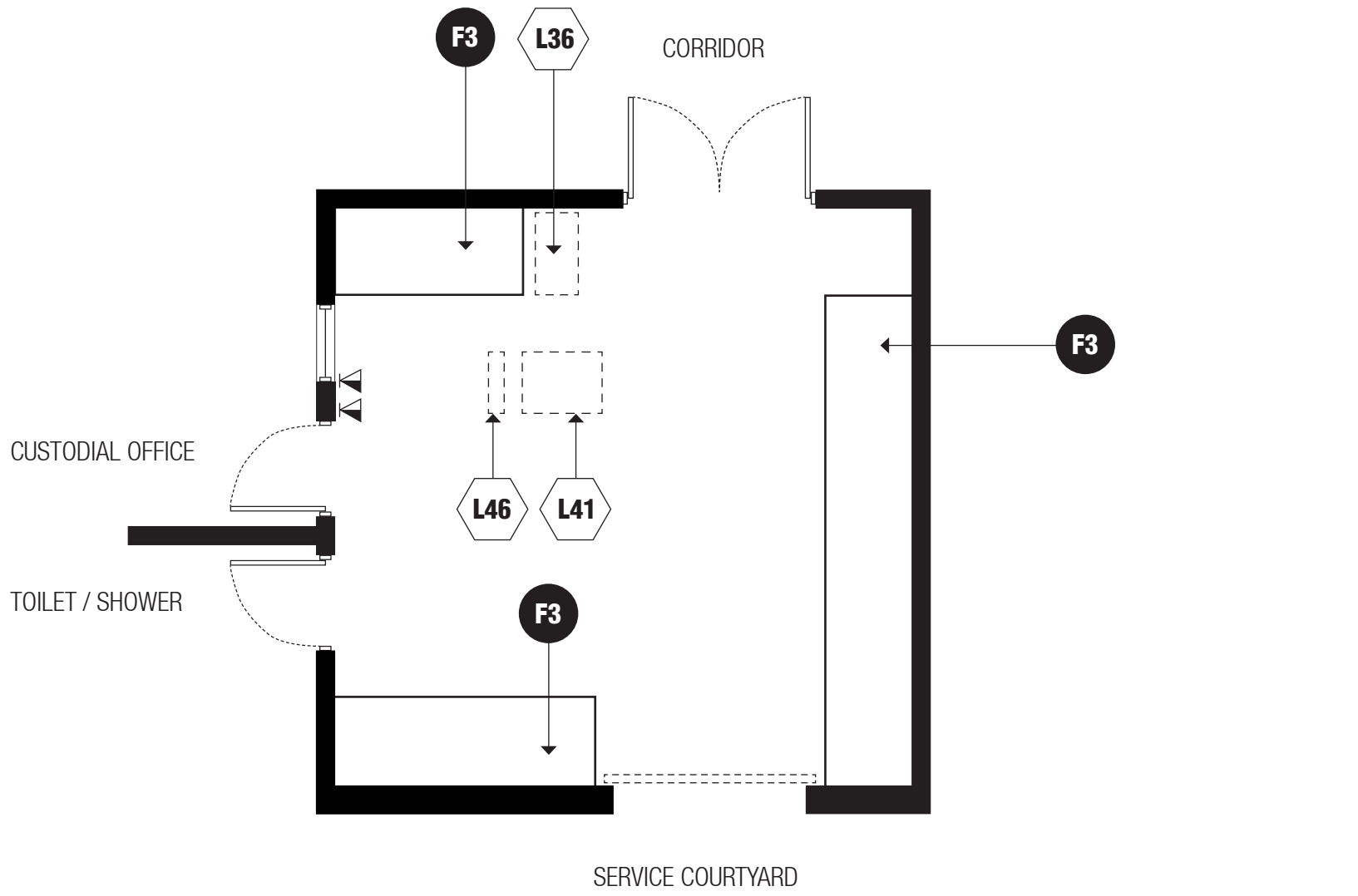
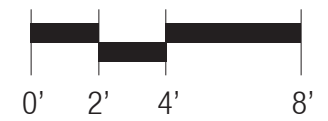


FIG. 14.0 // MAINTENANCE & CUSTODIAL ADJACENCY DIAGRAM



E-EC /// SUPPLY STORAGE / RECEIVING



size

varies, see table

capacity

maintainence personnel

spatial relationships

adjacent and access to loading dock area
and service courtyard

access to corridor

adjacent and access to custodial office

adjacent and access to toilet/shower/
locker room

program activities

loading and unloading

storage of furniture, materials for special
events, paper, and general supplies

plumbing

plumbing connections service sink

environmental considerations

supplemental heating source

double door with removable mullions

overhead door to service courtyard

LEGEND ///

● **fixed equipment**

F3 wall shelving (84" high x 36" deep)

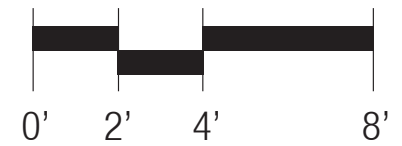
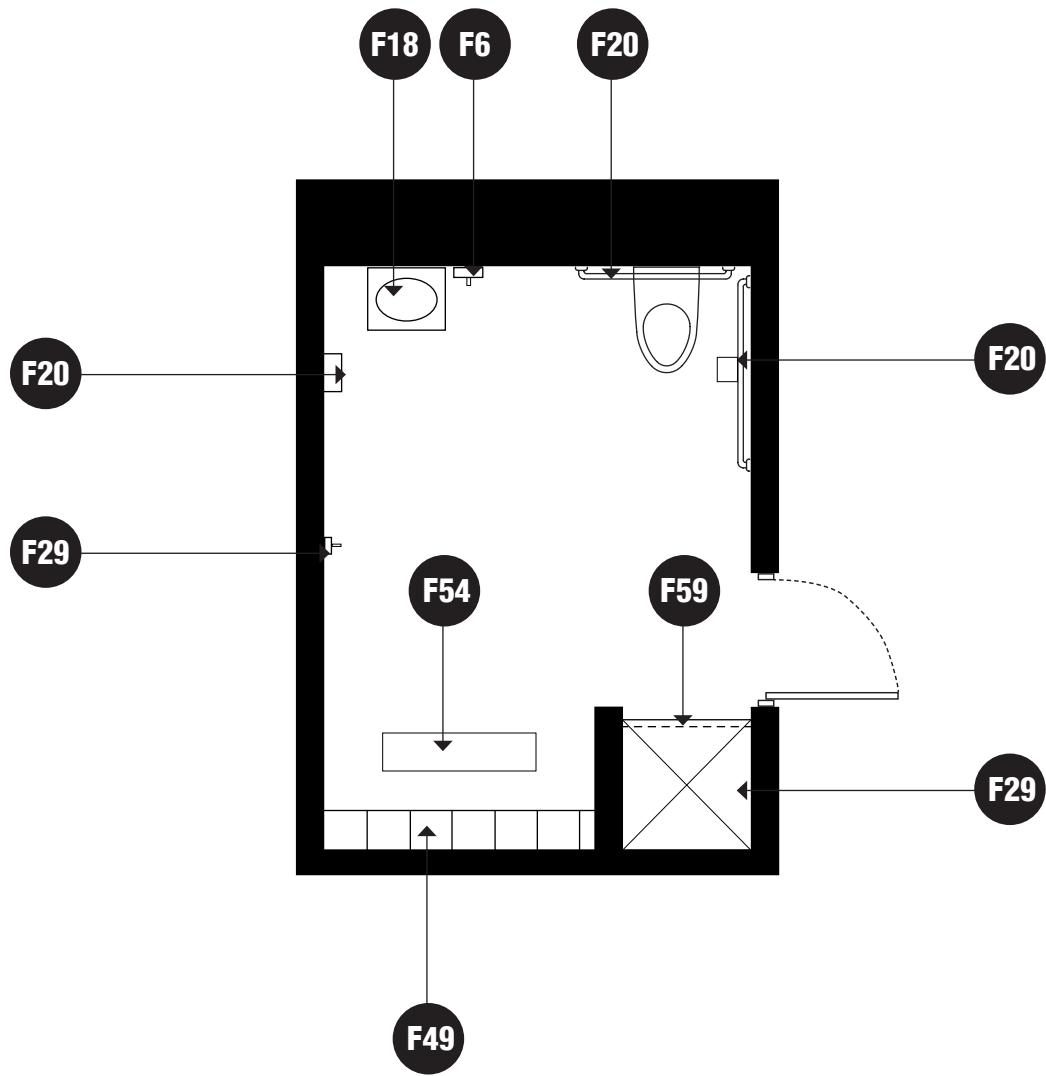
⬡ **loose furnishings**

L36 flammables storage

L46 step ladder

L41 chair dollies

▶ data drop



E-EC /// TOILET / SHOWER / LOCKERS

size

100 SF

capacity

maintenance and custodial staff

spatial relationships

adjacent and access to supply storage/
receiving

program activities

showering
changing clothes

plumbing

wall-mounted water closet
wall-mounted lavatory
ADA shower controls and head
floor drains - in restroom and shower
plumbing connections

LEGEND ///

● **fixed equipment**

F6 soap dispenser

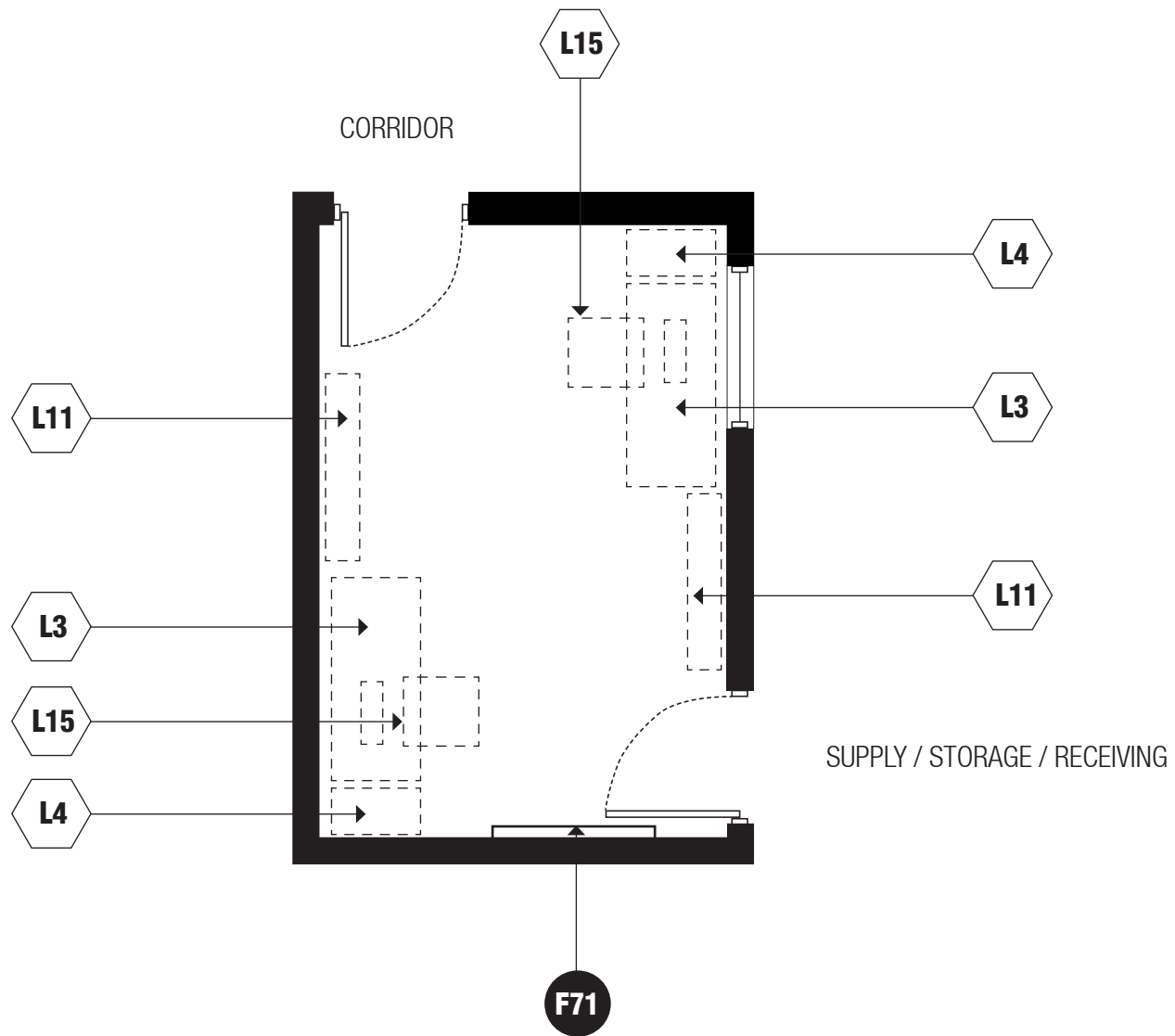
F18 mirror (24" x 60")

F20 bathroom accessories

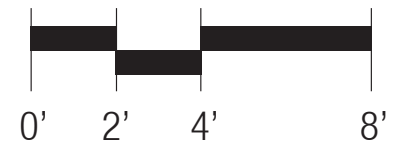
F29 ADA shower accessories

F49 lockers

F54 locker bench



E-EC /// CUSTODIAL OFFICE



size

150 SF

capacity

maintenance and custodial staff
building engineer

spatial relationships

adjacent and access to supply storage/
receiving
access to corridor
near custodial toilet

program activities

conferences with staff and other visitors
telephone calls

LEGEND ///

● **fixed equipment**

F71 tack board (4 LF)

⬡ **loose furnishings**

L3 teacher work surface with mobile
storage (2)

L4 four drawer lateral file cabinet (2)

L11 adjustable height bookshelves (12 LF)

L15 task chair (2)

E-BS /// **BUILDING SUPPORT**

LARGE GROUP RESTROOMS
CUSTODIAL CLOSET
ELECTRICAL CLOSET
TELECOMMUNICATIONS ROOM
CORRIDORS
MECHANICAL / ELECTRICAL SPACE DECK
STORAGE AREA
CENTRAL STORAGE AREA
LOADING / RECEIVING AREA
STAFF RESTROOM
FAMILY RESTROOM
TECHNOLOGY STORAGE

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|------------------------------------|-----------------|-----------|--------------|--------------|
| BUILDING SUPPORT | | | | |
| Large Group Restrooms | 1 | | | |
| Custodial Closet | 1 | | | |
| Electrical Closet | 1 | | | |
| Telecommunications Room | 1 | | | |
| Corridors | 1 | | | |
| Mechanical / Electrical Space Deck | 1 | | | |
| Storage Area | 1 | | | |
| Central Storage Area | 1 | | | |
| Loading / Receiving Area | 1 | | | |
| Staff Restroom | 1 | | | |
| Family Restroom | 1 | | | |
| Technology Storage | 1 | | | |
| Total | | | | |

Comments //

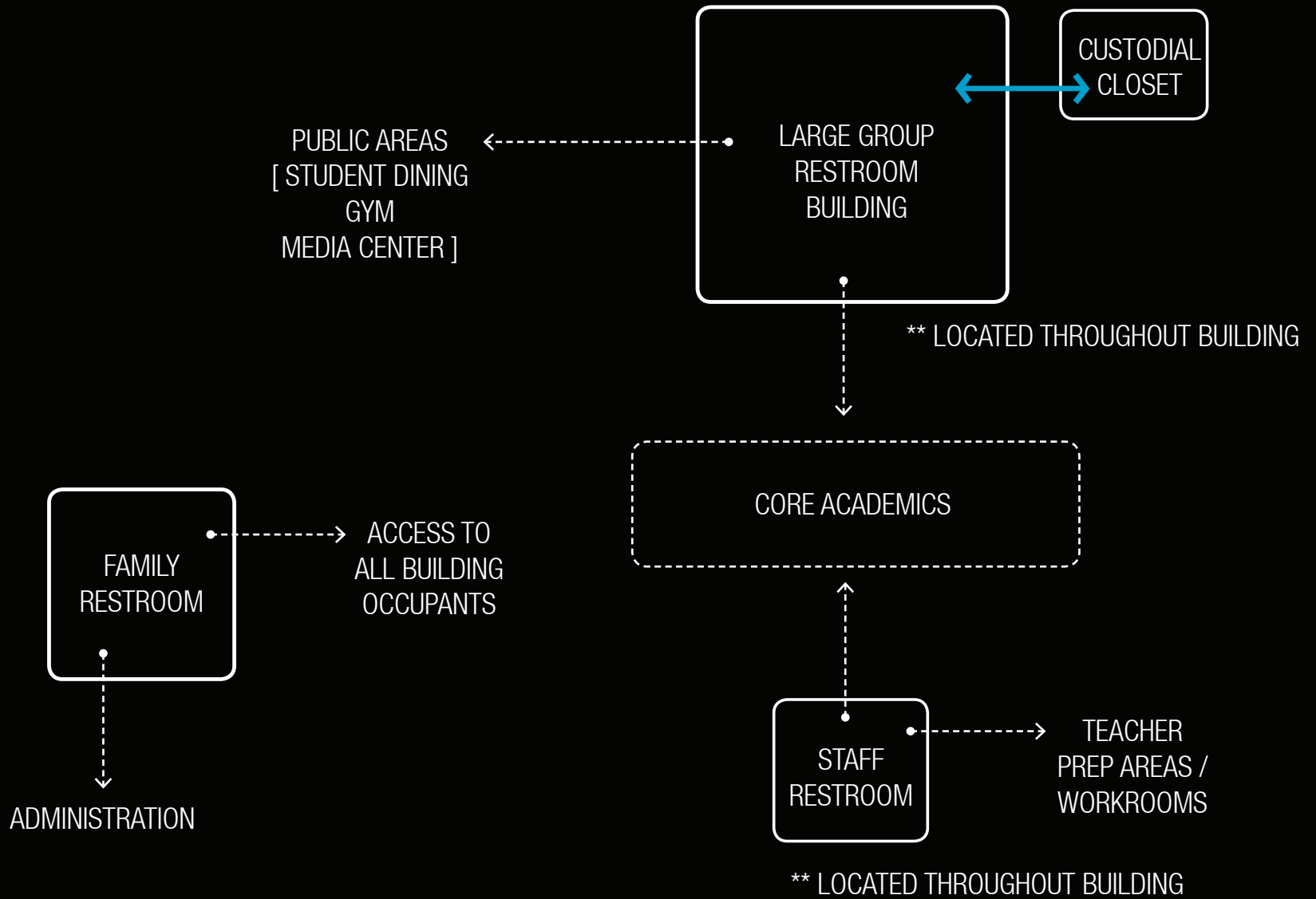
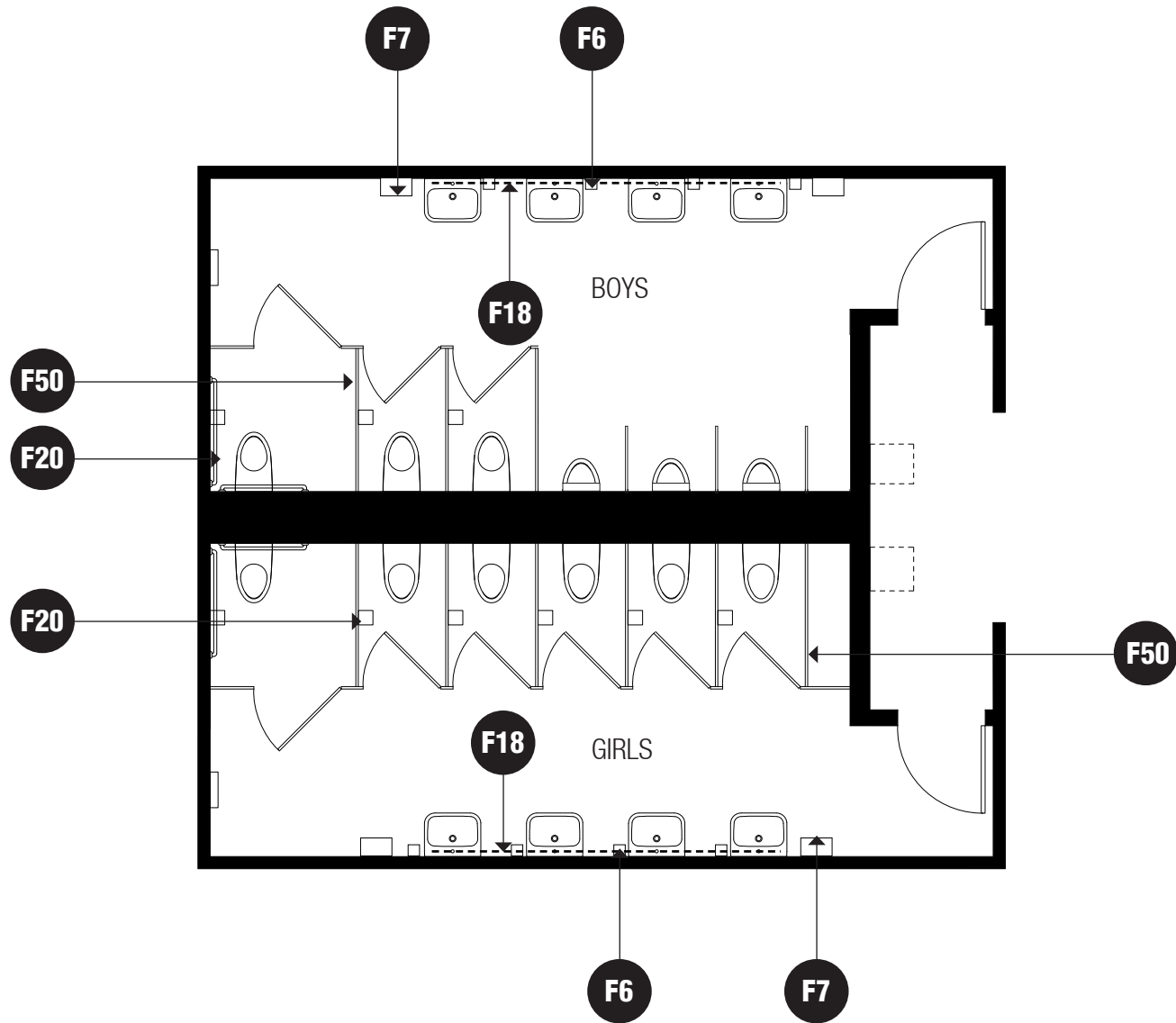
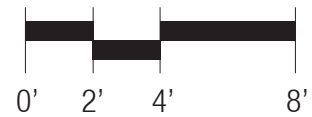


FIG. 15.0 // BUILDING SUPPORT ADJACENCY DIAGRAM



E-BS /// LARGE GROUP RESTROOM



Spaces to be determined by design professional based on the number of fixtures required.

size

based on the sum of the program areas excluding building services, multiplied by 3.5%

capacity

based on size of program area

spatial relationships

near student dining area
near public use areas, such as media center and gymnasium
near academic core area
restrooms located in several areas throughout building

program activities

personal and health needs for the students

plumbing

wall mounted water closets
wall mounted lavatories
or wash fountains
appropriate height fixtures by age
plumbing connections

LEGEND ///

● **fixed equipment**

F6 soap dispenser

F7 towel dispenser

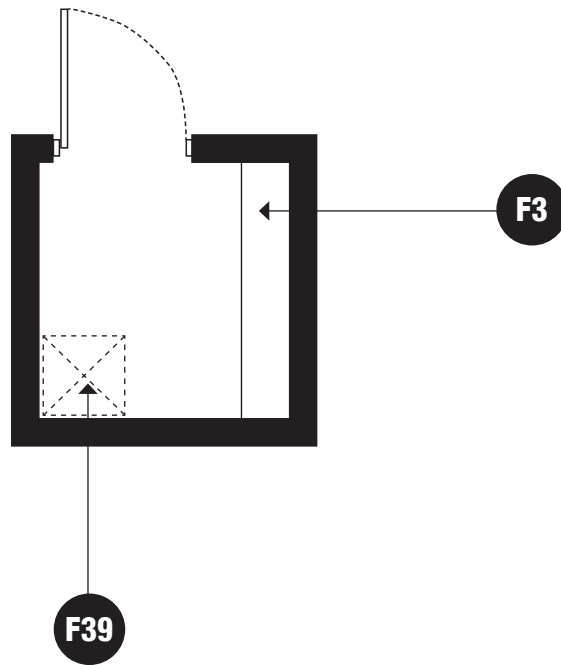
F18 mirror (24" x 60")

F20 bathroom accessories

F50 toilet partitions

NOTES //

Where individual restrooms are provided in lieu of large group restrooms, refer to staff restroom.



size

50 SF

capacity

n/a

spatial relationships

near large group restrooms

program activities

space for storage of custodial supplies
throughout the building

plumbing

service sink or floor drain sink
plumbing connections

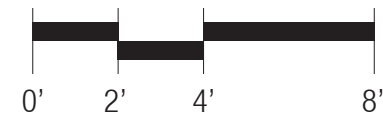
LEGEND ///

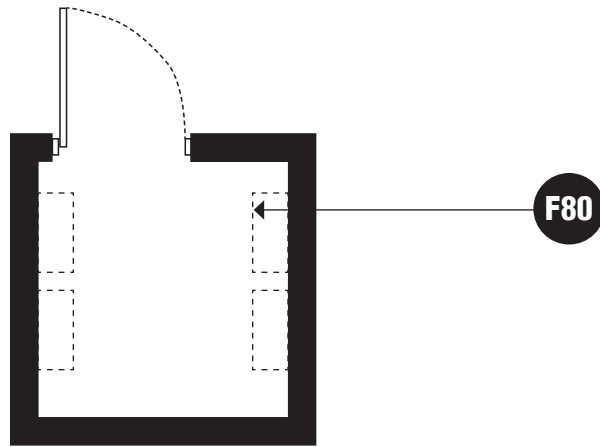
● **fixed equipment**

F39 mop sink

F3 wall shelving

E-BS /// CUSTODIAL CLOSET





Spaces to be determined by design professional.

size

50 SF

capacity

n/a

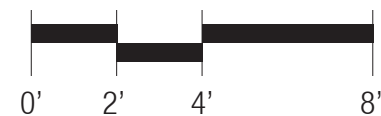
program activities

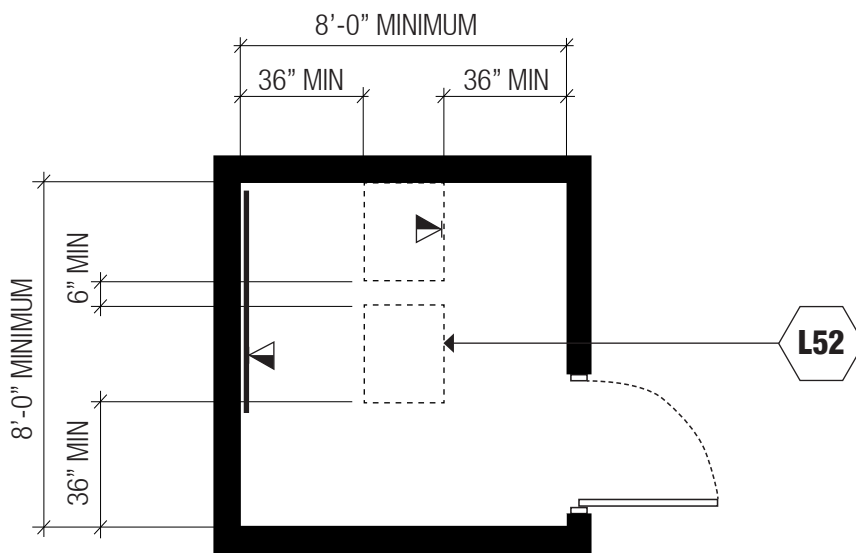
space for electrical wiring and panels

LEGEND ///

● **fixed equipment**

F80 electrical panel





size

0-75,000 SF = 8' x 8' minimum

75,00-150,000 SF = (1) 8' x 10' and 8' x 8'

150,000 SF plus = (2) 8' x 10' and 8' x 8'

capacity

n/a

program activities

space for technology needs

LEGEND ///

loose furnishings

⬡ L52 telecommunications rack (6" organizers between all racks)

▶ data drop

NOTES //

This is an example of a telecommunications room. The equipment and layout will vary from school district to school district.

E-BS /// TELECOMMUNICATIONS ROOM



- corridors shall be a minimum of 8 feet wide; some areas of natural light is desirable; the designer should minimize long corridors lined with classroom doors
- extended learning areas are in addition to the minimum above and must not intrude into the egress pathway. Seating areas in extended learning areas must meet fire code.
- lobbies are in addition to the circulation requirement.
- instructional and activity areas shall be accessible by corridors without passing through another instructional or activity area.
- the corridors are to meet the egress requirements of applicable codes.
- stairs, ramps, and elevators are included under the corridor category.
- it is recommended that stairs in multi-story buildings not be enclosed unless required by code. However, such a design should not allow students to lean over railings or put arms/legs through posts.

program activities

circulation space

vestibules

area of vestibules to be included within area allotted for corridors

width of vestibules can be no less than minimum width of adjacent corridor.

provide recessed vinyl floor mats (recommend 15 LF of surface mats in addition to vinyl mats)

provide automatic door operator on one leaf of main entrance/exit door and related vestibule door

plumbing

drinking water coolers with gooseneck faucet for water bottles

fixed equipment

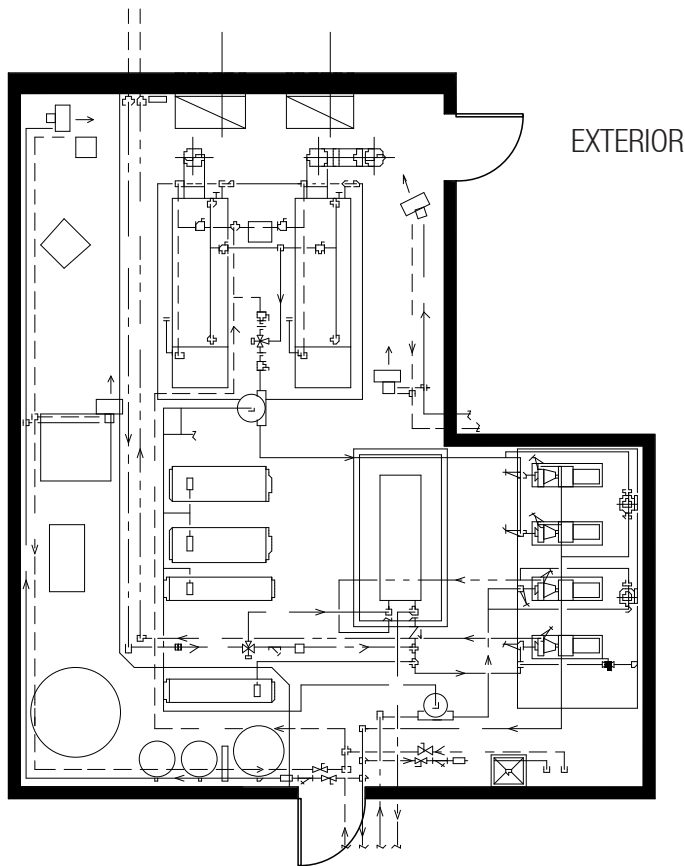
F51 fire extinguisher

F52 recessed floor mats

F53 digital boards

F71 tack board

F72 3D displays



Spaces to be determined by design professional.

size

based on the sum of the program areas,
excluding building services, multiplied
by 6.9%

capacity

based on size of program area

program activities

space for mechanical and electrical
equipment

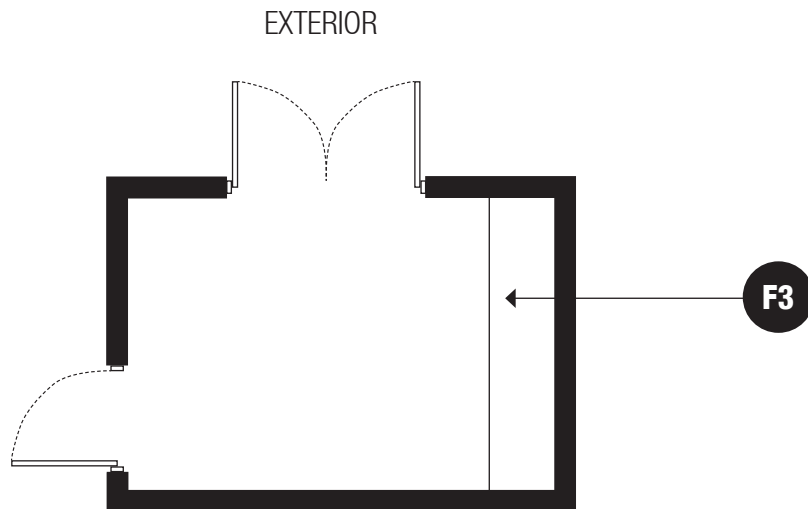
spatial relationships

accessible for maintenance and repair
access to outside
isolate from main area of building
near loading/receiving area
near custodial area

NOTES //

1. This is an example of a mechanical room.
The equipment and layout will vary
depending upon the heating, ventilating, and
air conditioning system used.
2. A penthouse is considered a mechanical
room.





Spaces to be determined by design professional.

size

150-250 SF

capacity

n/a

program activities

space for storage of outdoor custodial equipment

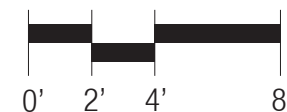
spatial relationships

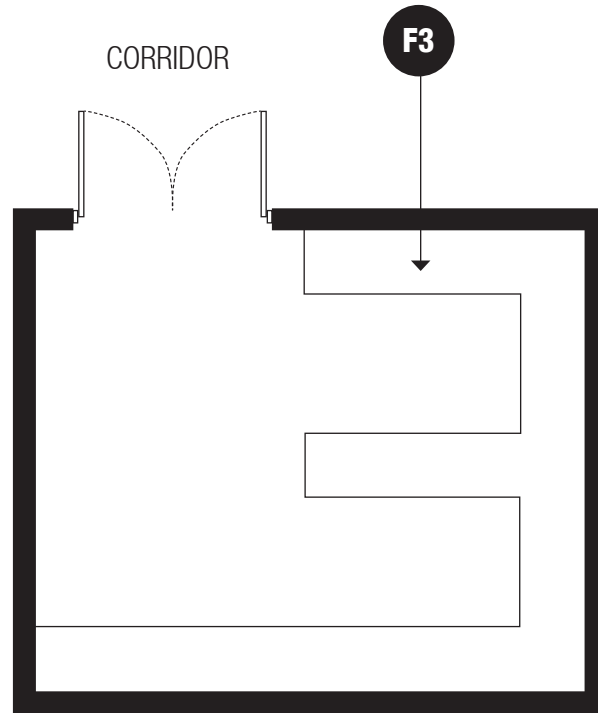
near custodial office
near custodial workroom
direct access to outdoors

LEGEND ///

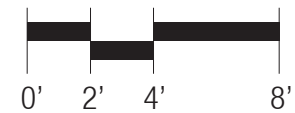
● **fixed equipment**

F3 wall shelving (10'-16', depth may vary)





E-BS /// CENTRAL STORAGE AREA



Space to be determined by design professional.

size

250 SF

capacity

n/a

spatial relationships

near loading/receiving area

direct access to building circulation

program activities

Storage for paper products, utensils, supplies, etc., to be used throughout the entire building

environmental considerations

uniform lighting

finishes

flooring:

resilient tile flooring

base:

resilient base

ceiling:

exposed structure

walls:

painted concrete masonry units

fire suppression

fire suppression system

HVAC

exhaust air system

supplemental heat as required

electrical

single level switching

fluorescent lighting

duplex receptacles

electronic safety and security

life safety devices per code

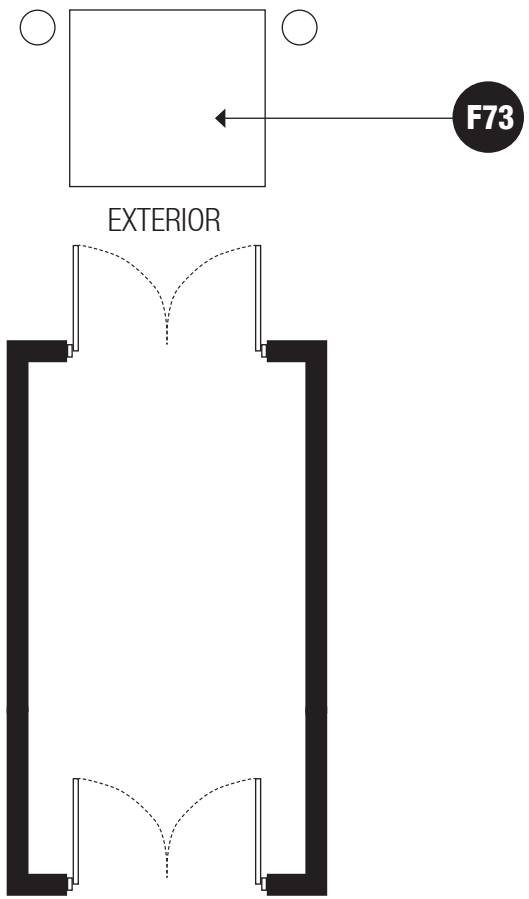
LEGEND ///

● **fixed equipment**

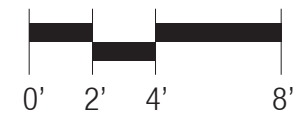
F3 wall shelving (26'-32', depth may vary)

NOTES //

1. Finishes/features: refer to _____ for specification references.
2. Ranges shown indicate quantities for the smallest and largest possible room size.



E-BS /// LOADING / RECEIVING AREA



Space to be determined by design professional.

size

120 SF

capacity

n/a

spatial relationships

- near food service spaces
- near central storage area
- near mechanical room
- adjacent to loading dock

program activities

delivery of materials and goods to be used throughout the building

finishes

flooring:

sealed concrete

base:

resilient base

ceiling:

exposed structure

walls:

painted concrete masonry units

fire suppression

fire suppression system

plumbing

drain at pit

HVAC

- exhaust air system
- supplemental heat as required

electrical

- single level switching
- fluorescent lighting
- duplex receptacles
- leveler

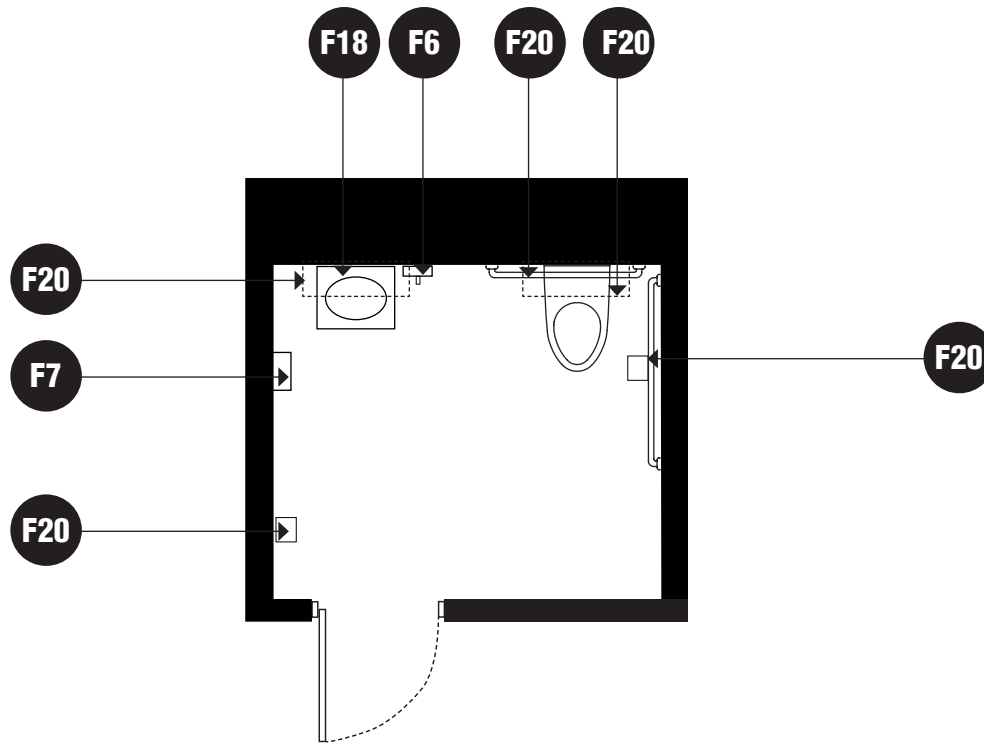
LEGEND ///

● **fixed equipment**

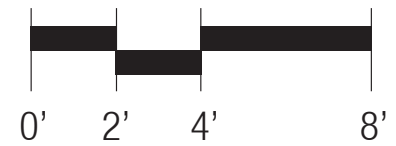
F73 loading dock levelers and dock bumpers

NOTES //

1. Finishes/features: refer to _____ for specification references.
2. Refer to Chapter 3, Section 3201 for site vehicular circulation requirements.



E-BS /// STAFF RESTROOM



size

50 SF

capacity

1 person

spatial relationships

near academic core classrooms
near teacher prep area/workroom

program activities

personal and health needs for teachers,
staff, and other individuals

environmental considerations

uniform lighting
environmental sound control -
wall minimum STC 53
ceiling minimum CAC 35, NRC 0.40
moisture and stain resistant finishes

finishes

flooring:

ceramic tile

base:

resilient base
optional - ceramic mosaic tile or
porcelain tile

ceiling:

suspended, acoustical

walls:

painted concrete masonry units

fire suppression

fire suppression system

plumbing

wall-mounted water closet

wall-mounted lavatory
plumbing connections
floor drain

HVAC

exhaust air system
supplemental heat as required

electrical

single level switching
fluorescent lighting
duplex receptacles
leveler

communications

central sound system

electronic safety and security

life safety devices per code

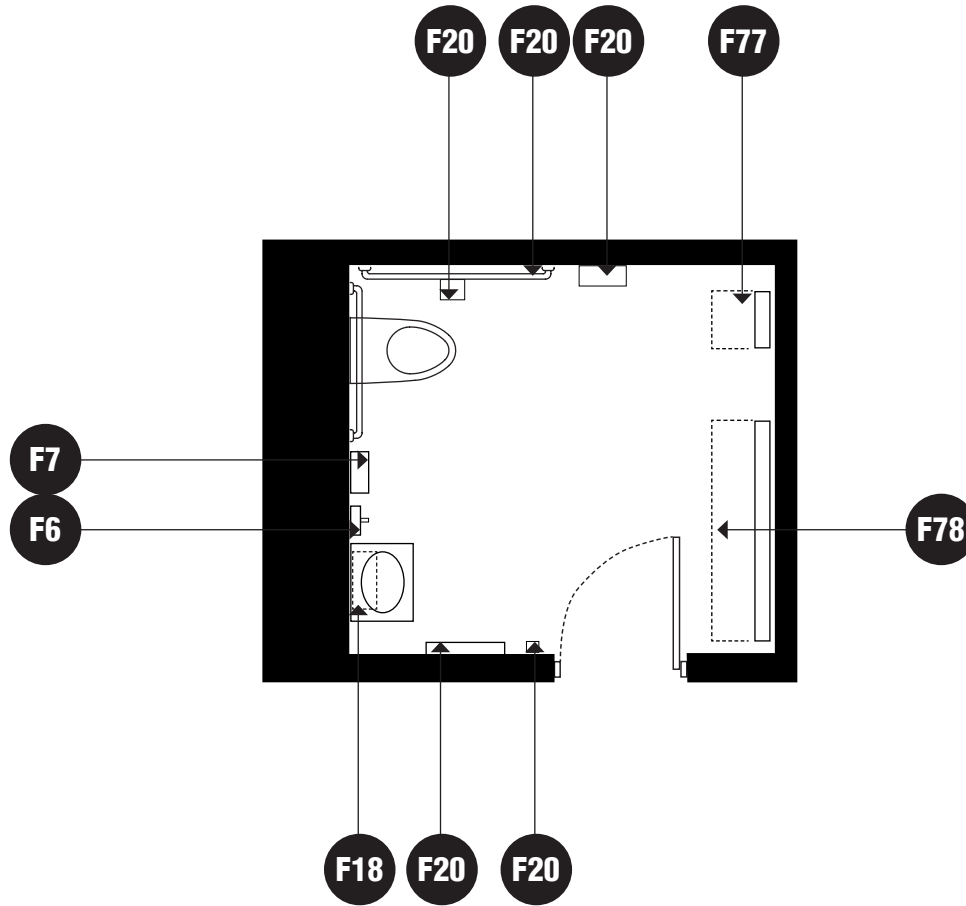
LEGEND ///

● **fixed equipment**

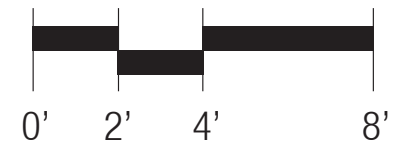
- F6 soap dispenser
- F7 towel dispenser
- F18 mirror (24" x 60")
- F20 bathroom accessories

NOTES //

1. Extend walls above ceiling to deck above for security and acoustical reasons.
2. Provide staff restrooms for both men and women.
3. Each pair of staff restrooms should be distributed throughout the building at appropriate locations.



E-BS /// FAMILY RESTROOM



size

80 SF

capacity

2 people

spatial relationships

located in the administrative area, but accessible to all building occupants

program activities

personal, health, and handicap needs for all building occupants

environmental considerations

uniform lighting
environmental sound control - wall minimum STC 53
ceiling minimum CAC 35, NRC 0.40
moisture and stain resistant finishes

finishes

flooring:

ceramic tile

base:

resilient base
optional - ceramic mosaic tile or porcelain tile or resinous flooring

ceiling:

suspended, acoustical

walls:

painted concrete masonry units

fire suppression

fire suppression system

plumbing

wall-mounted water closet

wall-mounted lavatory
plumbing connections
floor drain

HVAC

exhaust air system
supplemental heat as required

electrical

single level switching
fluorescent lighting
(1) duplex receptacle

communications

central sound system

electronic safety and security

life safety devices per code

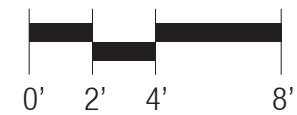
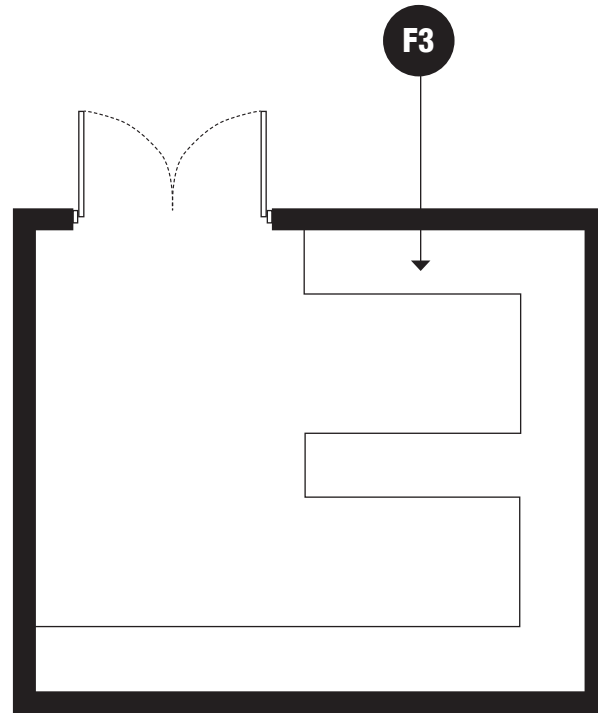
LEGEND ///

● **fixed equipment**

- F6 soap dispenser
- F7 towel dispenser
- F18 mirror (24" x 60")
- F20 bathroom accessories
- F77 mounted child seat
- F78 child changing station

NOTES //

1. Finishes/features: refer to _____ for specification references.



Space to be determined by design professional.

size

250-400 SF

capacity

n/a

ancillary spaces

technology storage

spatial relationships

near loading/receiving area

direct access to building circulation

adjacent to technology storage

program activities

storage for computers during breaks/summers

to secure hardware during cleaning, repairs, construction, etc.

environmental considerations

uniform lighting

finishes

flooring:

resilient tile flooring

base:

resilient base

ceiling:

exposed structure

walls:

painted concrete masonry units

fire suppression

fire suppression system

HVAC

exhaust air system

supplemental heat as required

electrical

single level switching

fluorescent lighting

duplex receptacles

electronic safety and security

life safety devices per code

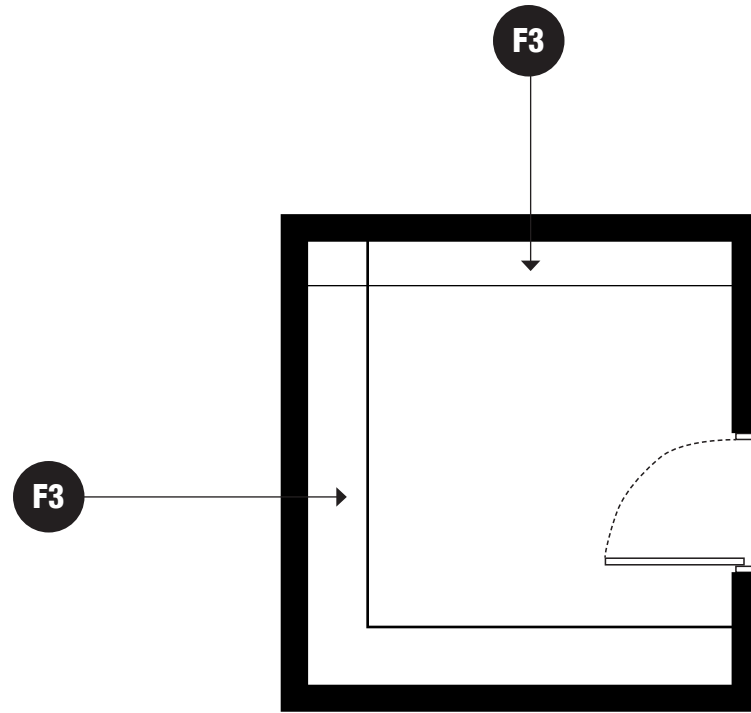
LEGEND ///

● **fixed equipment**

F3 wall shelving (26'-32', depths may vary)

NOTES //

1. Finishes/features: refer to _____ for specification references.
2. Ranges shown indicate quantities for the smallest and largest possible room size.
3. Confirm with the District of Columbia Public Schools' technology education specialist for requirements for each school.



E-BS /// TECHNOLOGY STORAGE



size

100 SF

capacity

n/a

ancillary spaces

computer storage

spatial relationships

adjacent and access to technology storage

program activities

materials storage

environmental considerations

uniform lighting

security of door

finishes

flooring:

resilient tile flooring

base:

resilient base

ceiling:

exposed structure

walls:

painted concrete masonry units

fire suppression

fire suppression system

HVAC

supply/return air system

electrical

single level switching

fluorescent lighting

duplex receptacles

electronic safety and security

life safety devices per code

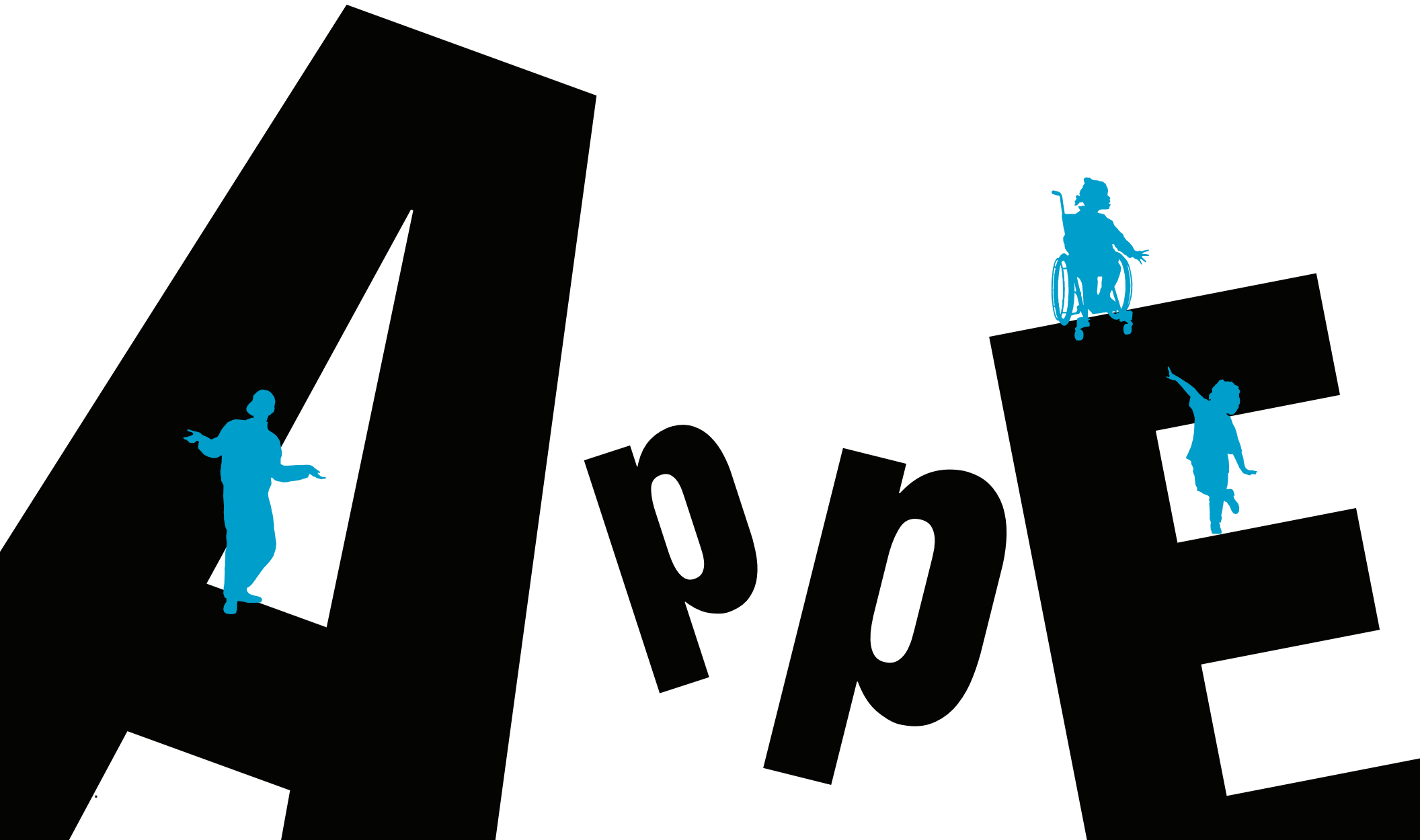
LEGEND ///

● **fixed equipment**

F3 wall shelving (12" and 18" deep)

NOTES //

1. Finishes/features: refer to _____ for specification references.
2. Loose furnishings and features shown represent one of many possible solutions.



N **d** **i** **K**



space and tag list

● fixed equipment

| | | | | | |
|------|--|-----|--|-----|---|
| F1 | base/wall cabinets and shelving (deleted “around classroom sink”) | F19 | toilet tissue holder | F49 | lockers |
| F1.1 | casework | F20 | bathroom accessories | F50 | toilet partitions |
| F2 | student cubbies | F21 | peg board | F51 | fire extinguisher |
| F3 | wall shelving | F22 | basketball goals | F52 | recessed floor mats |
| F4 | marker board | F23 | operable partition- motorized | F53 | digital boards |
| F5 | tackable/magnet wall surface | F24 | climbing wall | F54 | locker bench |
| F6 | soap dispenser | F25 | treatment cubicle curtain | F55 | folding utility shelf |
| F7 | towel dispenser | F27 | amphitheater | F56 | 30” itinerant/aid station |
| F8 | F8 wall mounted interactive electronic presentation device | F29 | ADA shower accessories | F57 | kitchenette |
| F9 | classroom sink | F31 | stage curtains | F58 | changing table |
| F9.2 | rust-resistant shelving | F32 | stage lighting | F59 | shower curtain/rod |
| F10 | demonstration kitchen | F33 | pot washing sinks | F62 | sound enhancement system |
| F11 | periphery science station | F34 | food preparation sinks | F63 | towel hook |
| F12 | rust-resistant deep shelving and dunnage racks | F35 | hand sinks | F64 | filtered water fountain with bubbler and gooseneck bottle filler |
| F13 | sound system | F36 | work tables | F65 | recycling center |
| F14 | 36” and 42” grab bars | F37 | warming/holding cabinets | F66 | oven |
| F15 | periphery kitchen station | F38 | refrigeration- reach in | F67 | convection steamer |
| F16 | washer/dryer | F39 | mop sink | F68 | range |
| F17 | audio/video recording and playback equipment | F40 | chemical storage | F69 | ware washing machine |
| F18 | mirror | F41 | exhaust hood systems | F70 | mop rack |
| | | F42 | food wells and full service sneeze | F71 | tack board |
| | | F43 | guard | F72 | 3d displays |
| | | F44 | self-contained refrigerated cold pan | F73 | loading dock levelers and dock bumpers |
| | | F45 | library case work motorized projection screen | F74 | coat hook-bathroom accessory |
| | | | | F75 | sanitary napkin dispenser |

- F76 sanitary napkin disposal
- F77 mounted child seat
- F78 child changing station
- F79 tackable surface
- F80 electrical panel

⬡ **loose furnishings**

- L1 stackable/nesting chairs
- L2 stackable/nesting tables
- L3 teacher work surface with mobile
- L4 storage and two chairs
- L5 four drawer lateral file cabinet
three bound rugs-group area, block area,
and reading area
- L6 mobile shelving
- L7 teacher's lockable wardrobe
- L8 tall cabinet with shelves
- L9 learning center sets - sand/water table,
kitchen, art cart, etc.
- L10 student desks
- L11 adjustable height bookshelves
- L12 admin workstation and chair
- L13 small table
- L14 computer station
- L15 task chair
- L16 bound group rug
- L17 printer station
- L18 lounge chairs
- L19 conference table
- L20 executive chairs
- L21 work table

- L22 safe
- L23 computer desk return
- L24 mobile exam table
- L25 nurse stool
- L26 refrigerator
- L27 health suite cot
- L28 folding chairs
- L29 choral risers
- L30 mobile a/v cabinet
- L31 posture chair
- L32 conductor's podium and stool
- L33 upright piano
- L34 tumbling mats
- L35 ball bins
- L36 flammables storage
- L37 dance barres
- L38 play equipment
- L39 cafeteria tables
- L40 point of sale station
- L41 chair dollies
- L42 drying rack
- L43 flat storage
- L44 kiln
- L45 greenware shelving
- L46 step ladder
- L47 music stand

- L48 stainless steel mobile preparation
tables
- L49 wastebasket
- L50 small conference table
- L51 laptop charging cart
- L52 telecommunications rack
- L53 portable sound system
- L54 bleachers
- L55 milk coolers

■ **miscellaneous**

- M1 high speed and/or large format
printers
- M2 color printers
- M3 barcode reader
- M4 photocop machine
- M5 digital scanner
- M6 laminator
- M7 desktop computer

energy / environmental criteria

Scientists who study the “neuroscience of learning” are finding that certain lighting, acoustics, and spatial relationships support or hinder the learning process. The following criteria should be used when creating optimal learning and teaching environments.

| | DESIGN PARAMETERS | PARAMETER NOTES |
|---|---------------------------------|--------------------------------|
| LIGHTING QUALITY // improving natural and artificial lighting in classrooms | | |
| 1 Controlled Natural Lighting (Glazing) | 10-12% of floor SF | LEED and Green Globe |
| 2 Artificial Light | 35-50 foot candles | IES |
| ENVIRONMENTAL AIR QUALITY // addressing temperature control, ventilation, air filtration, carbon dioxide levels, and HVAC background noise to ensure comfortable rooms | | |
| 1 Winter Temperature | 68.5 - 75.5 degrees | EPA 2000 and ASHRAE 55-04 |
| Summer Temperature | 74 - 80 degrees | |
| 2 Humidity | 30 - 60% relative humidity | EPA 2000 and ASHRAE 55-04 |
| 3 Air Changes | 6 - 10 per hour | ASHRAE |
| 4 Outdoor Air Ventilation | 10 CFM per person | Plus 0.12 per SF |
| 5 Air Filtration | MERV 13 | LEED |
| | MERV 6 - 8 | ASHRAE 52.2-2007 and 62.1-2007 |
| 6 Carbon Dioxide Levels | below 700 PPM above outdoor air | ASHRAE 62.1-2007 |
| 7 HVAC Background Noise Levels | RC(N) Mark II level of 37 | ASHRAE Handbook Chapter 47 |

| | DESIGN PARAMETERS | PARAMETER NOTES |
|---|--|------------------|
| ACOUSTICS // limiting reverberation and background noise and improving sound isolation | | |
| 1 Reverberation | 0.6 per second | ANSI S12.60-2002 |
| 2 Background Noise | 45 dBA | LEED |
| 3 Sound Isolation | STC 45 between classrooms | |
| TECHNOLOGY // providing data connections for online learning resources, AV equipment, closed-circuit televisions, and a sound system with emergency capabilities | | |
| 1 Data / Computer Drops | at teacher workstations and wireless access points | |
| 2 Audio / Video Equipment | | |
| Interactive Whiteboard | | |
| Document Cameras | | |
| Sound Reinforcement | amplifier, microphone, speakers | |
| 3 Clock | synchronized with bell system | |
| 4 Sound System and Emergency Call Box | | |
| Ceiling or Wall Speaker | class change bells, emergency announcements | |
| 5 CCTV Camera | | |
| Security | | |
| WebX Conferencing | | |
| Distance Learning | | |

energy / environmental design

There is a high interest in using school buildings as teaching tools to teach environmental stewardship and awareness, while simultaneously providing engaging environments for students, staff, and community who use the facilities. The organization, understanding, and use of school buildings will have a major impact on student and staff conservation behavior.

The sustainable design and green features of any building can be addressed in an active or a passive manner: active interaction is based on digital displays, educational features and curriculum integrated learning about environmental issues; passive interaction is based on the program design, building configuration, green building features, and energy efficient building automation.

Passive Concepts //

1. Building Layout

- Concentrate daylight and views to the outside to areas of frequent human interaction (e.g. classrooms, cafeterias, media center, art rooms, music rooms) with passive solar design
- Avoid excessive window areas in corridors, lobbies, hallways with no gathering opportunities (design for less than 45% of wall area)
- Avoid skylights and use roof monitors with vertical glazing instead

2. Types of Building Materials

- Use durable wall surfaces that are easy to clean
- Design for cleanability with easy and safe access
- Incorporate light colored pitched roofs to prevent heat

gain and leakage

- Install high performance walk-off mats at all points of entry
- Design with noise minimization in mind

3. Uses of Technology

- For instructional and administrative purposes, the new school should have extensive technology systems. These same infrastructures and technology components can be used to enhance the perception of the buildings environmental components. Digital display of buildings energy and water use at entrance and in cafeteria
- Website with environmental features of the school
- Use only vacancy sensors for classrooms, cafeteria etc. to turn off (not on) lighting
- Daylight sensors and dimming in larger areas (cafeteria, multi-purpose etc.)

4. Vehicular and Pedestrian Traffic

- Provide sufficient, covered and secures bicycle storage
- Provide bicycle lanes to building from all major access directions

5. Landscaping, Play/Practice Fields, Site, and Lighting

- Use native high trees and low bushes and ground covers and locate to provide shade to the building
- Non-intrusive lighting of all areas (not correctional-type lighting) according to the Light Pollution Credit in LEED-S with no lighting to leave property line
- Use aesthetically pleasing fence around perimeter of the building
- Reference the Alexandria City Landscaping Guidelines when providing landscaping.

6. Green Curriculum

- Provide outdoor classroom
- Design interior with sense of buildings orientation to North – East – South - West

Active Concepts //

1. Building Layout

- Provide signage to educate users about interior and exterior green building features throughout
- Provide signage for user behavior modification, e.g. ACPS policy for thermostat settings, reminders to turn equipment off when not in use
- Provide visitor map with floor plan for location and explanation of green building features

2. Types of Building Materials

- Provide view window to inside of wall constructions and mechanical room
- Provide materials with environmental message in selective areas, e.g. 100% recycled post consumer plastic toilet compartments, wheatboard cabinets, or furniture made of wood harvested from school site, and explain with signage.

3. Uses of Technology

- For instructional and administrative purposes, the new school should have extensive technology systems. These same infrastructures and technology components can be used to enhance the perception of the buildings environmental components.
- Green morning announcement with update on energy and water use
- Student conducted energy audits

- School based resource conservation program with frequent feedback to users

4. Vehicular and Pedestrian Traffic

- Provide preferred parking for ACPS Green Fleet (for carpooling and fuel efficient vehicles)

5. Landscaping, Play/Practice Fields, Site, and Lighting

- Design for no-mow areas
- Design for student garden
- Provide solar or wind powered, off the grid site lighting as demonstration model for select areas

6. Green Curriculum

- LEED credit Schools as a Teaching Tool requires 10 hours of instruction per student, grade and school year on environmental issues related to the school building. The school buildings design should support this requirement wherever possible.

technology

Information Technology provides technical services to all schools in the division and is operated from a remote location. ACPS IT does not adhere to BICSI (Building Industry Consulting Services International) or RCDD (Registered Communications Distribution Designer) standards, all electrical and data layouts are location dependent. Architects will consult IT with all design decision related to services operated by IT. Provide blocking systems in all walls for future acceptance of equipment and teaching devices. Provide a maximum of four hard data ports per classroom; two data ports each at opposite facing walls to accommodate mobile teaching stations. Provide electricity in multiple locations along all walls and wireless internet capacity to host 30 computing devices at one time per classroom. Provide appropriate wireless data coverage through each school to facilitate a one-to-one teaching device ratio. ACPS' fiber optic systems support security, IP cameras, clocks, and PA systems.

safety / security

ACPS wants to maintain an inviting and de-institutionalized environment, while simultaneously providing a safe environment for students, staff, and community who use the facility and adjacent support services. The organization of a building will have a major impact on student behavior and safety concerns.

Building security can be addressed in an active or a passive manner: active security is based on security systems; passive security is based on program design, building configuration, and community participation. Schools should be based on passive concepts with applied active concepts where necessary.

The principles of the *Crime Prevention Through Environmental Design* (“CPTED”) approach should be followed to incorporate passive safety and security measures. CPTED is the broader approach to safety and security that seeks building designs that encourage desirable behavior, heighten functionality, and decrease social behavior.¹

There are three main considerations in CPTED:

1. **Natural Surveillance:** the capacity to see what is occurring without having to take special steps to do so
2. **Natural Access Control:** the capacity to limit who and how someone can enter a facility
3. **Territoriality:** the capacity to establish an authority over an environment in who is in charge, who is allowed and who is not welcome.

1. Building Layout

- Avoid blind spots, corners, and cubby holes
- Maintainable lines of sight and use of opening to create transparency
- Locate administrative and teacher preparation with good visual contact of major circulation areas (i.e., corridors, cafeteria, bus drop-off, parking)
- Develop spatial relationships that naturally transition from one location to another
- Locate toilets in close proximity to classrooms
- Design toilets to balance the need for privacy with the ability to supervise
- Locate areas likely to have significant community (after school) use close to parking and where these areas can be closed off from the rest of the building

2. Types of Building Materials

- Use durable wall surfaces and maintainable flooring material that are easy to clean so graffiti and dirt can be removed
- Incorporate pitched roofs which inhibit roof entry and are aesthetically pleasing
- Operational part of windows on the ground floor should be in the upper portion to prevent access
- Install non-slip floors and walk-off mats at point of entry
- Use of interior glass to create a transparent environment within the school, and Colors, artificial lighting, and natural day lighting should be managed artfully to create an

1. Schneider, Tod (September 2002). *Guide 4: Ensuring Quality School Facilities and Security Technologies: Safe and Secure: Guides to Creating Safer Schools*. Northwest Regional Educational Laboratory,

environment that is aesthetically pleasing in order to support student and faculty pride in the building.

3. Uses of Technology

- Phones in every instructional and support area
- Building-wide all-call designed to be heard throughout the school and on the play fields when needed
- Motion or infra-red detectors, which can also conserve lighting costs
- Video cameras that are used for instructional purposes could also be used for security purposes during non-school hours
- Smoke and heat detectors located throughout the building
- Emergency call buttons in large parking areas, and
- Magnetic locking systems and carefully selected door hardware to facilitate lock downs in needed.
- Considerations should be given to zoning the building for non-school day uses in terms of both energy efficiency as well as security: Lighting zones,
- Securable zones, and Mechanical zones

4. Visitor Management

- The front entry lobby should be welcoming and inviting for students, staff, and visitors with a central visitor registration area should be prominent upon entry,
- Clear way finding signage should be included that directs visitors upon campus arrival to visitor registration and as well as throughout the building to provide overall building guidance,
- A secured double vestibule or a video enabled front entry intercom buzzer system should be provide to

manage visitor entry, and

- Front lobby & exterior displays should be provided for communicating school messages.

5. Vehicular and Pedestrian Traffic

- Separate bus drop-off area from other vehicular traffic
- Separate staff and community parking area
- Separate student (pedestrian) traffic flow

6. Landscaping, Play/Practice Fields, Site, and Lighting

- Use native high trees and low bushes (less than three feet high) to deter hiding
- Use aesthetically pleasing fencing around perimeter of the building
- Non-intrusive lighting of all areas (not correctional-type lighting) according to the Light
- Pollution Credit in LEED-Ss with no lighting to leave property line
- Provide security lighting around building and parking lots with photocell timer, motion sensor and on/off capacity

community use

Community involvement in education and educational involvement in the community can take a variety of forms before, during, and after the school day. The following is a partial list of potential community uses:

- Touring Groups
- Speech/Debate Clubs
- After School Youth Enrichment
- Adult Education
- Community Meetings
- Mentoring Programs
- Parent Involvement
- School/Business Partnerships
- Alternative Education Programs
- Dance Studios
- Community Athletics
- Recreation Programs
- Health Screening
- Senior Citizens Programs
- Intramural Sports Programs
- Child Care (staff, students, community)
- Voting
- Emergency Shelter

Based on limitations established for the size of the facility and budget constraints, most of the community uses will need to focus on shared space -- space that is used primarily for school programs during the school day and community uses during non-school hours. Priorities need to be established at the local site level to determine future community activities that may be added in order to be incorporated in the overall

master plan.

Even within these constraints, opportunities exist. The areas that have the greatest possibility for community usage include:

- Performance/meeting area
- Library/media center
- Play fields
- Computer labs
- Conference rooms
- Multipurpose room/gym
- Cafeteria

Consideration should be given to furniture and equipment selection for shared uses by students, very young children, and adults. The facility and site should be configured and zoned to enhance parking and circulation, security, and energy conservation. Adequate signage to assist community members. Auxiliary storage needs to be made available for community programs

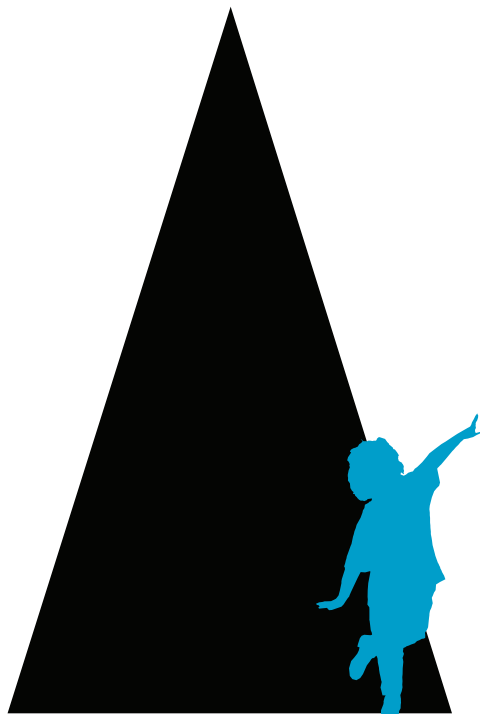
Collaboration and partnership require greater cooperation in the planning of schools and community facilities. It is important for the school division, governmental agencies, and corporate partnerships to participate collaboratively in the planning of schools.

Planning for future schools should include joint use considerations at the beginning of the process. School divisions and governmental agencies are beginning to

realize that cooperation is needed, especially considering the ever-shrinking budgets and meeting the diverse needs of the community. There are potential opportunities in jointly developing parks, libraries, and one-stop shopping centers for human services. Partnerships and joint ventures should be considered and are encouraged by the Board of Education.

PROTOTYPE TABLE

| | PRE-K | KINDERGARTEN | 1ST | 2ND | 3RD | 4TH | 5TH | SELF - CONTAINED | TOTAL |
|----------------------|-------|--------------|-----|-----|-----|-----|-----|------------------|-------|
| 460 Students | | | | | | | | | |
| Number of Classrooms | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 21 |
| Capacity | 18 | 20 | 22 | 22 | 24 | 24 | 24 | 10 | |
| Total | 54 | 60 | 66 | 66 | 72 | 72 | 72 | 0 | 462 |
| 850 Students | | | | | | | | | |
| Number of Classrooms | 6 | 6 | 6 | 6 | 5 | 5 | 5 | 0 | 39 |
| Capacity | 18 | 20 | 22 | 22 | 24 | 24 | 24 | 10 | |
| Total | 108 | 120 | 132 | 132 | 132 | 120 | 120 | 0 | 852 |



Educational Specifications ■ Alexandria City Public Schools

JULY 2014

MIDDLE SCHOOL



for ward





The City of Alexandria (the City) and the **Alexandria City Public School Division** (ACPS) joined together in the summer of 2013 to develop a Long Range Educational Facilities Plan (LREFP) to improve facilities planning, accommodate the growing student population, and enhance educational programs and services. As part of this effort, ACPS has engaged Studio Twenty Seven Architecture and Brailsford & Dunlavey (“the Planning Team”) to develop Middle School (6th – 8th Grade) Educational Specifications. An Educational Specification (“Ed Spec”) is the guiding planning document that describes the proposed outcomes of a school modernization or new construction project.

The document presented here is a result of the application of professional technical expertise and the collaboration of invested and knowledgeable stakeholders. The document is outlined in the following table of contents.

The recommended program and concept presented here constitute the professional opinions of the Planning Team based on the assumptions and conditions detailed throughout. This planning effort was in complement to the staff and faculty participation and input. The Board of Education will make the final recommendation. It is recommended this document be comprehensively updated every 10 years.

The **Planning Team** was comprised of the following individuals //

Jay Brinson, Program Manager,
Deanna Newman, Educational Facility Planner,
Beth Penfield, Educational Facility Planner,
Ty Specht, Project Analyst, and
John K. Burke, Architect.

The Planning Team wishes to acknowledge the support, cooperation, and effort of all of the ACPS and City staff who contributed to the planning effort, in particular //

Alyson Alvarez,
Katherine Carraway,
Steven Chozick,
Susan Eddy,
Mark Eisenhour,
Andrea Feniak,
Laurel Hammig,
GwenCarol Holmes,
Pat Mann
Karl Mortiz, and

All of the faculty, staff, and committee members who joined the effort throughout.

TABLE OF CONTENTS



introduction //

| | |
|-----------------------------|----|
| purpose | 08 |
| process | 09 |
| national trends | 12 |
| context / formulation | 16 |
| strategic vision | 20 |

planning concepts //

| | |
|--|----|
| capacity | 22 |
| program area summaries | 24 |
| conceptual building organization | 32 |

design principles //

| | |
|----------------------------------|----|
| overview | 34 |
| the 1200 student prototype | 38 |
| space summaries | 39 |

SPACES ///

| | |
|--|------------|
| core academic / M-ACA | 42 |
| media center / M-MC | 66 |
| visual arts / M-VA | 82 |
| performing arts / M-PA | 90 |
| physical education / M-PE | 105 |

| | |
|------------------------------------|------------|
| administration / M-AD | 120 |
|------------------------------------|------------|

| | |
|------------------------------------|------------|
| student dining / M-SD | 178 |
|------------------------------------|------------|

| | |
|---|------------|
| maintenance & custodial / M-MC | 198 |
|---|------------|

| | |
|--------------------------------------|------------|
| building support / M-BS | 208 |
|--------------------------------------|------------|

appendix //

| | |
|---------------------------------------|-----|
| space and tag list | 232 |
| glossary of terms | 234 |
| energy / environmental criteria | 236 |
| technology | 240 |
| safety / security | 241 |
| prototype chart | 243 |

INTRODUCTION ///

purpose

Educational Specifications (“Ed Specs”) are developed to serve as the guiding recipe and benchmark for future school renovations and new construction projects.

Per the National School Boards Association // **““ The purpose of educational specifications (“Ed Specs”) is to define the programmatic, functional, spatial, and environmental requirements of the educational facility, whether new or remodeled, in written and graphic form for review, clarification, and agreement as to scope of work and design requirements by the architect, engineer, and other professionals working on the building design. ””**

In essence, the Ed Spec tells the story of the school facility and how the built environment will support the academic program and vision of school leadership. This generic Middle School Educational Specifications is primarily intended for use as a planning guide by architects and project planners but it is also intended to serve as communication and benchmarking tool for all project stakeholders: students, parents, and families; faculty and administrators, civic leaders and community members; and project design and construction partners.

The general concept embodied in the specifications is to provide adequate details for proposed spaces while leaving ample flexibility for creativity and options in design by the architects. They are meant to define expectations amongst project stakeholders but not limit creativity. The Ed Spec is also meant to be a living document, amendments can be discussed, developed and issued over time.

Project Planning //

During the planning phase of a project, the Ed Spec will be utilized to understand and develop future project scopes of work and budgets. The Ed Spec will be included in project procurements to ensure that interested vendors are clearly and uniformly communicated the intent of a project and therefore provide well informed responses to meet actual project needs. While the unique site locations of new schools may necessitate floor plan modifications, the program and space requirements should be modified only as allowed within the parameters of this document.

Project Implementation //

During the implementation phase the Ed Specs will be utilized for quality control, allowing ACPS to measure project deliverables against the stated benchmarks and standards. Design deliverables and construction will be reviewed for compliance with the standards and goals stated herein with a goal of meeting benchmarks by 10 to 15 percent. Additionally, the Ed Spec will help provide the foundational support for project decisions during implementation as responses can be measured against their responsiveness to the Ed Spec.

Project Turnover and Occupancy //

The Ed Spec can serve as a valuable aid in the turnover of the facility to staff and administrators and other occupants. It is a user friendly document that allows people outside of design and construction professions to understand the building and the intent of its spaces.

process

Planning a state-of-the-art school requires the consideration of several influencing factors: the historical and forthcoming context of the community; the current and future learning pedagogy and curricular goals; the technical expertise of the faculty and administrators; national and regional trends and benchmarks; and strategic visioning goals and objectives.

Developing the plan requires the cooperative efforts of facility specialists, administrators, faculty and instructional consultants, in addition to the careful involvement of outside partners and community stakeholders. In order to create the best possible learning environment for children, an effort has been made to incorporate the best ideas from existing plans and facilities as well as to anticipate future needs for educating Alexandria's children.

As mentioned, ACPS and the City are working together to develop a long range educational facilities plan in order to develop thoroughly coordinated plan that responds to projected enrollment growth and considers city-wide needs in a comprehensive manner. The LREFP process, which is shown in figure 1.0 on the following page, focuses on developing technical details in three key areas: Enrollment Forecasts, Current Facility Conditions and Capacities, and the Educational Specifications. The joint work group has subcommittees assigned to each of the three technical areas to enhance the efficacy of community involvement and report on progress to the full work group.

The overall workflow for the development of the Educational Specifications is demonstrated in figure 1.1 on the following

page. The process began with a series of discussions devoted to aligning this document with the Division's strategic objectives and vision for future schools followed by several weeks of interviews with technical experts, building users, and other stakeholders. The project Planning Team was careful to solicit community and student input at key intervals to ensure the document considers all perspectives related to facility needs, agencies, and space prioritizations.

Input from specialists in technology, facility planning, other school divisions, and middle school pedagogy has been added to the basic plan to ensure quality facilities well into the twenty-first century.

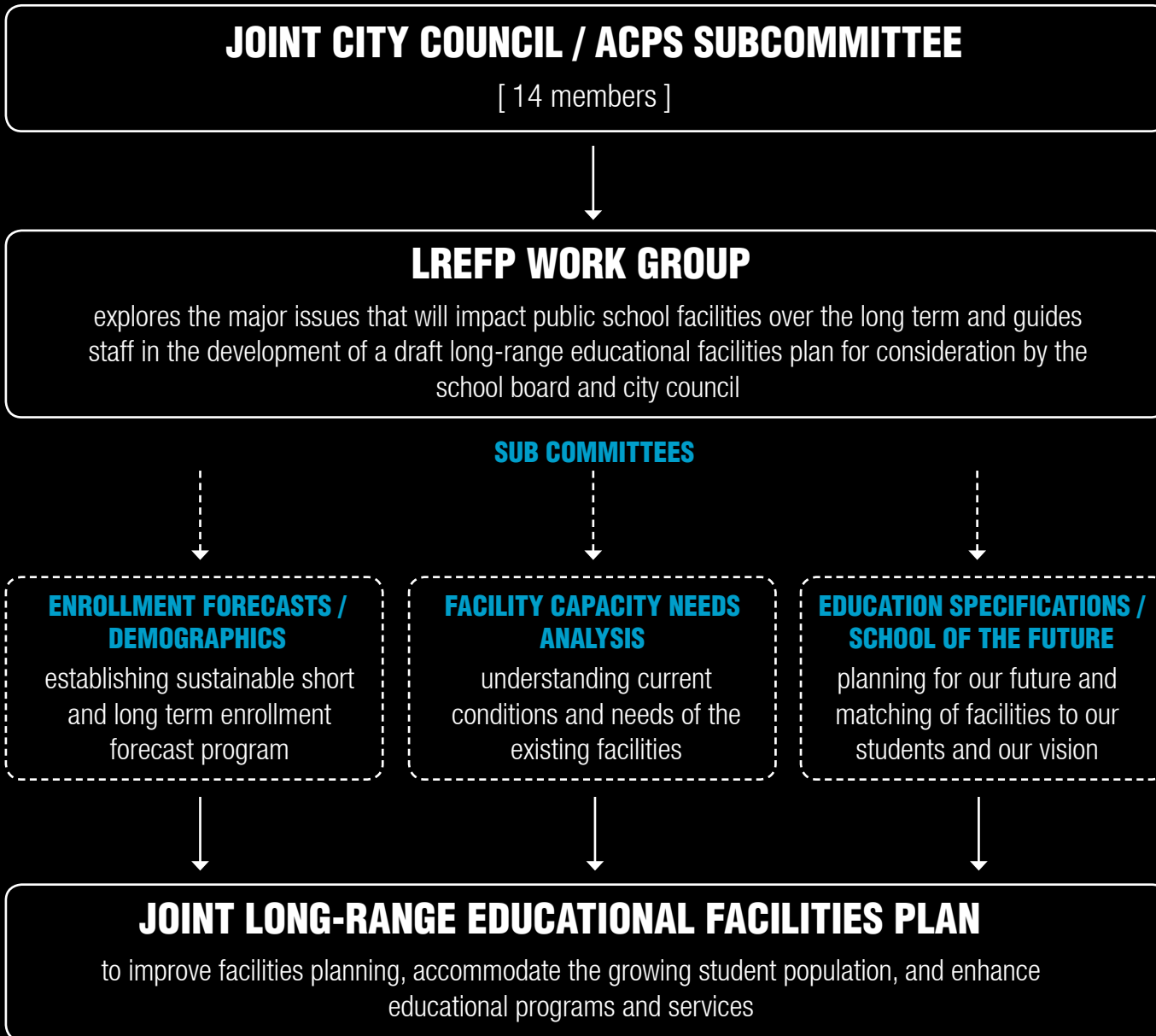


FIG. 1.0 /// PROCESS DIAGRAM

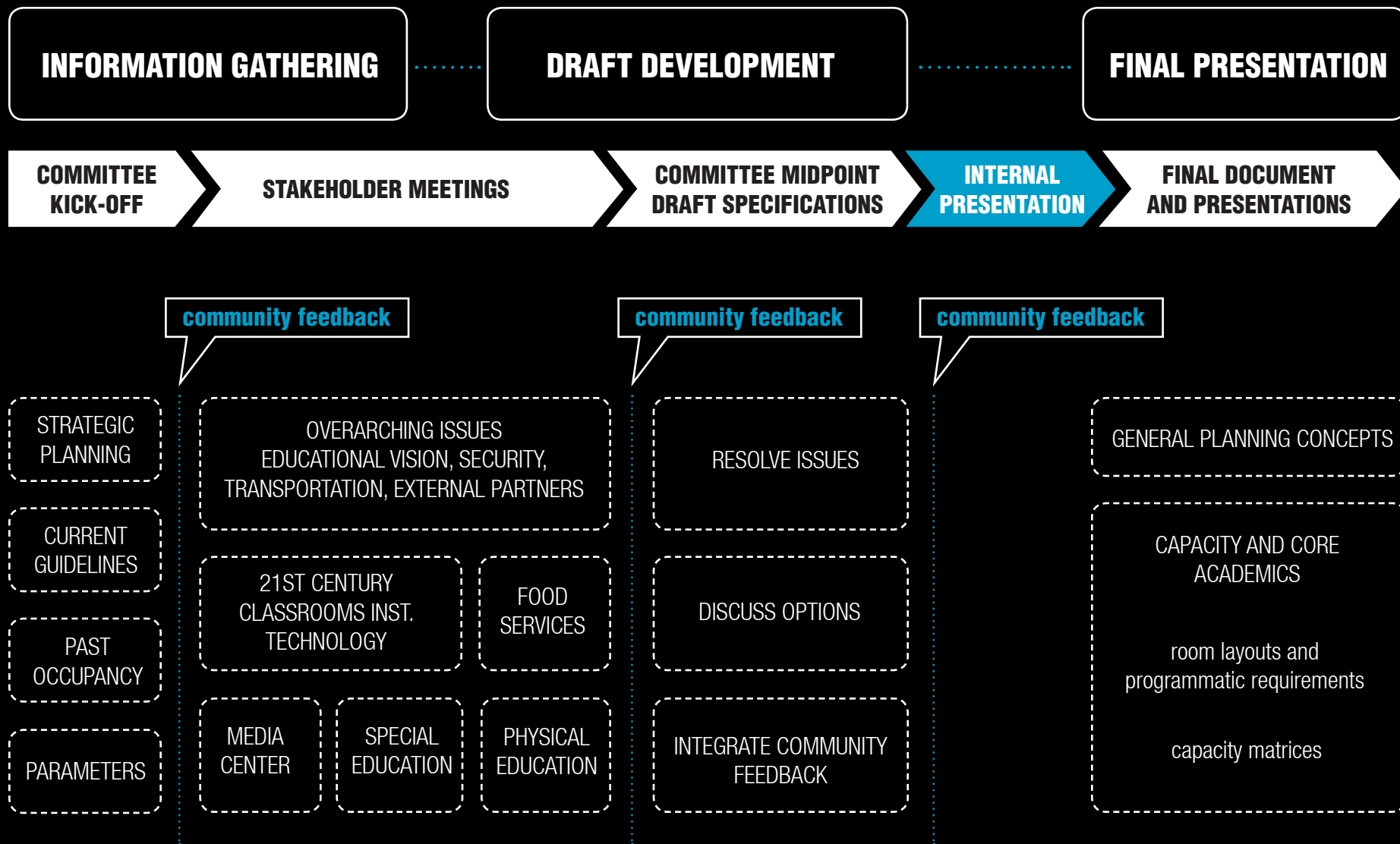


FIG. 1.1 /// **WORKFLOW DIAGRAM**

national trends in educational facility planning

Each school division is unique from an educational and building program perspective. Balancing against national, state, and local regulations, it is important to understand that one size does not fit all. The trends and planning principles presented here are to provide context to the formulation and development of this document.

21st Century Learners //

Learning environments should be planned and designed in consideration of supporting all learners: auditory, tactual, kinesthetic and visual. Individual learning styles impact the way in which individual students:

- Concentrate in one's immediate surroundings
- Process information
- Make decisions and solve problems
- Complete tasks and assignments
- Interact with others
- Retain new information

Educational facility planning and design can help maximize learning by considering differentiated instruction and recognition that 'one size does not fit all' when it comes to learning environments.

Today's learners were born digital and are used to having the world of information at their fingertips and in their pockets. Today, learning can occur "any time, any place, any path, any pace." Classrooms are transitioning from environments focused on teacher-directed whole-group instruction to learner-centered workplaces that support a collaborative culture of students at work.

Schools and homes continue to be important places

for learning, but not exclusively. Understanding the importance of the "third learning space" - the many places where students learn in ways not bounded by the schedule of the school day, the limitations of the four classroom walls, or the location of one's home - is a critical component in planning and designing innovative, inspirational, and thriving educational environments.

Student Focus Group //

The Planning Team held a focus group with middle school students from George Washington Middle School to discuss current and future learning environments and help inform the plan. The prevailing theme centered on students wanting the opportunity to have choices for how and when they learn throughout a class period as well as throughout the day. They generally understood that each student has a different style of learning and recognized the importance of providing appropriate environments and opportunities for each learning style.

Other student discussion points captured generally accepted evidence based design elements and other trends in modern educational environments:

- Exciting, engaging and varying learning spaces
- Access to natural daylight and climate control
- Ability to control acoustics and ambient noise
- Furniture options, adaptability, convertibility, and ergonomics
- Ability to work alone and/or in groups
- Space to move around and work within classrooms
- Informal break out spaces within corridors
- Healthy eating options and improved dining

facilities

- Use of the media center for multiple activities (quiet and noisy)
- Access to deliberate outdoor learning spaces
- After school access to spaces such as the Media Center and fitness spaces

Classrooms & Technology //

The 'classroom of the future' should be more personalized, student-directed, collaborative, interdisciplinary, and hands-on than those of even 10 years ago. As the focus of education moves away from just the transmitting of information and to developing creative problem solving and communication skills, the classroom setting is morphing into a beehive of activity – a learning studio.

At different times, students may be working alone, in pairs, or in groups:

- Working alone: reading, writing, interacting with the computer, or just thinking
- Working together in pairs or groups: dissecting a problem or reading and reacting to one another's written work, role-playing, or sharing ideas, opinions, and experiences
- Interacting with the teacher and the whole class: listening, making presentations, asking questions or brainstorming ideas

Teaching methods should address a variety of learning styles and children with disabilities are educated alongside their non-disabled peers at their neighborhood

school.

The classroom of the future should no longer be just one- directional with rows of desks facing the 'front' of the room. It should have a variety of focal points with mobile resources to support learning, flexible furniture, and robust technology. Rooms should also range in size and purpose from small incubator and assessment spaces to large seminar and presentation areas. Corridors and informal learning spaces should create a seamless and extended learning environment.

Technology is infused seamlessly into the education program and physical building and wireless connectivity allows for learning to occur whenever and wherever. Classrooms are versatile, flexible and adaptable to support different mediums.

Media Centers and Student Commons //

The 21st Century school media centers are changing from being quiet book-lined storage spaces for research and reading to multi-media, interactive studios of social collaboration for faculty and students. They are seen as a learning 'commons' - an extension of the classroom and the social and technology heart of the school.

New media centers are more than 50 percent digital and offer both learning and gathering areas as well as production areas. The ideal media center might move from noisy to quiet - through a 'café' and mobile computing environment, to small, AV-enhanced, group study conference areas, to individual study carrels or a media

national trends in educational facility planning

production room.

The technology that this generation of students understands and uses is multi-media. They communicate and learn through on-line devices, but they also publish and perform. The media center may include a computer lab for research, a publications room for the school newspaper and yearbook, a video production and editing lab for film, a distance learning lab, and a variety of display venues.

National standards for media centers call for 4-6 SF per student. Even at this size, most learning commons cannot offer a full range of media options. Multimedia satellites instead are infused throughout the school to complement core curricular activities. Many learning commons also offer virtual space to bring together a generation that grew up on social media.

Building & Grounds //

The school building itself is considered a learning tool and a community asset. There is a sense of identity and the quality of architecture instills a sense of place and pride. The architecture considers learning opportunities over the entire campus, including school grounds and landscaping.

Transparency of spaces help foster an internal sense of community and excitement about the learning activities that are occurring within. Use of glass allows for visual connections externally and internally. Front entrances are inviting and welcoming for all community member – parents, families, neighbors. The school is a hub of activity before and after school as well. Health services and other non-

educational support are often provided.

Evidence-Based Environmental Elements //

Evidenced-based design is the consideration of credible research findings in the planning and design process with a goal of achieving positive outcomes. Researchers have presented findings that link measurable outcomes such as student attendance, academic performance, faculty retention, and disciplinary actions. More specifically, several design elements have been connected to these outcomes: Lighting quality, indoor air quality, acoustics, and furniture design.

Lighting Quality //

The Hescong Mahone Group found statistical correlations between the amount of daylight in a middle school classroom and the performance of students on standardized math and reading tests in 1999. Since then, case studies and further research have supported this finding and the educational facility planning community has generally accepted the following classroom design parameters.

Goal: Improve natural and artificial lighting in classrooms.

Environmental / Air Quality //

According to the US Center for Disease Control and Prevention, American children miss approximately fourteen million school days each year due to asthma. Controlling environmental factors such as dust, pollen, and carbon monoxide could help prevent more than 65 percent of asthma cases of middle school-age students

according to the American Journal of Respiratory and Critical Care Medicine. The following classroom design parameters should be considered when modernizing a school facility.

Goal: To ensure comfortable rooms, address temperature control, ventilation, air filtration, carbon dioxide levels, and HVAC background noise.

Acoustics //

Research links the importance of maintaining appropriate acoustic conditions for student learning. This relates to noise from external sources and reverberation in the classroom and is linked to academic achievement, behavior, attention, and academic concentration. Acoustics are also important for teacher wellness and avoiding straining vocal cords while attempting to speak over noise. Classroom design parameters are generally accepted as outlined.

Goal: Limiting reverberation and background noise and improving sound isolation.

Ergonomics //

A 2007 study compared adjustable furniture in schools to traditional fixed furniture. Students using adjustable furniture were found to have higher grades than those in the control group using traditional school furniture. Characteristics of furniture that promote good posture should be considered as well as adjustable desks and chairs to allow students of varying sizes and body types to improve their comfort levels when sitting for long

periods of time. Research studies continue to explore this issue.

In summary, these national trends provide an important context for many of the ideas that ACPS is working to implement and how those concepts are articulated within this document.

City of Alexandria: Demographic, and Economic Context //

The City of Alexandria is divided into 18 planning neighborhoods, each with their own unique history and atmosphere ranging from the more urban historic neighborhoods close to the District of Columbia to the more suburban western communities. In general, most neighborhoods serve higher income professionals seeking safe, walkable community close to DC. Typical of the Metro, people come from all over the world – ACPS records 128 countries of birth and 103 languages.

According to the 2010 census, the City was 60percent white (16 percent Hispanic), however ACPS is more diverse.

- Black: 31.95 percent
- Hispanic: 33.04 percent
- White: 27.07 percent
- Asian: 4.56 percent
- Native American: 0.49 percent
- Native Hawaiian/Pacific Islander: 0.32 percent
- Multi-racial: 2.29 percent

As a percentage of total population, the school age population in Alexandria is lower than the United States



as a whole. This is due primarily to the fact that much of the City’s historic growth has been from young adults moving to the Washington, DC metropolitan area for new jobs. As a result, the City has become more urbanized with over 60 percent of the housing stock being multifamily and an average household size of just over two persons.

The school age population in Alexandria had been steadily declining since 1970, but the decline tapered off in 2007. Although the percentage of school age population in Alexandria remains lower than adjacent Virginia counties; between 2000 and 2010 the number of children aged 0-5 grew at more than twice the rate of the whole population (22 percent to 9.1 percent). This growth trend combined with observed increases in kindergarten capture and cohort survival rates has

led to over 24percent enrollment growth since 2007. Based upon these trends and recent work with the City’s planning department, ACPS believes that enrollment growth over the next five years will continue to outpace the citywide growth rate at more than a 3:1 ratio.

To underscore the diversity of the student population in Alexandria it is important to note that although median incomes in the city are among the highest in the region, approximately 60 percent of ACPS students are eligible for free or reduced lunch programs. Further, the division has a strong international presence with English Language Learner (ELL) students accounting for nearly 20 percent of the school population.

FIG. 2.1 // REGIONAL STATISTICS

| CURRENT AS OF 2/2014 | SCHOOLS | TOTAL ENROLLMENT | FREE LUNCHES | REDUCED LUNCHES | ELL STUDENTS |
|-----------------------------|----------------|-------------------------|---------------------|------------------------|---------------------|
| PreK - 5th | 5 | 3328 | 1871 | 369 | 392 |
| K - 5th | 7 | 4206 | 1650 | 339 | 1065 |
| PreK - 8th | 1 | 329 | 266 | 19 | 48 |
| 6th - 8th * | 2 | 2550 | 1273 | 297 | 487 |
| Total | 15 | 10413 | 5060 | 1024 | 1992 |

*Reflects ACPS’ current diretion to return to a traditional style of school model and abandon multiple schools within one building

ACPS Learning and Teaching Model //

Learning and Teaching in ACPS is a well-executed balance between a rigorous curriculum, proven instructional strategies (pedagogy) and relationships with students that communicate high expectations and commitment to student success.

ACPS has developed and uses a 21st century curriculum that is focused on helping students become critical thinkers and problem solvers. In addition to helping students acquire declarative and procedural knowledge, each unit has a focus on higher-order thinking skills to ensure students are developing critical thinking skills needed for post-secondary success: reading complex text, writing at a post-secondary level, analyzing and interpreting data and participating in discourse across the disciplines.

Instructional Methods //

Instructional methods vary with grade level, but maintain continuity from early childhood through the primary, intermediate, and middle grades. Predominant elements include:

- Integrated learning, where content areas cross disciplines
- Flexible groupings (In primary grades, regrouping stays within the classroom).
- Mentoring of older to younger students
- Extended day learning opportunities
- Parent involvement and volunteer activities

ACPS offers 'What to Expect' brochures for every grade level available on its web site and the full program of studies is

available for middle and high school. These documents should be referenced by architects to better understand program offerings and curriculum goals.



THIS PAGE IS LEFT BLANK INTENTIONALLY

strategic visioning

ACPS was guided through a series of visioning sessions with educators, administrators, and community members that challenged them to clarify their expectations related to facility operations, sustainability, architectural quality, space priorities, and the community context. The visioning sessions focused on identifying gaps between ACPS' future goals and their current realities. The following narrative summarizes the areas of greatest dissonance and formulates the concept for the construction and operation of a school of the future in Alexandria.

Building Concept and Priorities of Spaces //

The desire to teach whenever and wherever drives the need for future facilities to implement a spatial organization that provides both formal and informal learning spaces and maximizes collaboration and interaction between students and faculty.

School designs should focus on creating collaborative and adaptable learning spaces supported by a robust and seamless integration of technology and flexible and ergonomic furniture. Incorporating an overall organization of small learning communities with breakout spaces in hallways (ELA's), collaborative spaces in classrooms, and spaces that facilitate chance interactions throughout the school will allow teachers to collaborate across disciplines and tailor learning objectives and lessons to students' individual needs.

Providing multifunctional spaces for third party partner and community programs that extend educational and extra-curricular services to students, families and the community

is a priority. The facility should operate as one organism that can be segmented into different functions and zones depending on the time of day and use.

Community Context //

ACPS school facilities should serve as neighborhood assets and centers for parent, family and community interaction and engagement. Parental and family support plays a critical role in the success of students. ACPS students and families come from diverse backgrounds and schools should be welcoming and inviting places that include dedicated space for parent and family engagement as well as spaces available for community and partnership use.

Each school community is unique and designers should consider what spaces best support the community's needs; however, all schools should be planned and designed to support community use during non-school hours. Implementing a secure separation between the academic core and the shared use spaces along with the careful application of active and passive design strategies will create safe and secure learning environments.

Organizational and Operational Paradigm //

ACPS believes an integrated, interdisciplinary team approach will increase student achievement and faculty collaboration and enhance the overall learning experience. A collaborative team approach is best facilitated with small learning communities, extended learning environments, and a departmental organization of spaces. Media Centers should be seen as the 'learning commons' and be utilized

regularly as an extension of teacher's classrooms and workspaces.

ACPS desires to increase inter-student collaboration and group learning and activities. To support this, flexible and adaptable informal and formal teaching spaces are required. Emphasis will be on spaces and configurations that support critical thinking and project based learning ideally within groups of four students and the ability to break out of formal learning environments. Utilizing a push-in and team teaching approach, special education students will learn in the same collaborative learning environment as their peers.

Architectural and Construction Quality //

ACPS has a strong belief that high-quality architecture has a positive influence on student success and faculty retention and is committed to delivering high-quality, state-of-the-art, and sustainable facilities to students and faculty and the community. This belief applies to the external and internal qualities of the facility. The school facility and grounds are considered a learning tool and creativity in design and architecture is a priority.

Quality of design and engineering should focus attention on areas that most impact the learning environment with a particular emphasis on incorporating researched-based facility elements, such as enhanced natural lighting, acoustics, air quality, climate control and technology, that directly impact student achievement and educator effectiveness. Externally, the architecture must be respectful of the historical and cultural context of the community while simultaneously

inspiring students and passersby of future possibilities.

Materials and system selections should consider extended life cycles. Building systems, materials, and finishes must be resilient, easy to maintain, and create a positive, aesthetically pleasing learning environment. Life cycle of materials should balance quality and potential for future costs in an effort to ensure appropriate use of public funds is achieved.

PLANNING CONCEPTS ///

The following section provides executive summary level descriptions of the capacity analysis and planning concepts of each program space within an ACPS school facility. Detailed descriptions of each space are included later in the document.

capacity

Every school project begins with establishing the number of students that will be served when the project is complete or the 'capacity'. Capacity is the primary driver in determining the number, type, and size of the spaces in the new or modernized building.

Middle school capacities in Virginia typically range between 600 and 900 students. For the purposes of planning, this educational specification is based on a capacity of 1200 students due to the current and projected sizes of Alexandria's middle schools. This prototype for illustration only. The Division has been provided with an active, editable spreadsheet that will allow planners and architects to develop facilities lists for a range of schools based on the capacity and unique program needs in real time.

Simply defined, middle school capacity is a product of the number of classrooms at a school and the student stations assigned to each room type. Only classrooms that are 600 square feet or more with a teacher and students regularly assigned to the space are counted toward full time capacity.

By applying actual school staffing to the current enrollment it can be determined that for most ACPS schools, class sizes range from 20 in the core classes to 25 in the encore and

physical education classes through the middle school grades. This is somewhat lower than State of Virginia guideline which is an average of 25:1 across all subjects.

In recent years ACPS, concerned about the size of its middle schools but having inherited large school buildings, has operated multiple schools inside one middle school building. In 2013, for example, Hammond Middle School housed three separate schools of equal size. Classrooms and administration were separated by wing and/or floor, while core spaces were separated by time allotment. Beginning in 2014, all middle school buildings will be operated in a more traditional grade level multi-team environment. In this setting teams of teachers (English, Math, social studies, and science) together teach the same group of students (100-110). The team usually has the same planning period so they can collaborate and create an interdisciplinary curriculum customized to their students' needs. This strategy, which has proven effective for adolescents, makes it difficult to 'float' teachers. Most teachers in this setting have their own classrooms all periods of the day. However, since teachers usually teach 5 out of 7 periods (plan one and lunch one), the overall utilization of the building in any given period is 71-80%. For this educational specification maximum capacity will be factored at 80% utilization.

Once a capacity is proposed, many other areas of the building are sized to support the enrollment. The number of small group rooms, art and music labs, and support staff offices are based on staffing formulas. The size of the core areas such as media center, dining and food services,

physical education facilities, and site amenities are based on local and national benchmarks related to size.

The following chart (figure 3.2) summarizes the breakdown of the proposed capacity for a prototype 1200 student middle school. The balance of this document outlines the spaces for this sample prototype.

Per the Guidelines for School Facilities in Virginia’s Public School, the goal of the optional guidelines developed by the Virginia Department of Education is

“ ... to provide recommendations that will help local school divisions ensure that their school sites and facilities support the principles of good teaching and learning and promote sound educational programs. ”

The guidelines developed here by Studio27, Brailsford & Dunlavey, and Alexandria City Public Schools respond to or exceed the Virginia State guidelines and recommendations. It is the responsibility of the architect to ensure their plans meet or exceed the current state guidelines at the time of actual project design in the event the state guidelines have changed and this document has not yet been updated to reflect those changes

| GRADE | # OF CLASSROOMS | CAPACITY | TOTAL |
|--|------------------------|-----------------|--------------|
| Academic Classrooms (four teams per grade) | 36 | 20 | 720 |
| Science | 12 | 20 | 240 |
| Foreign Language / Electives | 7 | 20 | 140 |
| CTE | 3 | 20 | 60 |
| Visual Art | 1 | 25 | 25 |
| Performing Arts (Music Drama) | 4 | 25 | 100 |
| Physical Education | 7 | 25 | 175 |
| Special / Alternative (Reading, ELL) | 3 | 15 | 45 |
| Total | 73 | | 1505 |
| @ 80% Utilization | | | 1208 |

FIG. 3.2 // **CLASSROOM CAPACITY**

program area summaries

The following section provides executive level narrative summaries of the core program space areas. Detailed descriptions of each space within a program area is provided later in this document.

Main Office-Reception/Administration/Student Services //

As students, families and other visitors enter an ACPS building, it is important that they are greeted with an inviting and well-organized front office suite. The primary administrative offices, guidance services, and adult restrooms should be located in this centralized area at the main entrance to the school.

Visitor parking should be located by the front door. Signage and building design should clearly indicate the school entrance. Immediately upon entry, visitors should be directed to the Welcome Center/main office. For security reasons, no visitor should be able to enter the classroom areas without being checked through the reception area. See Security section for additional suggestions.

A digital information kiosk in the lobby may provide real-time data on the school's administrative and building operations. This may include information on the buildings energy use, water use, and the latest recycling rates.

Health Services //

Health Services will be located near the main entrance to the school. Health Services is responsible for providing health related amenities to all students and staff. The space should be organized to provide appropriate space for:

- health screenings
- illness or injury treatment
- meetings and trainings
- prescription medication storage and distribution
- secure records keeping
- private consultations
- rest and recovery units
- waiting area.

In addition these basic elements, middle school health centers should include space to support provide partner/provider operated activities such as:

- full medical evaluations
- full laboratory services
- dental services
- radiology services
- pharmaceutical services.

Cooperative and collaborative wellness centers are desired and operated through community partnerships.

If the school division elects to provide a school based health center (SBHC), the architect should work with the division's officials to ensure full space programming requirements are met according to federal regulatory standards. This center should be adjacent to the school clinic but implementation of a full SBHC will require significant advance coordination by ACPS.

Core Instructional Spaces //

The basic organizational structure of the school should reflect a cluster concept and should consist of general

purpose classrooms, commons space for informal instruction, a small group room, two and three dimensional display areas, and a teacher work center. Each cluster should also contain a resource classroom used by support educators and an extended learning area to facilitate collaborative teaching and learning.

Classrooms //

Provide 'teaching and learning' surfaces on two walls to include touch screen interactive boards, magnetic white boards and tackable surfaces at student height. Flexible and easy to arrange furniture that is easy to store is preferred. Student are frequently arranged in small, collaborative groupings rather than rows of individual desks. The provision of an itinerant or hoteling space for drop-in or special needs instructors is a unique feature that should be included in each classroom.

Extended learning areas (ELA) should be incorporated into designs as additional teaching spaces that occur adjacent to each academic cluster. ELA's are open spaces off the corridor that are meant to facilitate break out instruction, small group and project-based work in addition to multi-class collaboration and joint teaching initiatives. ELA's vary in size based upon the individual needs of the school and the academic cluster and should be designed and equipped to accommodate a variety of furniture arrangements to optimize flexibility.

Science //

Each middle school science classroom should be

designed to support combined science orations and hands-on lab activities. Integrate technology to support wireless one-to-one device connectivity and Bluetooth precision measurement device connectivity. Science classrooms should be integrated into the grade-level academic clusters. Additionally, the provision of an outdoor classroom, a garden area, bio-retention pond, greenhouse, water collection observatory, and/or a food lab should also be considered in order to support science instruction.

Career Technical Education //

Provide space to accommodate learning and project activities for:

- Business
- Family & Consumer Sciences (FACS)
- Technology programs

FACS courses require access to kitchen studios while business courses require a standard flexible classroom. Technology course space requires a dedicated multipurpose technology lab that allows for flexibility to shift from between various course topics supported with portable furniture and equipment. Programs taught at the middle school level build foundations for more specialized high school program offerings.

Special Education //

Special education facilities should be integrated throughout the school to support the concepts of inclusion and the specialized requirements for the students.

Currently more than 70 percent of all students with disabilities are included in standard learning environments for 80 percent of each day. In all middle schools, provide at least one resource spaces for every two grades or at least three spaces per school to support individualized learning needs and/or speech therapy. Typical occupancy of a pullout space is approximately four to five people.

A dedicated, programmatically-sized classroom may be necessary on a location-by-location basis to support City-wide programs and would be identified at the time of individual site planning. Special education facilities should be integrated throughout the school to support the concepts of inclusion and these specialized requirements should be considered for the identified student groups. Special attention should be given to accessibility of all facilities and an integrated learning program.

English Language Learning (ELL) //

ELL instruction occurs at every middle school in the division but the highest concentration occurs at Hammond MS which serves as a magnet school for foreign-born students with low English proficiency scores. The majority of ELL instruction is pushed-in to the general education classrooms with an itinerant instructor floating into classes as needed. Middle schools also provide English for Academic Purposes (EAP) break out classes to help students with specific needs. These break-out classes can typically be accommodated in the larger resource classrooms. It should be noted that beginning in the 2015 school year a new International Academy program,

modeled after that which exists at T.C. Williams, will be implemented at Hammond MS and designers should be careful to inquire about the site-specific requirements

Talented and Gifted (TAG) //

A TAG program exists at every middle school in the division, although enrollment varies from 10 to 20 percent of the total student population. At the middle school level, honors (TAG) classes are taught by the subject area teachers as part of their normal daily schedule, therefore, separate, individual TAG classrooms are not necessary. The TAG program does, however, include a TAG resource teacher who provides curriculum guidance and instructional support to the individual subject area teachers. The TAG resource teacher may ‘float’ from class to class occasionally requiring the use of itinerant desk space in the classroom and, because of the emphasis on project-based learning, the TAG resource teacher may occasionally work with a small group of students in an ELA space or a resource room.

Advancement Via Individual Determination (AVID) //

AVID is an elective course that targets students in the academic middle who have a desire to attend college. Enrollment in AVID varies year to year and from school to school but approximately 10 to 15 percent middle school students currently take the course, which amounts to about 25-30 students per class period throughout the school day. The AVID academic week includes two days of traditional classroom-based instruction, two days of small group tutoring, and one day of team building activities or guest

speakers.

Accommodating all of these activities in one space requires a larger than average classroom that can be partitioned into two smaller rooms to minimize noise and maximize available whiteboard space during tutoring sessions. On tutoring days the class is divided into four smaller groups at a ratio of about seven students to one tutor. Several small tables should be utilized to maximize flexibility and all furniture should be on casters due to daily rearrangement. It is suggested that a small adjacent room be added to accommodate hoteling space for tutors and storage for student work files. The AVID room should be placed in a centralized location at an equitable distance to all grade levels, with a suggested adjacency to the media center.

Visual and Performing Arts //

ACPS has a strong arts focus in the middle grades. Well-designed spaces need to support a vigorous curriculum and creative presentations. Art, music, and multi-purpose classrooms will be shared by all grade levels for general class and small group instruction. The location and access to these rooms should promote orderly transitions.

Art rooms should support 2D and 3D instruction. The optimal location for the art room is on the ground floor with a northern daylighting orientation. Access to an outside patio or seating area will offer additional work space, display spaces, and performance spaces. Display areas in the corridor should allow for 2D and 3D projects.

A multi-purpose performance venue (auditorium) will also act as a drama classroom (stage), a practice room, a large group gathering space, and a community meeting space. The room should have a flat floor with flexible seating options and may have telescoping seating for some portion of the room. Appropriate acoustics, sound and lighting systems are critical to the room's flexibility and functionality.

If possible, the music suite should be located near the auditorium. Locate dedicated small group practice rooms within the music suite along with storage areas.

Media Center //

The media center serves a dual role – its traditional role as a gathering place for research and learning and a new role as a technological information base and learning hub. In this new role, the media center may house a wireless voice/video/data network, which runs throughout the entire building. This network enables the transmission of media services to the desktops of teachers and students without physically entering the media center. The new library will utilize digital technology to enhance voice, video, and data communications within the school, among division facilities, and with distant learning resources.

“ Today’s library is a learning place, not a warehouse space. And it must be a fluid environment, one that continually reinvents itself to remain relevant, that adapts to new knowledge of learning and new pedagogy. The concept of the library as a hushed, quiet space, where all students study individually and silently, sitting up straight on

uncomfortable, wooden chairs is a concept that should have long ceased to exist. Students have become accustomed to multimedia environments, working in groups, and multitasking.

Libraries must be spaces where multiple activities can take place simultaneously. And since there are many different learning styles, the library should offer as many different types of environments as possible—quiet study areas, group activity areas, spaces for individual and small group work, spaces for instruction, and spaces where students can listen to music ”

Rolf Erikson, DesignShare interview Nov 2006

The AVID learning classroom should be located adjacent to the media center to support the role of the media center as a research and learning hub. This space can serve as an extension of the media center to support research and learning by providing students and staff with typical classroom technology and additional working space. This flexible use space can be used for group work, individual work, or class teachings. The additional space will bring the media center up to national standards during the busiest times of operation.

Physical Education //

To support the middle school physical education program, a variety of indoor and outdoor areas are required. Outdoor physical education teaching areas should be located near the indoor gymnasium. Physical education facilities must

be designed with a focus on community use during non-school hours, since there is a high demand for both indoor and outdoor facilities.

ACPS offers formal physical education to middle school students daily on a rotating quarterly schedule. Intramural sports are offered each season and utilize both indoor and outdoor space. Fixed seating requirements should seat the entire school enrollment in bleachers. To further support the physical education program and provide for after school programs, larger schools should have a smaller multi-purpose space and a full locker room with individual showers.

Parking should be located near the gymnasium and a separate entrance should be provided for after school activities. Flexibility of space use is desired; therefore, provide the ability to separate the gymnasium into two smaller gym stations during teaching periods.

Dining and Food Service //

The dining space(s) should accommodate one-third of the projected student capacity each lunch period. The dining area(s) should be warm and inviting spaces with plenty of natural light, pleasant acoustics, and multiple, age-appropriate seating choices. It is proposed through creative design that dining area(s) should effectively house multiple functions including assemblies, community meetings, and potentially be utilized as learning areas.

It is important to note that ACPS is currently piloting a

“distributed dining” concept at the new Jefferson Houston School, which is slated to open in August of 2014. This design approach locates serving lines in three locations around the school and utilizes the ELA spaces as dining areas in addition to the provision of one, small cafeteria space which is primarily for the youngest students. Designers on future projects should inquire with ACPS about the success of the distributed dining model which was implemented to minimize student travel time/maximize eating time, foster smaller-group eating environments, and minimize underutilized space throughout the school day.

This educational specification recommends a more traditional, centralized dining space adjacent to the kitchen. This space will serve multiple functions and will also include a stage to host school performances. The architect should consider the room volume, configuration, technology requirements, acoustics, and general layout as it relates to the stage and kitchen. These key design points can then be further enhanced by the selection of materials and a well-designed audio system.

Foodservices is responsible for food preparation and delivery of food programs division wide. Foodservices facilities should provide appropriate space for both ‘scratch’ and ‘warming’ kitchens with appropriate equipment. Provide appropriate sized storage facilities to support healthy eating program offerings which include:

- breakfast
- bag meals
- meals between bells

- snacks
- supper

Architects should consider serving and dining areas that incorporate composting and recycling facilities, homelike environmental qualities, breadth of flexible seating options, and design qualities that support visual and verbal communication between students and faculty.

Site //

Site circulation should be organized for safety and efficiency. This should be accomplished through careful separation of vehicular traffic, including the separation of school buses, parents, and staff. Particular consideration should be given to providing safe passage to pedestrian traffic. Sufficient stacking space should be provided to prevent congestion of busy streets.

All play areas should be protected from vehicular and pedestrian traffic, so students can be assured of a safe and secure environment on the entire school site. Shading elements should be considered along with an outdoor learning area and garden.

The Virginia Department of Education Guidelines recommend that each school “site have areas that can be developed to provide the minimum number of play areas require for physical education;” as indicated by the following chart (figure 3.3).

Site Management //

Recreation, Parks, and Cultural Activities (RPCA) is a partnership program that utilizes shared ACPS facilities for afterschool programming. RPCA operates the majority of playing fields, courts, parks, and playgrounds adjacent to Alexandria schools. When funds are available to enhance the campus or grounds of the school, architects should coordinate and consider RPCA’s requirements towards playgrounds, courts, fields, and gymnasium spaces, per the joint ACPS/RPCA Facility & Outdoor Maintenance & Use Agreement.

Parking and Transportation //

ACPS transportation provides services to 5,800 students daily. At school facilities where space can be provided for school bus parking, it is desirable to orient busses in the parking lot to prevent buses from reversing out of a parking space. Plan bus parking loops similar to bus depot space – in a manner similar to that seen in a bus depot parking area. If a bus parking loop must be utilized, avoid parallel, double-wide parking during loading and unloading as this increases danger to the students.

It is important to note that most ACPS schools are located in densely-populated neighborhoods and many students either walk to school or receive rides from parents. At the middle school level, current ACPS policy is to only provide transportation for students living more than 1.5 miles from their designated school site. Due to the high percentage of students arriving by alternate means, designers should be careful to separate parking lots and school bus loading areas from each other and from student drop-off areas

and pedestrian walk ways. Furthermore, the use of bicycles should be encouraged by providing bike racks in quantities at a minimum consistent with LEED guidelines. See figure 4.1 for conceptual layout.

The following chart, figure 4.0, recommends the minimum parking requirements based upon proposed capacity prototype. Actual parking requirements may be impacted by factors such as zoning, site constraints, absences or presence of other modes of transportation, etc. The architect must coordinate at time of design and it should be noted that ACPS offers incentives to encourage carpooling and the use of mass transit by staff.

FIG. 3.3 // **PLAY AREAS**

| SPACE | QUANTITY |
|--|-----------------|
| Multiuse (Hard Surface)* | (2) 100' x 120' |
| Fitness Development Fenced Equipment Area (6-8) | (1) 100' x 150' |
| Field Game Area | (3) 200' x 400' |

**A gymnasium may substitute for one multiuse (hard surface) play area.*

NOTE: Quantities bases on 1,200 student prototype.

FIG. 4.0 // **PARKING CAPACITY**

| DESCRIPTION | CAPACITY PROTOTYPE | |
|------------------------------|--------------------|------------|
| Building Capacity | 900 | 1200 |
| Teaching Stations | 56 | 73 |
| Bicycle Racks | 50 | 66 |
| Staff Parking | | |
| Teachers | 56 | 73 |
| Ancillary Staff | 18 | 24 |
| Administration | 9 | 12 |
| Custodial / Maintenance | 6 | 8 |
| Food Service | 7 | 9 |
| Total Staff Parking | 96 | 126 |
| Total Visitor Parking | 18 | 24 |

NOTE 1

Ancillary staff includes teaching aides, media center specialist, special education staff, etc. Total is calculated as percentage of the student population as follows: Middle-2%.

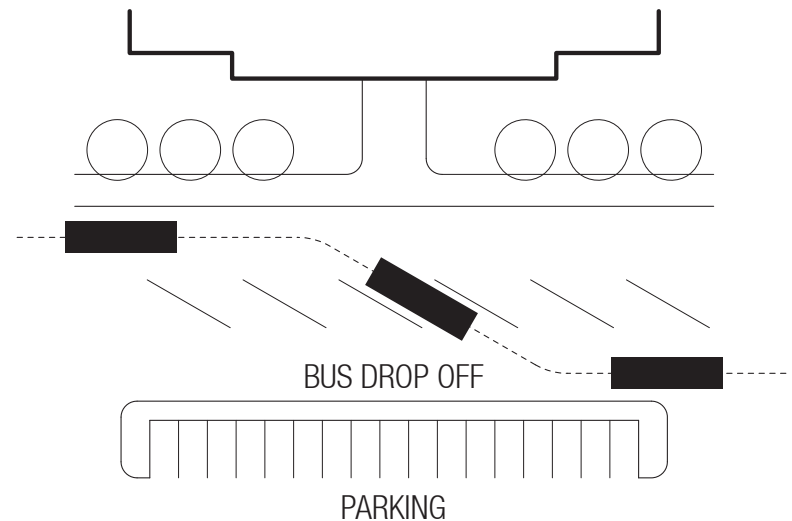
NOTE 2

Administration includes principals, secretarial, itinerant staff. Calculation at 1%

NOTE 3

Custodial/maintenance staff includes full-time staff for regular school hours. Calculation: 1 staff per 150 students.

FIG. 4.1 // **BUS DIAGRAM**



NOTE 4

Food service staff is calculated at 1 staff per 100 meals served with 80% building capacity participation for a full service kitchen.

NOTE 5

Visitor parking is calculated at 2% of building student capacity.

NOTE 6

Bicycle rack quantity is calculated at 5% of sum of student capacity + FTE staff members, per LEED 2009.

conceptual building organization

The careful organization of programmatic components during early design phases is critical for the success of a future school program. This conceptual building organization diagram (Figure 5.0) illustrates relevant adjacencies for the typical middle school model. The rooms and spaces illustrated in this educational specification compose a number of program “clusters”. The school is a collection of these “clusters” organized according to adjacencies required to best support the educational mission of ACPS. For most campuses in the City, site constraints and the presence of existing structures will limit the options available to control the placement of program clusters. This diagram should be read as an idealized adjacency concept illustrating a learning environment characterized by flexibility, a sense of community for the students and teachers, and a safe, well-supervised environment.

There are three academic clusters in the 1200 student prototype middle school. Those academic clusters are positioned at the corners of a diamond shaped plan with the fourth corner taken by the main entrance. A single main entry is a specific determination of ACPS’s security plan and that entrance is supported by administration and family and community engagement center functions. Academic clusters are located in the quiet areas of the building that can be isolated during off-hours. At the middle school level , each academic cluster includes a per grade administrative suite. Noisier and shared programmatic clusters are grouped toward parking, public and play areas and allow for after-hours access. Informal “break-out” or Extended Learning Areas happen throughout the building.

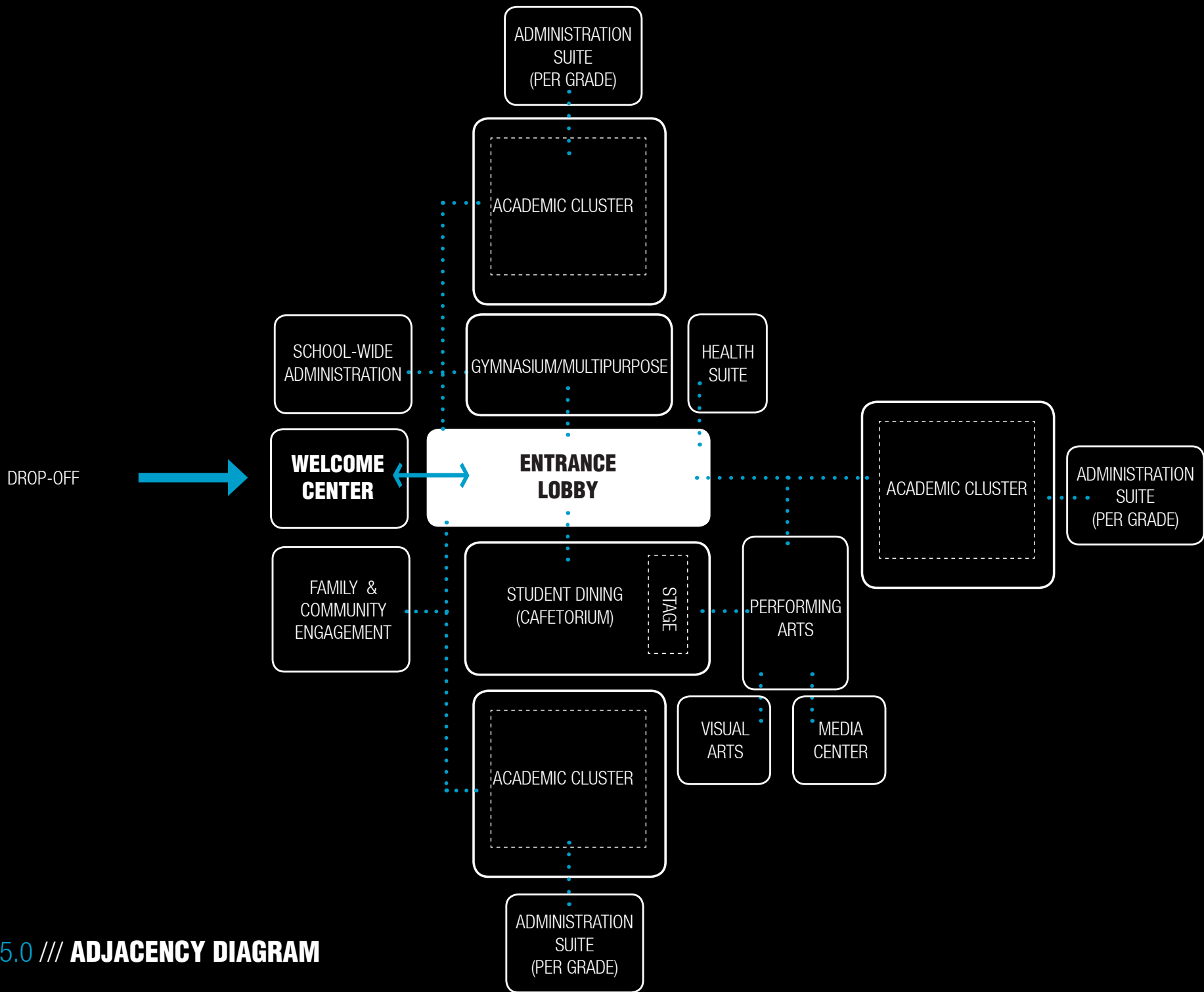


FIG. 5.0 /// **ADJACENCY DIAGRAM**

DESIGN PRINCIPLES ///

overview

The following section provides executive summaries of the guiding design principles that should be applied to each space within an ACPS school facility. The appendix of this document includes expanded detailed guidance for some of the categories discussed here.

Furniture & Equipment //

Classrooms vary in shape and size; therefore, the furniture should be flexible to accommodate a variety of classroom formats for both individual and group activities. Teachers and students should have storage space for personal belongings, papers, books, supplies, and teaching materials.

To the extent possible, movable furnishings should be used, rather than fixed casework, to provide flexibility for future reconfiguration. Furniture should be selected for its ergonomic traits. Consideration for variability and adjustability to support diverse learning styles. Architects should consider full height private lockers in hallways for every student.

Technology //

The facility should contain the latest in technology and infrastructure should be provided to support wireless access to data and video throughout the building. It is intended that access to technology will be seamless and pervasive throughout the building with only the minimal number of hard drops needed to support voice, teaching stations, and wall-mounted devices. Technology infrastructure should support the concept that learning can happen anywhere by enabling a one-to-one student to device ratio and the notion of “bring your own device”. The specific tools and design guidance will be determined based on the best practices at the time of

construction.

Every learning area should be wired for teacher audio enhancement. Research into this cutting-edge technology suggests that student learning can improve in classrooms where the teacher’s voice is amplified and the classroom acoustics are designed to support voice clarity. Please reference Appendix p.240 for additional guidance regarding technology infrastructure requirements.

Universal Design //

The entire facility should be accessible for students, staff, and visitors. This should be accomplished through judicious use of ramping and elevators with sufficient internal clearances for circulation, convenient bus/van loading and unloading, and nearby handicapped parking spaces. All elements of the Americans with Disabilities Act must be complied with, including way finding and signage, appropriate use of textures, and universal accessibility of all indoor and outdoor school facilities.

Safety & Security //

ACPS wants to maintain an inviting and de-institutionalized environment, while simultaneously providing a safe environment for students, staff, and community. The organization of a building will have a major impact on student behavior and safety concerns. Architects should refer to Crime Prevention Thru Design (CPTED).

All school locations should include a double perimeter approach where every visitor is guided through a secure exterior door into a secure holding vestibule prior to

gaining access to the main office. Visual access from the main office to the exterior vestibule is mandatory and every entrance to the school should have a CCTV IP camera. Consult with ACPS over the most current keying policy. Please reference Appendix 3 for additional guidance regarding technology infrastructure requirements.

Community Use and Partnerships //

ACPS is pleased to have community and non-profit partners in its buildings offering valuable services and programs for students and families. Partnership programs and other regular community activities require shared, co-located and sometimes dedicated space that is internal to the school yet has the ability to operate beyond ACPS school hours. Extended hours of operation require the partnership programs and community activity area to have an entrance that can be separated from the main school. This allows partnership program to operate independently of the school's staffing requirements and provides the necessary security to protect the main school. This secondary building entrance for after school program use should be visible to all spaces co-located in the community use and partnership area, specifically the gym and multipurpose rooms. This space will be utilized by after school programs for record keeping, registration transactions, secure money storage, and child pickup. During general school hours, partnership programs should function under ACPS' security policies and use of secondary entrances should be restricted.

Program offerings are location dependent and include, but are not limited to:

- tutoring

- Family and Community Education Centers (FACE)
- Recreation, Parks & Cultural Activities (RPCA)
- Medicaid Therapy
- Campagna Center.

Functions of these programs should be co-located with the ability to utilize standard classrooms, the gymnasium, multipurpose room and media center.

ACPS has a standing partnership with Alexandria Department of Recreation, Parks, and Cultural Activities (RPCA) for the maintenance and after-school programming of fields. At several schools, RPCA operates after school and community programs in the gymnasium or multipurpose room; per the joint ACPS/RPCA Facility and Outdoor Maintenance and Use Agreement.

Family and Community Engagement Centers //

ACPS serves a diverse community of families who have immigrated to the DC Metropolitan area from all over the world. It is understandable that for cultural reasons or due to language barriers that newcomers to the school may be hesitant to engage staff and need additional support. The Division wants to establish Family and Community Education Centers (FACE) at each school to welcome families and provide the additional resources to help them succeed.

A typical FACE center would ideally be located near the main office and include:

- reception area with both comfortable seating for individual conversations and table seating for meetings and classes
- private office
- storage

Parent Teacher Associations //

Provide flexible use space to accommodate the mission and program offerings of the PTA group. PTA's meet on a monthly schedule, typically during the evening and have 30 to 35 participants in attendance. PTA meetings including School Board Members, parents and on occasion the Superintendent. PTA's offer volunteer afterschool programs that require access to standard, flexible classrooms, the gymnasium, the media center, and the cafetorium. Consider co-locating PTA with other partnership functions like the FACE center. PTA functions require dedicated storage space and direct interaction with the school's main office suite and staff.

Energy & Environmental Performance //

ACPS is dedicated to renovating existing or building new facilities that meet or exceed Eco-City standards and City of Alexandria LEED environmental performance standards. ACPS desires to offer schools that teach faculty, staff, students and the community the importance of environmental stewardship. ACPS believes quality architecture and high energy performance facilities positively impact the education of students and increase retention of staff and students. At this time, city development standards require compliance with

LEED Silver certification standards for major construction projects. ACPS seeks to exceed these minimum standards.

Materials & Finishes //

ACPS believes high-quality architectural materials and finishes create an atmosphere that supports and inspires learning. All spaces should be conducive to teaching and provide a warm and welcoming feeling and meet the principles of Evidence Based Design (lighting, environmental / air quality, and acoustics). All materials must be highly durable and resilient yet support a creative learning environment. ACPS is cognizant that materials should be reasonable in cost and not exuberant when considering budget and life-cycle costs to maintain and upkeep. A sensible balance is necessary to maintaining budget and achieve ACPS' facility standards.

Operations & Mechanical //

Provide mechanical systems that are climate appropriate and responsive to the life cycle, maintenance and efficiency expectations of ACPS. Provide passive systems that pair with active systems and coordinate to achieve maximum efficiencies while coordinating with the users to determine the location of universal and dedicated systems. ACPS requires individual facilities to operate under 20 kw/hr per square foot by the year 2026.

THIS PAGE IS LEFT BLANK INTENTIONALLY

the 1200 student prototype

The remainder of this document is meant to be illustrative of a typical middle school in the Alexandria City Public Schools. The basis for the capacity and the number of classrooms per use type is described on page 15. The number and size of support spaces and labs are driven by staffing formulas and national benchmarks. For new schools or the modernization/ addition to an existing school, this information would inform a 'site specific' educational specification.

It is assumed that architects should be required to bring an existing school up to new school standards within reasonable limits. Designs for spaces may vary from recommended sizing by + or – ten percent to minimize the unnecessary movement of walls or to preserve the integrity of a historic building.

The net square foot requirements include the classrooms, support spaces, labs and large core areas. The net/gross calculation includes corridors, bathrooms, mechanical spaces, etc. The proposed ratio listed in this specification assumes a new, highly efficient school. It is expected that existing schools will be less efficient and the actual final (wall to wall) building will be different than what is listed

Summary of Facility Space Requirements //

The following section provides a summary of all spaces required within the facility. It provides an overall summary of the school facility as well as individual space detail. Data is provided to serve as an overall guideline and architects should strive to accommodate the stated square footage recommendations; however, latitude of +/- 10 percent should be provided – particularly when renovating an existing facility.

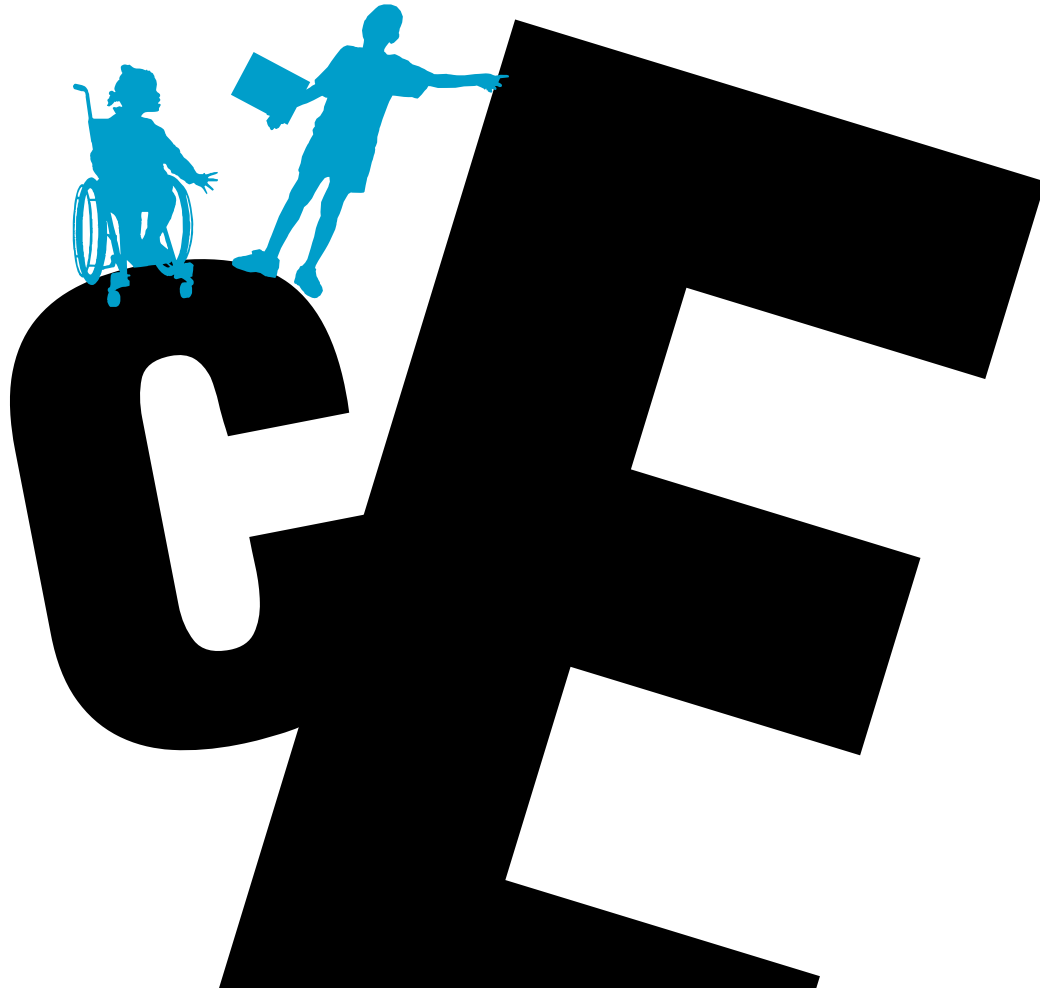
| | | |
|--------------------------|---|------------|
| INTERIOR AREAS | CORE ACADEMIC / SPECIAL EDUCATION AREAS | 68,230 |
| | MEDIA CENTER | 5,550 |
| | VISUAL AND PERFORMANCE ARTS | 8,550 |
| | PHYSICAL EDUCATION / MULTIPURPOSE | 16,858 |
| | ADMINISTRATION | 9,850 |
| | STUDENT DINING AND FOOD SERVICES | 11,920 |
| | MAINTENANCE AND CUSTODIAL SERVICES | 1,350 |
| | BUILDING SERVICES AND PUBLIC RESTROOMS | 48,976 |
| | TOTAL NET | 171,284 |
| | CONSTRUCTION FACTOR [0.082] | 14,045 |
| TOTAL GROSS | 185,329 | |
| EXTERIOR AREAS | MULTIUSE (HARD SURFACE) | (2)12,000 |
| | FITNESS DEVELOPMENT FENCED | 15,000 |
| | EQUIPMENT AREA (6-8) | |
| | FIELD GAME AREA | (3) 80,000 |
| | EXTERIOR GROUNDS EQUIPMENT STORAGE [SECURE] | 200 |
| | BUS DROP-OFF AND PICK-UP AREA | 9,180 |
| | SEPARATE STUDENT DROP-OFF | 1,500 |
| | PARKING (130 STAFF AND 24 VISITOR) | 53,900 |
| TOTAL GROSS | 343,780 | |

FIG. 6.0 // **BUILDING SPACE SUMMARY**



p

A



M-ACA /// **CORE ACADEMIC**

GRADES 6-8 CLASSROOM

SCIENCE CLASSROOM

SCIENCE PREP / STORAGE

TEACHER COLLABORATION ROOM (TCR)

GRADES 6-8 EXTENDED LEARNING AREAS

TECHNOLOGY LAB / CTE LAB

FAMILY AND CONSUMER SCIENCES LAB

RESOURCE CLASSROOM

STUDENT SERVICES

STORAGE

AVID CLASSROOM

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|------------------------------------|----------|-------|---------------|---|
| CORE ACADEMIC | | | | |
| Grades 6-8 Classrooms | 46 | 850 | 39,100 | |
| Science Classroom | 12 | 1,200 | 14,400 | |
| Science Prep / Storage | 3 | 360 | 1,080 | |
| Teacher Collaboration Room (TCR) | 3 | 250 | 750 | |
| Grade 6-8 Extended Learning Areas | 3 | 1,000 | 3,000 | may be provided via multiple smaller spaces along corridor |
| Technology Labs | | | | |
| Technology Education Lab | 1 | 1,450 | 1,450 | |
| Project Storage | 1 | 300 | 300 | |
| Material Storage | 1 | 300 | 300 | |
| Technology Center | 1 | 600 | 600 | |
| Family and Consumer Sciences Lab | 1 | 1,450 | 1,450 | |
| Material Storage | 1 | 100 | 100 | |
| Laundry | 1 | 50 | 50 | |
| Business Technology Lab | 1 | 900 | 900 | can occur in a standard classroom |
| Material Storage | 1 | 100 | 100 | |
| Resources Classroom | 3 | 600 | 1,800 | |
| Small Group Breakout | 3 | 250 | 750 | |
| Storage | 4 | 100 | 400 | |
| AVID Classroom | 1 | 1,500 | 1,500 | |
| Tutor/Hoteling office | 1 | 200 | 200 | |
| Decentralized Administration Suite | | | | one per grade, see administration section for more information on SF and quantities |
| Total | | | 68,230 | |

Comments //

During facility renovations, the architect should be expected to minimize the movement of 'hard' walls and fit the proposed programmed spaces into the existing building. Tolerances of +/- 10 percent is acceptable as is the combination of spaces within a suite. Adjacencies as specified are desirable, but options may be considered and should be reviewed with the planning team.

KEY ///

direct access



linked space



enclosed space



open/undefined space

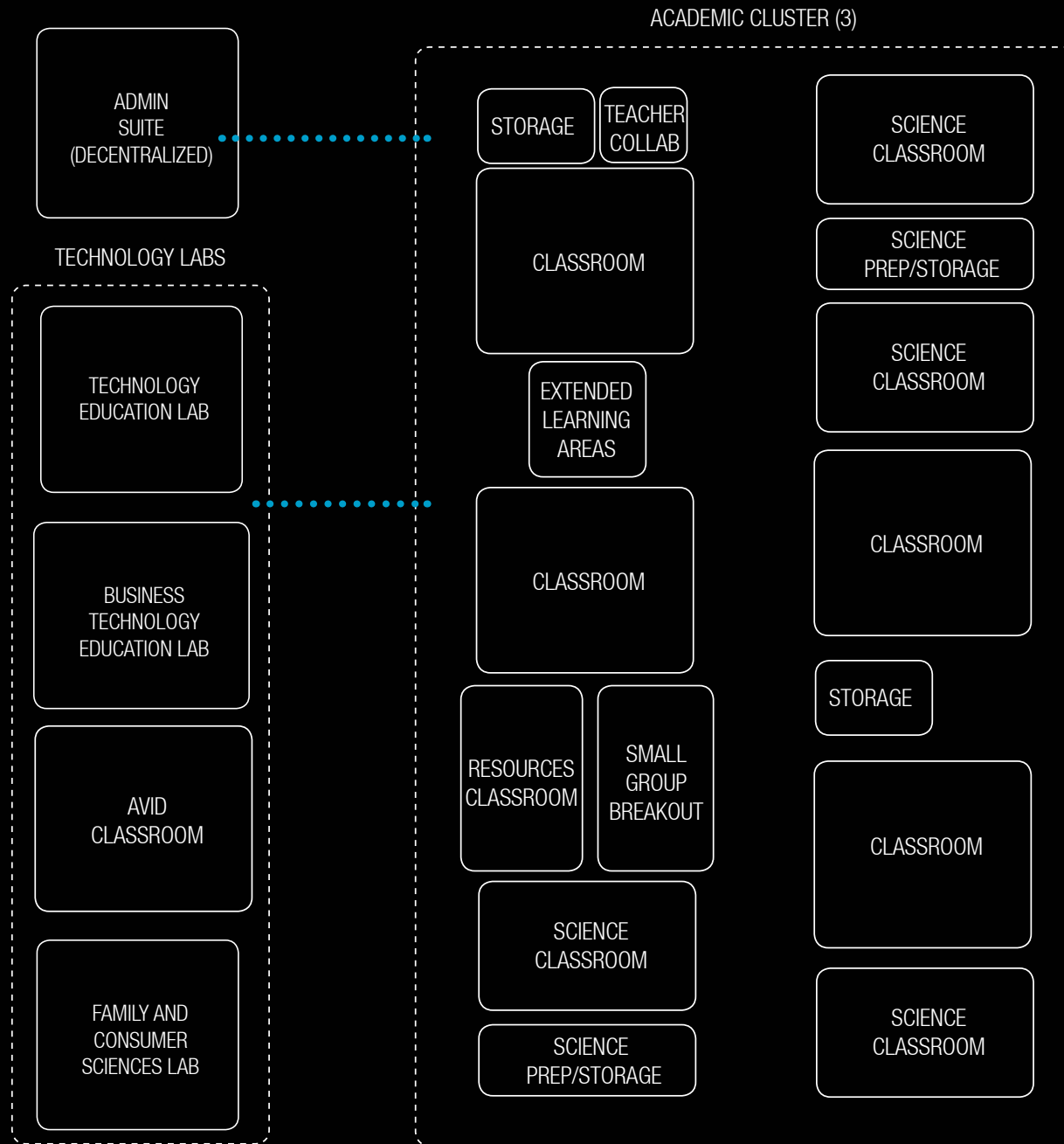
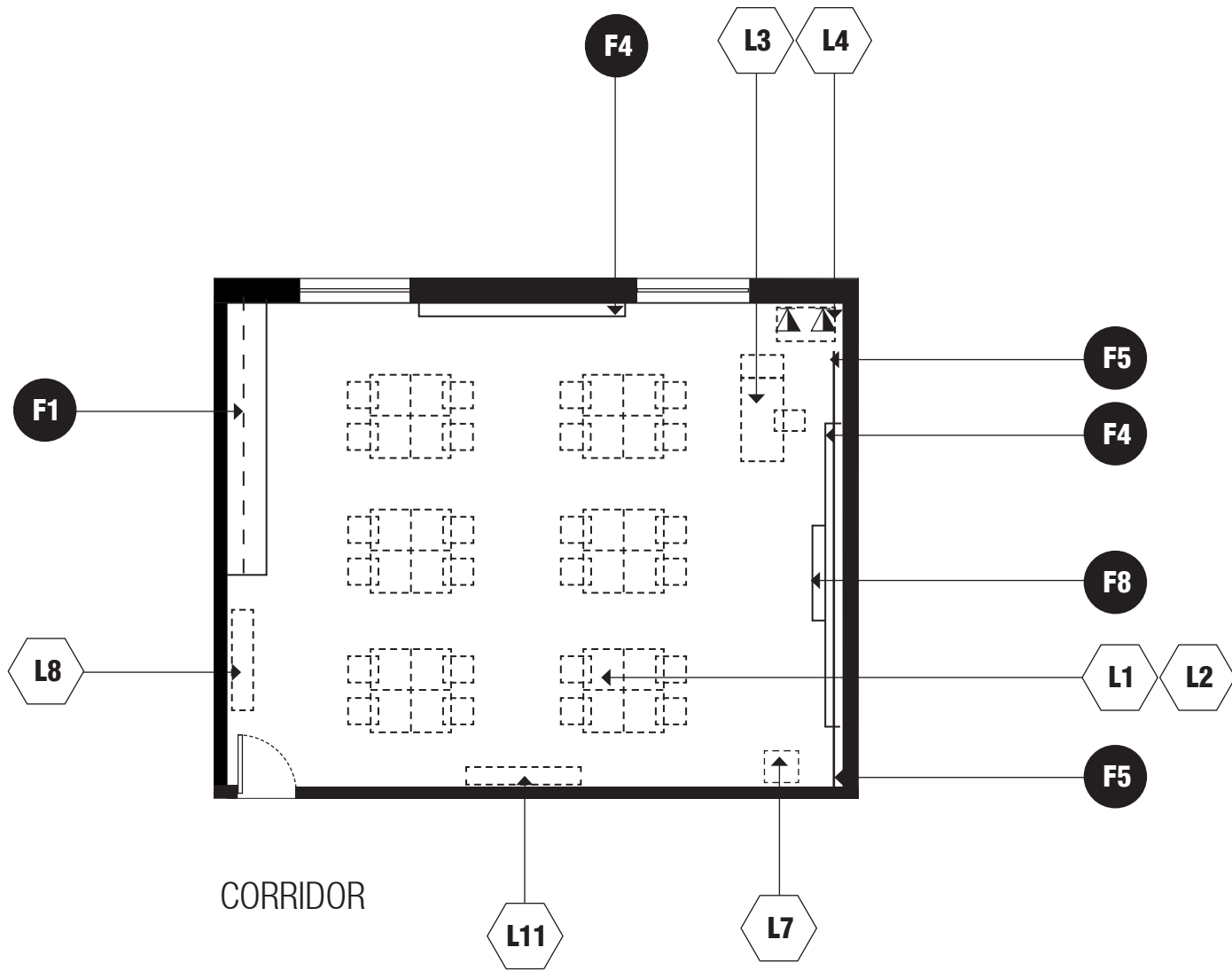


FIG. 7.0 // CORE ACADEMIC ADJACENCY DIAGRAM



M-ACA /// GRADES 6-8 CLASSROOM



size

850 SF

capacity

20 -24 students

teacher

guest speakers/volunteers

spatial relationships

in team clusters

near resource classroom

near science classroom

program activities

large and small group instruction

hands-on activities

oral presentation

team teaching

computerized instruction

environmental considerations

comfortable rooms with pleasant décor

that contribute to an atmosphere

conducive to creativity.

windows to provide natural light and

egress.

electrical outlets for equipment

uniform lighting

window treatment to darken room for AV

presentations

consider movable partitions and doors

between classrooms to maximize

flexibility

provide transparency into extended

learning areas

LEGEND ///**● fixed equipment**

F1 base/wall cabinets and shelving

F4 marker board (on 2 walls, 16 LF each)

F5 tackable/magnet wall surface

F8 wall mounted interactive electronic

presentation device

◻ loose furnishings

L1 stackable/nesting chairs (24)

L2 stackable/nesting tables (24)

L3 teacher work surface with mobile storage

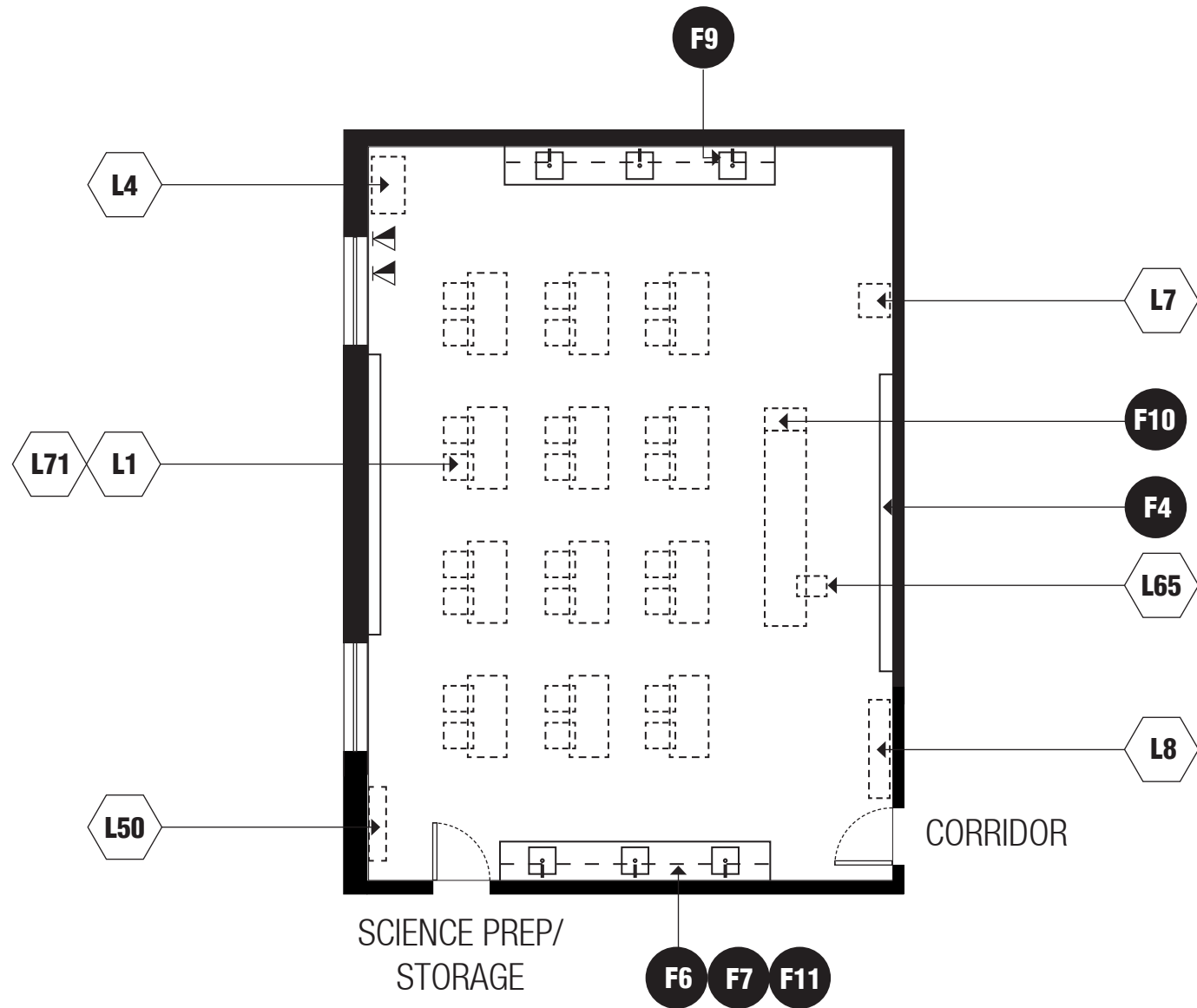
L4 four drawer lateral file cabinet

L7 teacher's lockable wardrobe (18"X18")

L8 tall cabinet with shelves

L11 adjustable height bookshelves

▶ data drop



M-ACA /// SCIENCE CLASSROOM



size

1,200 SF

capacity

24 students

teacher

staff

spatial relationships

in team clusters

near science Prep/Storage

program activities

large and small group instruction

hands-on activities

team teaching

data collection and analysis

laboratory work

oral presentations

computer simulations

computerized instruction

environmental considerations

flow between classroom and lab activities

should be seamless with good visibility of

all lab stations

uniform lighting

rooms designed for ease of movement.

students need to be able to move around

the labs with chemicals, etc., in a safe

way

lab table tops, floors, etc., need to be

resistant to acids, heat, spills, etc.

OSHA requirements maintained

electrical outlets for equipment

windows to provide natural light and egress

window treatment to darken room for AV

presentations

adequate ventilation

plumbing

plumbing connections

6 sinks

all utilities for teacher demonstration table

safety chemical showers/eye wash stations

floor drains

LEGEND ///

● fixed equipment

F4 marker board (16 LF)

F6 soap dispenser

F7 towel dispenser

F10 teacher demonstration table (with desk)

F11 Science casework: base cabinets and

shelving per lab (no wall cabinets)

⬡ loose furnishings

L1 stackable/nesting chairs (24)

L4 four drawer lateral file cabinet

L7 teacher's lockable wardrobe (18"X18")

L8 tall cabinet with shelves

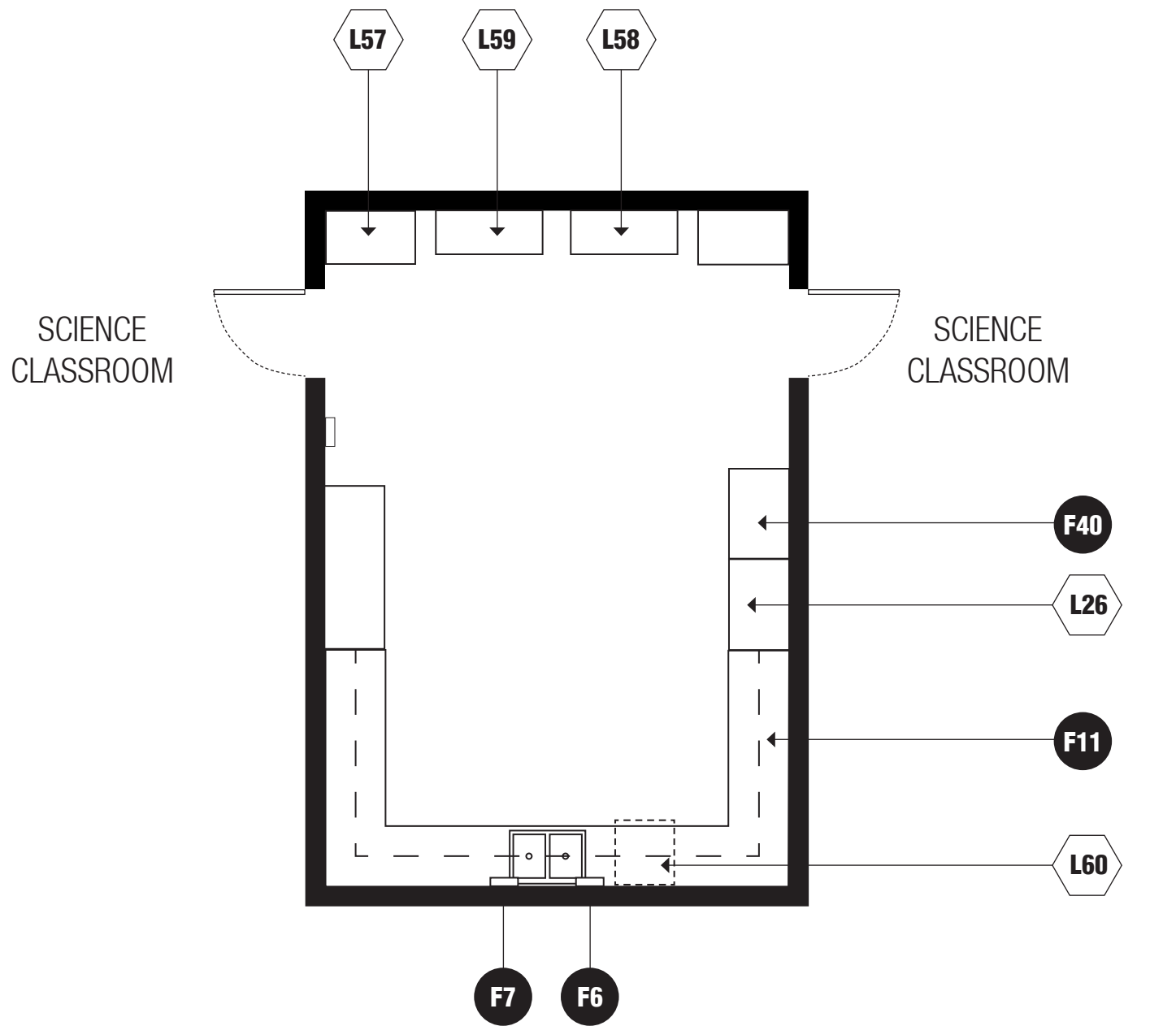
L57 fire blanket

L65 adjustable height stool for teacher

L71 two-person adjustable height tables (12)

L72 goggle storage and sanitizer cabinet

▶ data drop



M-ACA /// SCIENCE PREP / STORAGE

size

360 SF

capacity

1-2 staff members
student assistants

spatial relationships

central to grade level science classrooms

program activities

general lab preparation
set-up experiments
store equipment

environmental considerations

uniform lighting
electrical outlets for equipment
exhaust system

plumbing

plumbing connections
hook-up for ice maker
sink

LEGEND ///

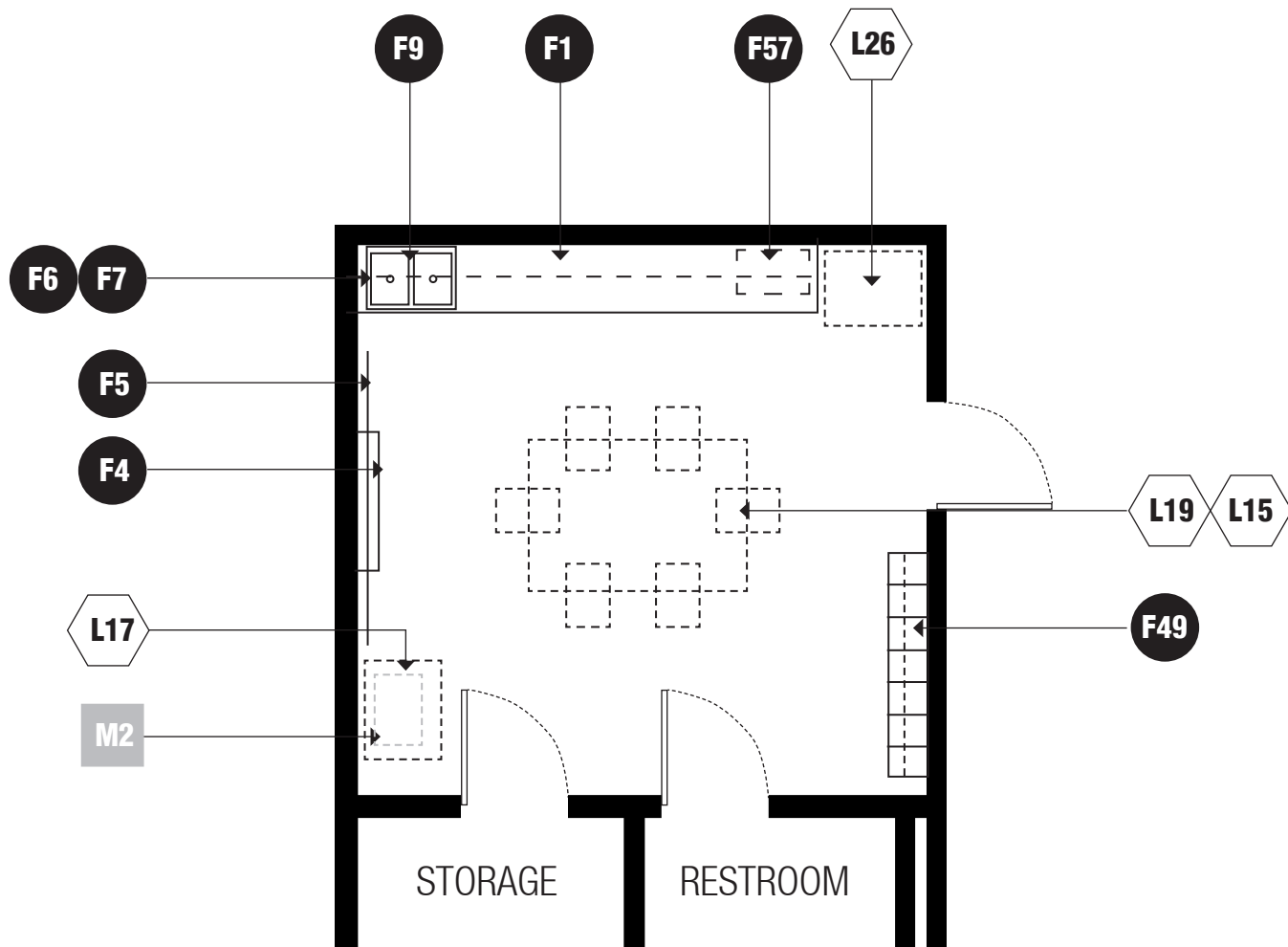
● **fixed equipment**

- F6 soap dispenser
- F7 towel dispenser
- F11 science casework: base cabinets and shelving per lab (no wall cabinets)
- F40 chemical storage cabinets

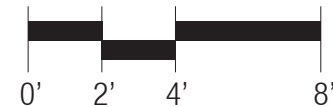
◡ **loose furnishings**

- L26 refrigerator with ice maker
- L57 fire blanket
- L58 autoclave (one per school)
- L59 distiller (one per school)
- L60 dishwasher

▶ **data drop**



M-ACA /// TEACHER COLLABORATION ROOM



size

250 SF

capacity

teachers

teachers' assistants

parents/volunteers

ancillary spaces

staff restroom

storage

spatial relationships

near academic core classrooms

access to staff restroom(s) from within

access to storage from within

program activities

team staff meetings

lesson planning and grading

scheduling appointments

record keeping

develop and review teacher materials

plumbing

sink connection

LEGEND ///

● **fixed equipment**

F1 base/wall cabinets and shelving

F4 marker board

F5 tackable/magnet wall surface

F6 soap dispenser

F7 towel dispenser

F9 classroom sink

F49 lockers

F57 kitchenette

◡ **loose furnishings**

L15 task chair (6)

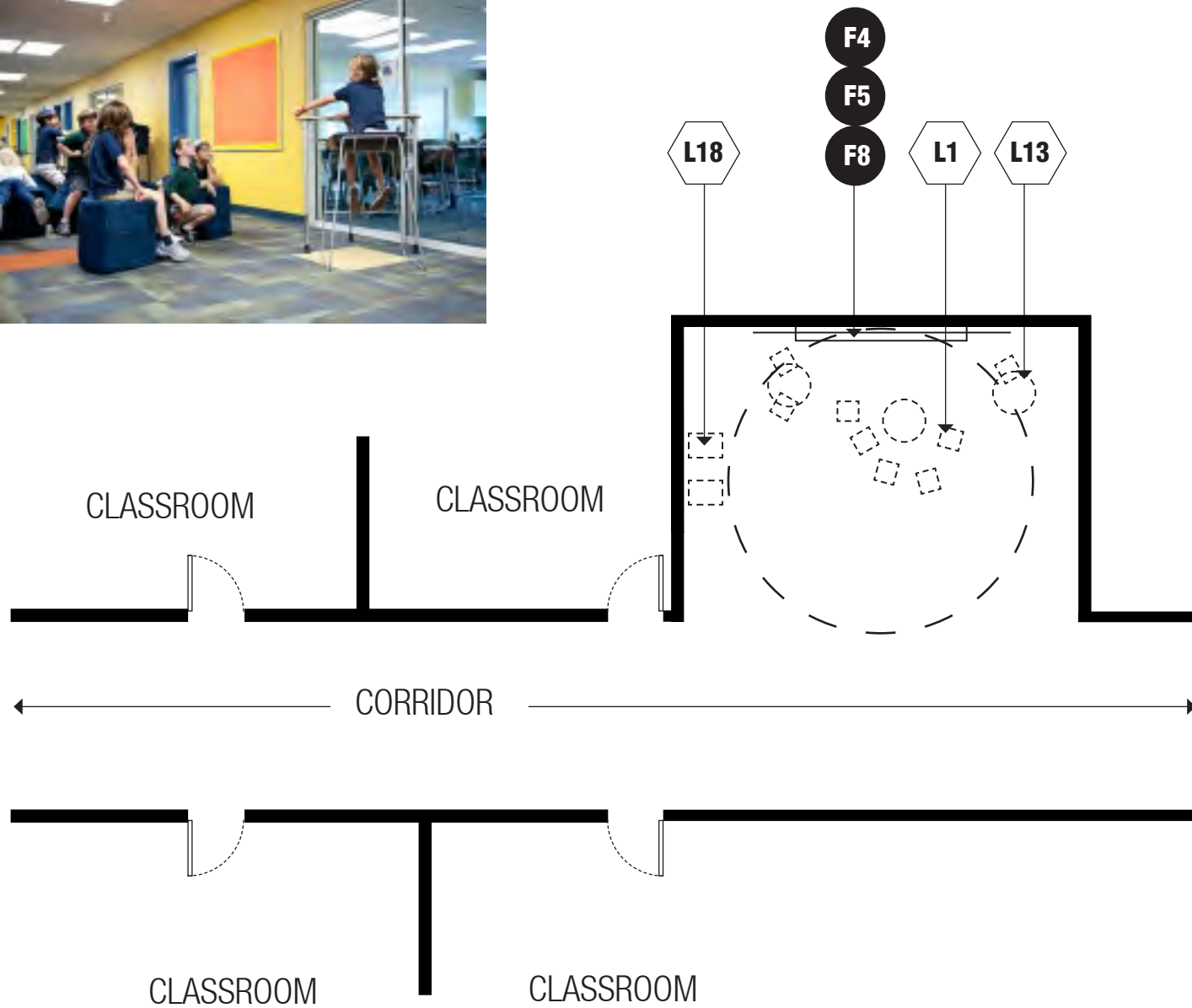
L17 printer station

L19 conference table

L26 refrigerator

miscellaneous

■ M2 color printer



M-ACA /// GRADES 6-8 EXTENDED LEARNING AREA

size

1000 SF

capacity

4-25 students
1-2 teachers

ancillary spaces

grades K-5 classroom
furniture storage

spatial relationships

integrated into circulation
located within classroom clusters

program activities

small group learning centers
story telling
team activities and project based learning
individual activities
amphitheater
kitchenette

LEGEND ///

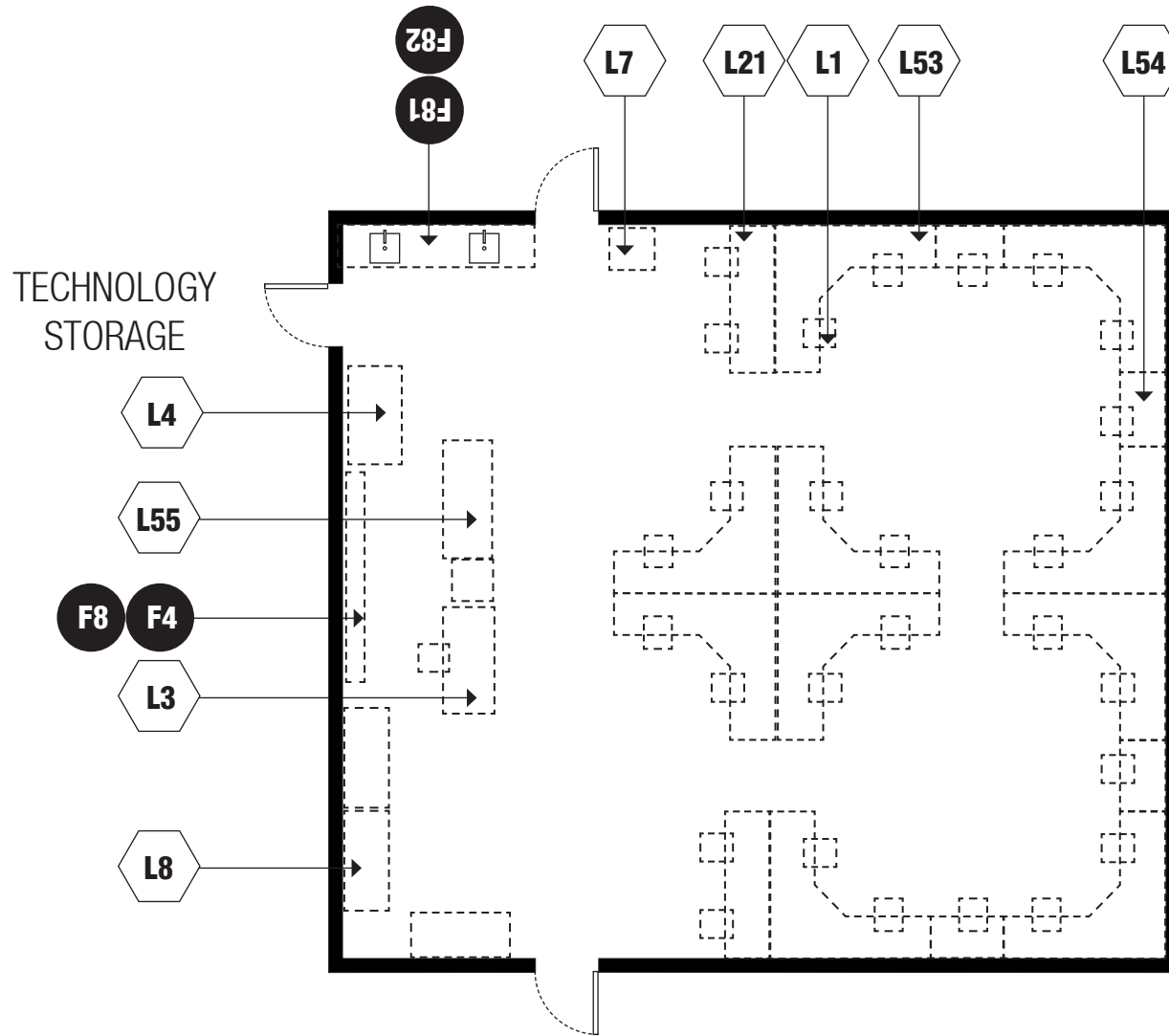
● **fixed equipment** (TBD based on age and school preference) may include:

- F4 marker board (8 LF)
- F5 tackable/magnet wall surface
- F8 wall mounted interactive electronic presentation device (optional)

◡ **loose furnishings**

mixture of the following to support multiple learning activities in multiple learning configurations:

- L1 stackable/nesting chairs
- L13 small table(s)
- L18 lounge chairs



size

1450 SF

capacity

20-24 students

teacher

guest speakers/ volunteers

ancillary spaces

n/a

spatial relationships

project lab with 1) module-based technology stations around the periphery and 2) fabrication stations in the center

(may include: rocketry, electronics, engineering, digital photography, graphic design, engine repair, etc.)

storage- 300 SF

program activities

large and small group instruction

hands-on activities

oral presentation

team teaching

computerized instruction

environmental considerations

windows to provide natural light and egress

electrical outlets for equipment

uniform lighting

window treatment to darken room for AV presentations

rooms designed for ease of movement

and accessibility; students need to be able to move around the worktables

lab features

safety shower and eye wash with floor drain dust collection, and exhaust system

70 foot-candles of light a bench height

ceiling mounted electric drops with automatic cord reel where appropriate

emergency stop switches/buttons

storage area

storage for 2-3 mobile tool work centers

LEGEND ///

● fixed equipment

F4 marker board (2 walls -8 LF each)

F8 wall mounted interactive electronic presentation device (optional)

F81 goggle storage and sterilization with adequate ventilation

F82 two sinks (6 ft apart) w/ clay traps; cabinetry below

⬡ loose furnishings

L1 stackable/nesting chairs (24)

L3 teacher work surface with mobile storage

L4 four-drawer file cabinet

L7 teacher's lockable wardrobe

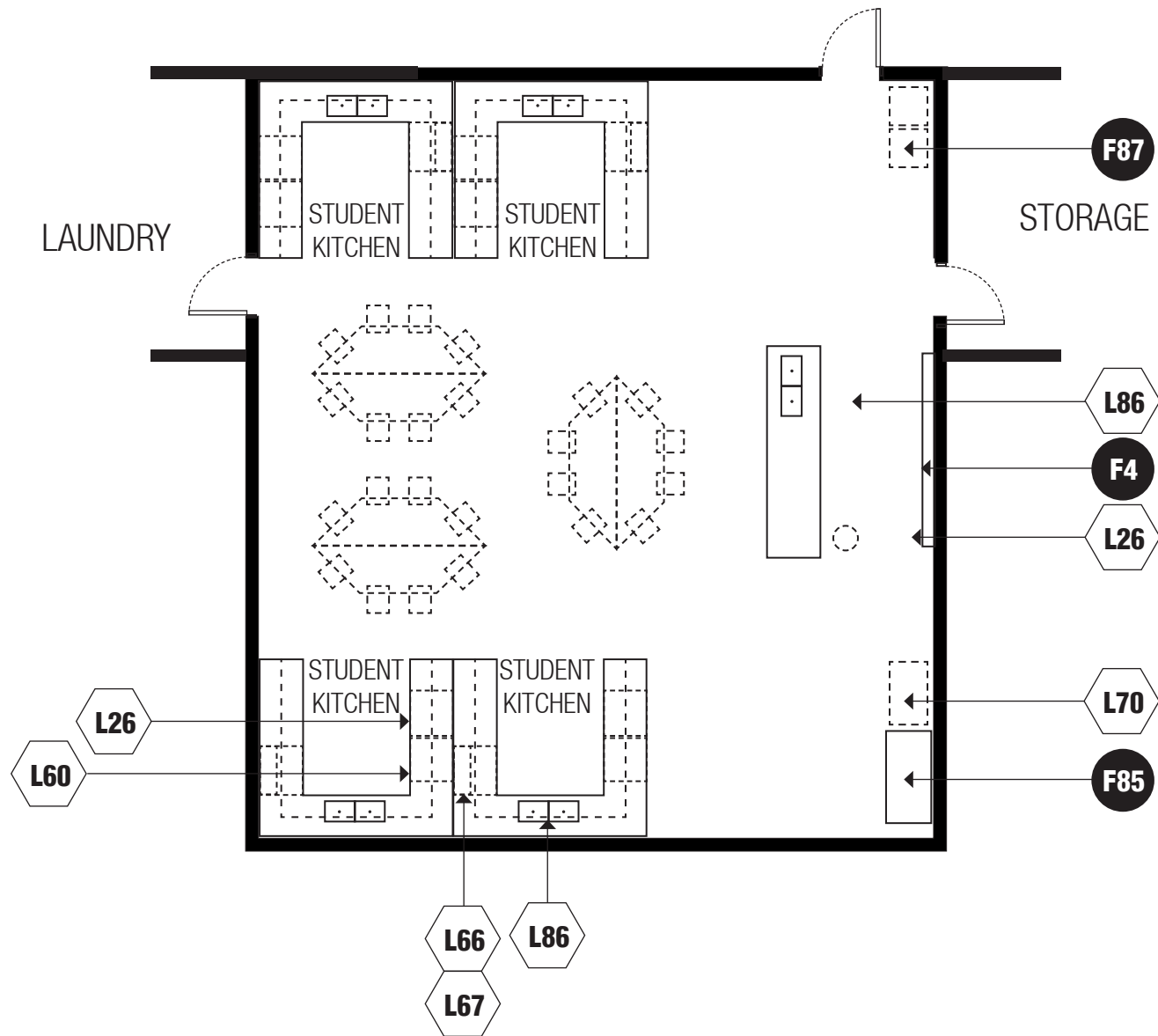
L8 tall cabinet with shelves (2-3)

L21 worktable

L53 computer-based module stations around periphery with room for two students each (10)

L54 work benches approximately 4' x 4' (5)

L55 48" wide tote tray cabinets for project storage for 100 students



M-ACA /// FAMILY AND CONSUMER SCIENCES LAB



size

1450 SF

ancillary spaces

storage
laundry

program activities

large and small group instruction
hands-on activities
team teaching
computerized instruction

environmental considerations

rooms designed for ease of movement and accessibility; students need to be able to move around the stations
OSHA requirements maintained
electrical outlets for equipment
windows to provide natural light
window treatment to darken room

features (demonstration area)

provide demonstration island with counter top, 9'L X 30"D X 34" H, sink and range double outlets on each end of the demonstration table and slant mirror.
provide oven, counter and cabinet storage behind the island
provide tall storage cabinet/pantry unit, lockable with adjustable shelves, 84" H X 36"W X 30" D
magnetic marker board
interactive board that does not interfere with demonstration island

kitchen equipment

- L26 refrigerator/freezer, 24 cu. ft. (each serves two kitchens) (2)
- L60 dishwashers (4)
- L66 range (4) , 30" w, front controls, timer, visual light door, self-cleaning oven with exhaust hood
- L67 microwaves- 1,200 watt, residential, under cabinet mount (4)
- L68 refrigerator,commercial upright, frost-free 54" vertical hinge double doors, minimum 46 cu. ft. stainless steel with shelving, lockable
- L69 upright freezer, commercial, frost free, 30" W, vertical hinge single door, stainless steel with shelving, lockable
- L70 ice maker, large capacity
- F86 double bowl stainless steel kitchen sink with goose neck, swivel kitchen faucet and garbage disposal (HW/CW)
- F87 full sized convection oven (each serves two kitchens)

student kitchen (4)

lamine counter surface for kitchen work area. U-shaped kitchens are preferred- one ADA compliant
lower cabinets; above counter cabinets: double doors, with adjustable shelves.
no upper cabinets protruding into the room, must provide clear visual supervision of all kitchen spaces
small magnetic marker board

computer tablet holder
soap dispenser
towel dispenser

plumbing

5 sinks
eye wash station

storage

adjustable non-corrosive shelving

laundry

hook-up and vent for washer and dryer
peg board/hooks for aprons
cabinets for towels

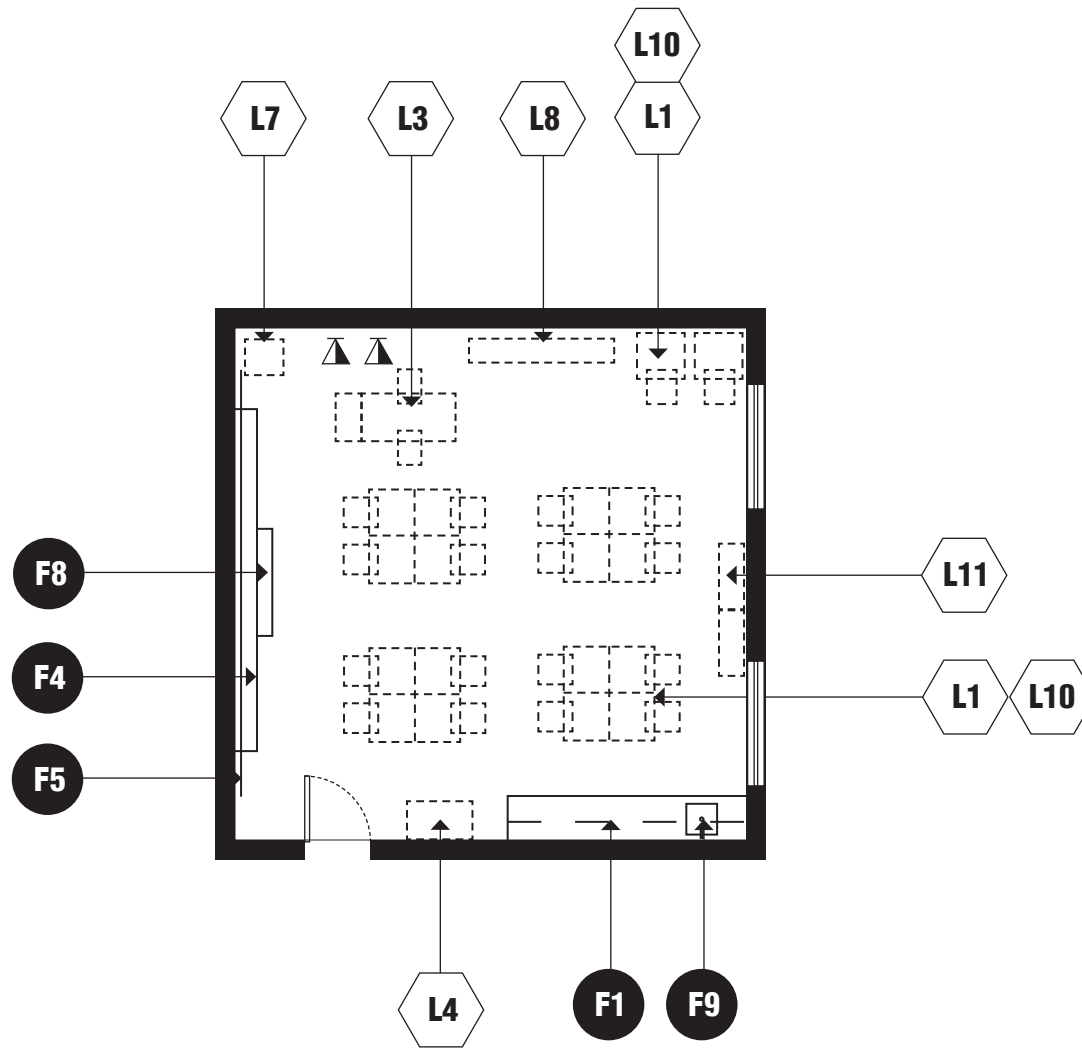
LEGEND ///

● **fixed equipment**

F4 marker board
F85 casework for dining equipment (dishes, table cloths,etc.)

◻ **loose furnishings**

L1 stackable/nesting chairs (24)
L7 teacher's lockable wardrobe
L49 fire blanket
L56 trapezoid desks that fit 4-6 (24)
L64 first aid kit
L65 adjustable height stool for teacher



M-ACA /// RESOURCE CLASSROOM



size

600

capacity

up to 15 students
2 or more staff members

ancillary spaces

n/a

spatial relationships

located within academic core areas

program activities

small group work
independent instruction and work
reading, math, speech, etc.

LEGEND ///

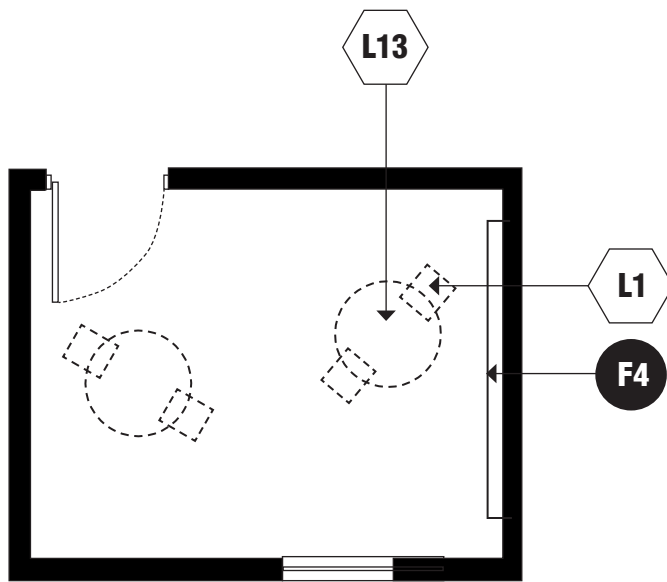
● **fixed equipment**

- F1 base/wall cabinets and shelving
- F3 wall shelving (over cubbies)
- F4 marker board (8 LF)
- F5 tackable/magnet wall surface
- F8 wall mounted interactive electronic presentation device
- F9 classroom sink

⬡ **loose furnishings**

- L1 stackable/nesting chairs (15-18)
- L3 teacher work surface with mobile storage and two chairs
- L4 four drawer lateral file cabinet
- L7 teacher's lockable wardrobe (18"X18")
- L8 tall cabinet with shelves
- L10 student desks (15-18)
- L11 adjustable height bookshelves

▶ **data drop**



size

250 sf

capacity

staff and students

ancillary spaces

n/a

spatial relationships

adjacent and access to academic classrooms

program activities

group projects
meetings
listening and viewing

LEGEND ///

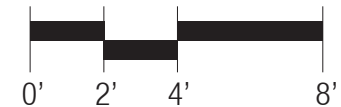
● **fixed equipment**

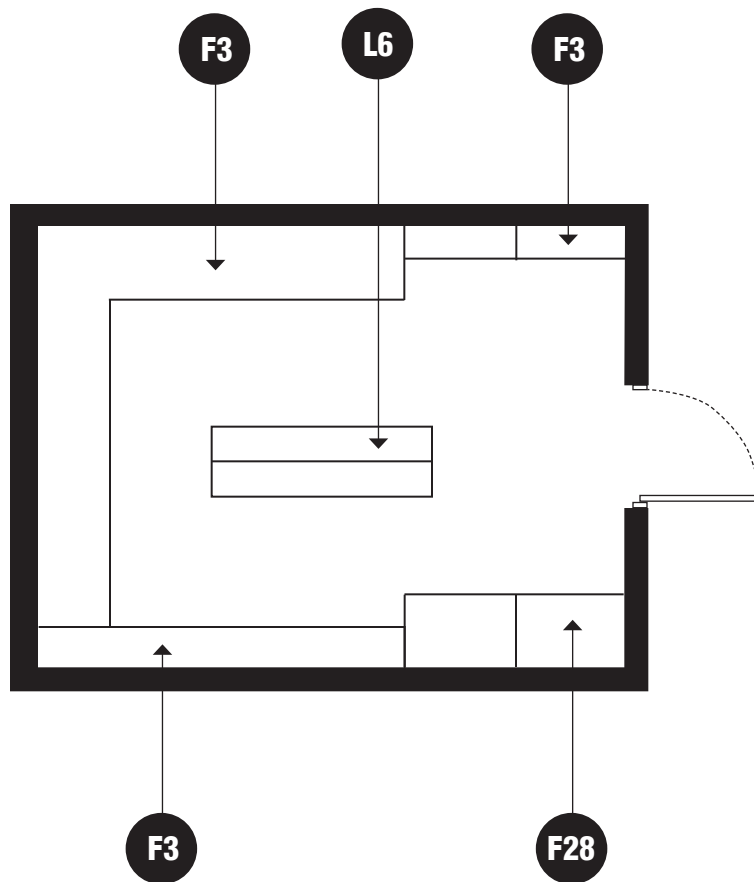
F4 marker board (8 LF)

○ **loose furnishings**

L1 stackable/nesting chairs (8)

L13 small table (2)





size

200 SF

capacity

staff members

ancillary spaces

n/a

spatial relationships

near core academic classrooms

program activities

storing and retrieving books/supplies

LEGEND ///

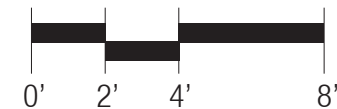
● **fixed equipment**

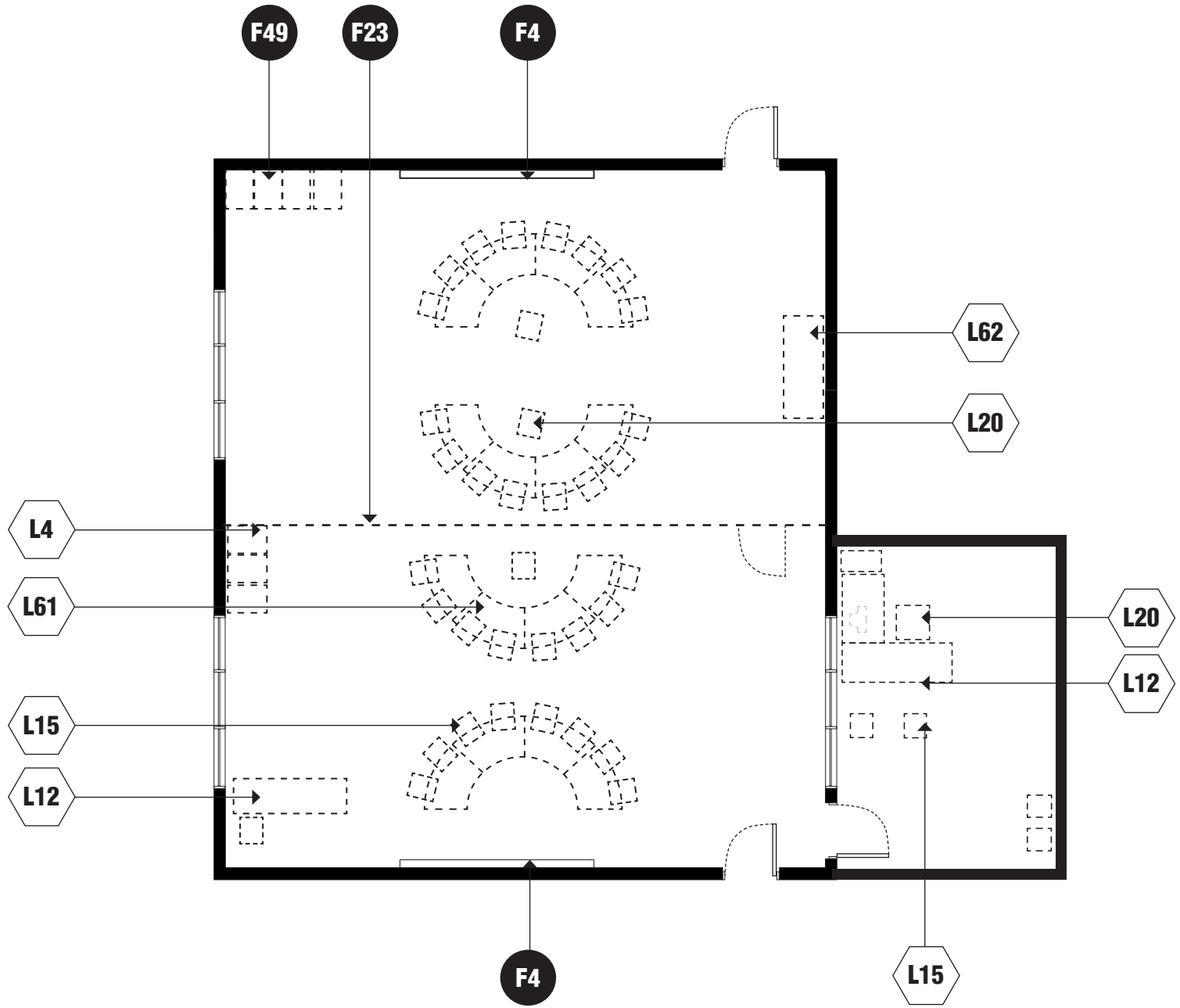
F3 wall shelving (12" and 24" deep)

F28 base cabinets

◻ **loose furnishings**

L6 mobile shelving





M-ACA /// AVID CLASSROOM



size

1500 SF

capacity

25 to 30 students

teacher

4 to 5 tutors

ancillary spaces

attached tutor office

spatial relationships

near media center

program activities

advanced college preparation elective courses

environmental considerations

comfortable rooms with pleasant décor

that contribute to an atmosphere

conducive to creativity

windows to provide natural light and

egress

electrical outlets for equipment

uniform lighting

window treatment to darken room for AV

presentations

consider movable partitions and doors

between classrooms to maximize

flexibility

provide transparency into extended

learning areas

LEGEND ///

● fixed equipment

F4 marker board

F23 operable partition wall

F49 lockers (4)

⬡ loose furnishings

L4 four drawer file cabinet

L12 admin workstation

L15 task chair (30)

L20 executive chairs (4)

L61 two person table on casters

L62 resource media

▶ data drop

M-MC /// **MEDIA CENTER**




READING / LEARNING / CIRCULATION
MEDIA PRODUCTION AREA
TECHNICAL PROCESSING ROOM
COMBINED OFFICE/WORKROOM
DEVICE CHARGING ROOM
STORAGE
SMALL GROUP ROOM

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|------------------------------|-----------------|-----------|--------------|--------------|
| MEDIA CENTER | | | | |
| Reading/Learning/Circulation | 1 | 3,900 | 3,900 | |
| Technical Processing Room | 1 | 450 | 450 | |
| Combined Office/Workroom | 1 | 500 | 500 | |
| Device Charging Room | 1 | 150 | 150 | |
| Storage | 1 | 250 | 250 | |
| Small Group Room | 2 | 150 | 300 | |
| Total | | | 5,550 | |

Comments //

Spaces within the Media suite may vary up to 10 percent and may be combined to facilitate circulation and supervision. The overall square footage may be + or – ten percent.

KEY ///

- direct access 
- linked space 
- enclosed space 
- open space 

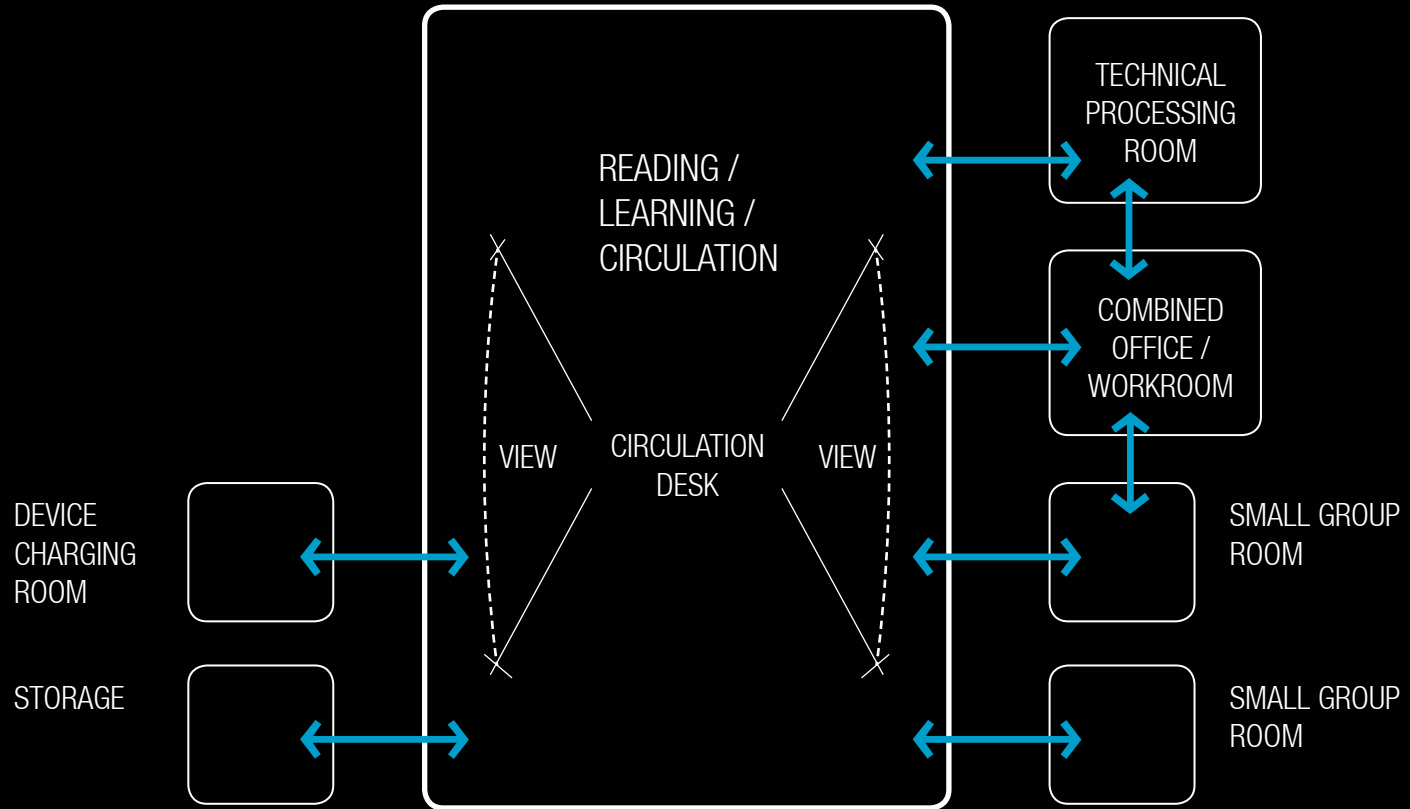
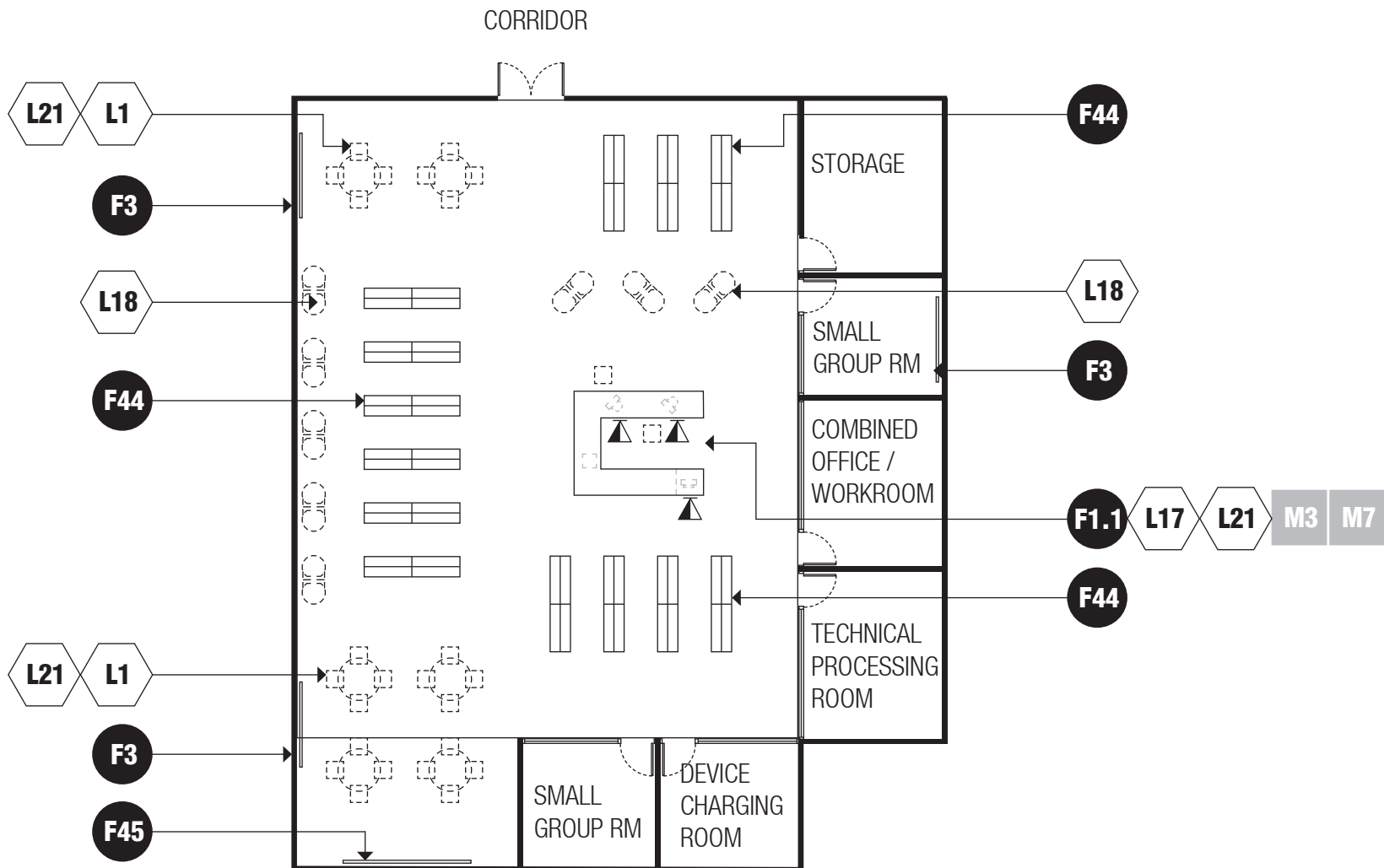
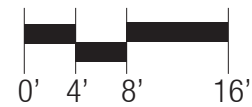


FIG. 8.0 // MEDIA CENTER ADJACENCY DIAGRAM



M-MC /// READING / LEARNING / CIRCULATION



size

3,900 sf

capacity

75 students

1 media specialist

community patrons after school hours

ancillary spaces

technical processing room

device charging room

combined office/workroom

storage

small group room

spatial relationships

circulation area located close to
entrance / exit

program activities

reading and research

circulation of materials and resources
including online catalogs

large group and small group instruction

provide meeting areas for community,
staff, and parents

dramatic reading and storytelling

informal small group interaction

environmental considerations

recessed floor outlets at tables

adequate ventilation

lighting appropriate to task with switches
to dim separate zones of media
center

environmental sound control:

wall minimum: STC 45

ceiling minimum: CAC35
electrical outlets at entrance for future
security system
electrical outlets at column locations
windows to provide natural sunlight
security of school when center is in use
during after school hours
ceiling height in proportion to room
dimensions
open flow for traffic in reference/
professional/periodical areas
electrical outlets in toe space of wall
shelving
window treatment to darken room for AV
presentation
mix of lounge furniture

finishes

flooring: carpet

LEGEND ///**● fixed equipment**

F1.1 casework (circulation desk)

F3 marker board (in two locations, 8 LF ea)

F44 library case work*

F45 motorized projection screen

⬡ loose furnishings

L1 stackable/nesting chairs (32-55
per student enrollment)

L17 printer station

L18 lounge chairs

L21 work table (6-10 with various heights)

■ miscellaneous

M3 bar code reader

M7 desktop computer (2)

▶ data drop***shelving calculations per 3' shelves**

Picture thin: 20 books per foot /
60 books per shelf

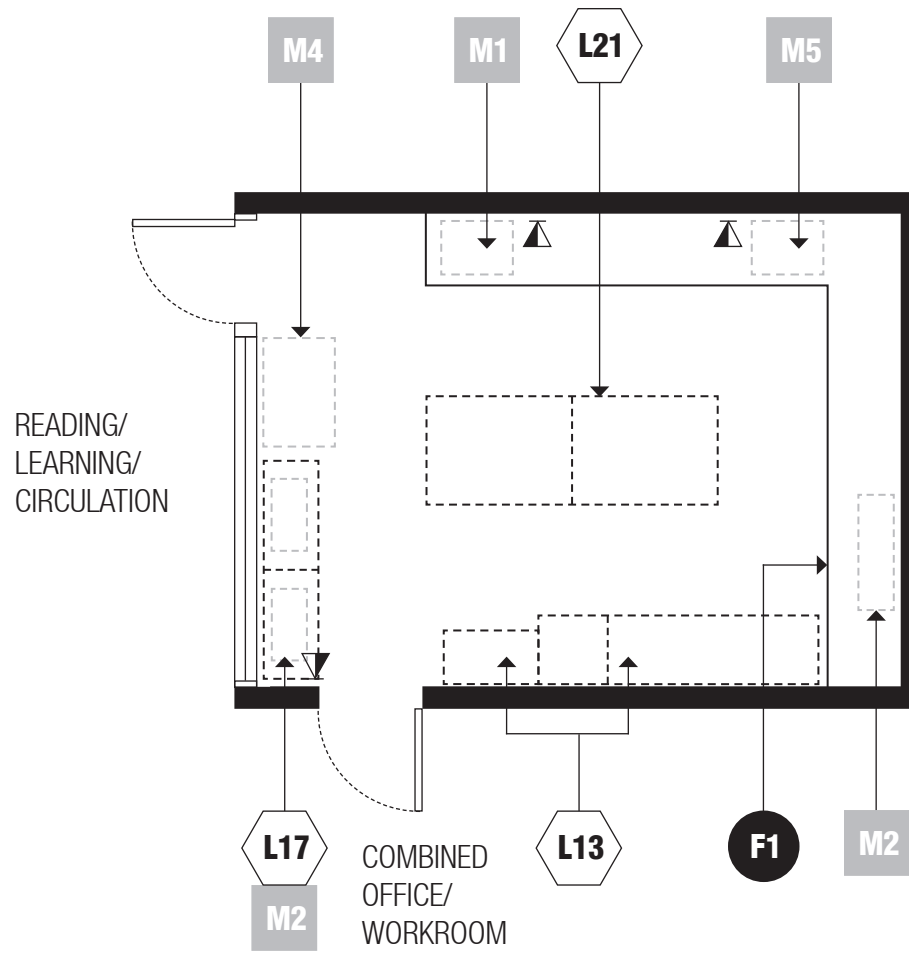
Standard size: 9 books per foot /
30 books per shelf

Reference books: 6 books per
foot / 18 books per shelf

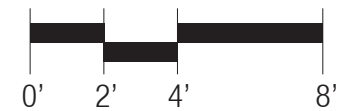
Periodicals: 1 per foot for display
purposes

to calculate how many linear feet of shelving are required for a collection, take the total number of volumes and divide by the number of books per foot. For example, a primary collection of 5,000 volumes consisting of picture and thin books would require a total of 250 linear feet of shelving. shelves should only be two-thirds full. to allow for this, multiply the number of linear feet required by 1.33. example: $250 \times 1.33 = 332.5$ or 333 linear feet of shelving.

*VA guidelines recommend free standing shelving 36" in height or less.



M-MC /// TECHNICAL PROCESSING ROOM



size

450 sf

capacity

5 students

2 teachers

ancillary spaces

reading/learning/circulation

combined office/workroom

spatial relationships

n/a

program activities

scanning, digitizing, desktop publishing,
copying, and collating

environmental considerations

uniform lighting with an appropriate visual
comfort level

environmental sound control:

wall minimum: STC 45

ceiling minimum: CAC 40

electrical outlets for equipment

due to the changing nature of technology,

a media production room is to be
designed for flexibility of use.

provide visual control from media center

LEGEND ///

● **fixed equipment**

F1 base/wall cabinets and shelving
(peripheral counters with storage below)

⬡ **loose furnishings**

L13 small table (several and various, for
scanners and other equipment)

L17 printer station (2)

L21 work tables (2)

■ **miscellaneous**

M1 high speed and/or large format printers

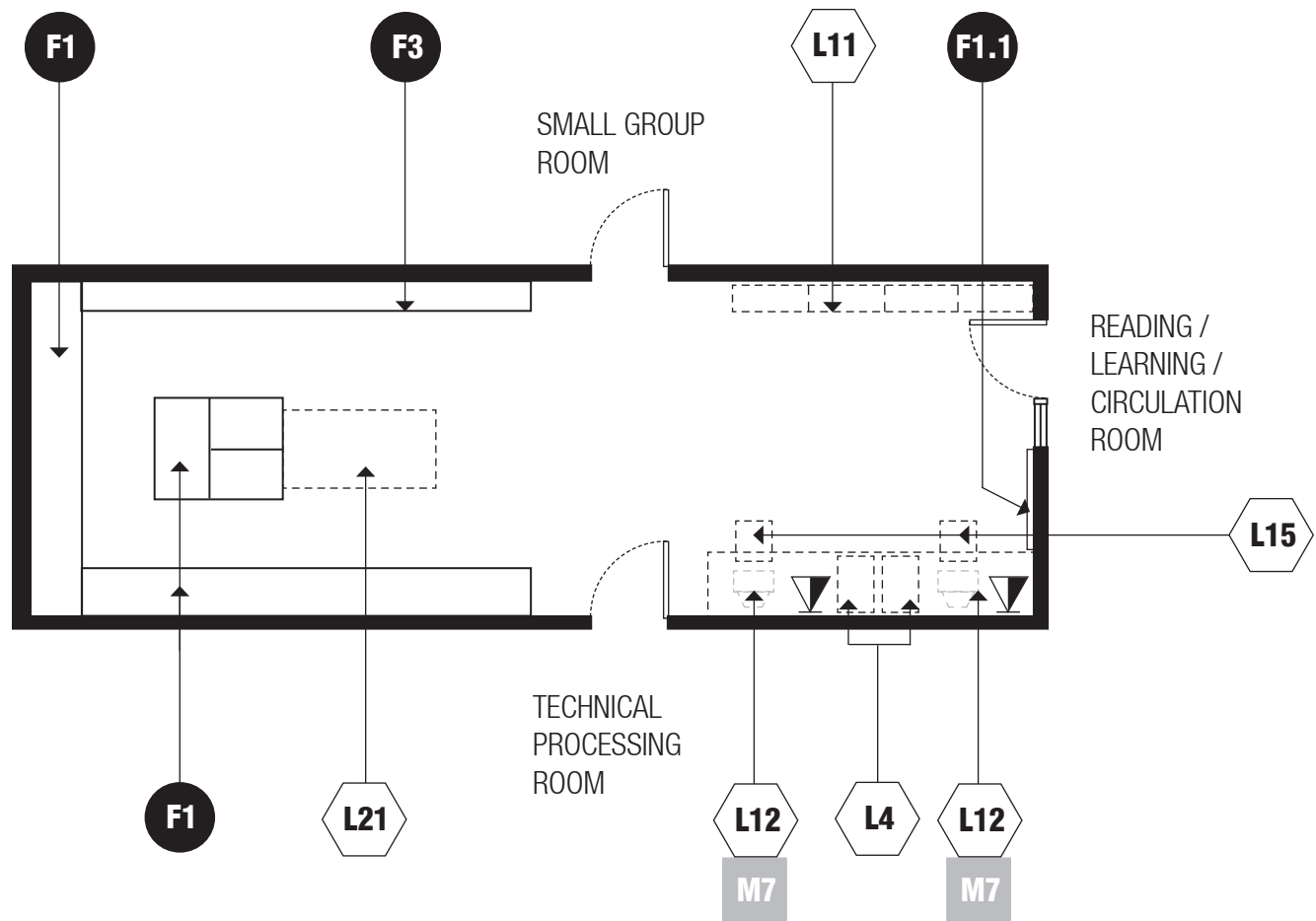
M2 color printers

M4 photocopy machine

M5 digital scanner

M6 laminator

▶ **data drop**



M-MC /// COMBINED OFFICE / WORKROOM



size

500 sf

capacity

media specialists

ancillary spaces

reading/learning/circulation

small group room

spatial relationships

adjacent and access to reading/
learning/circulation

adjacent to and access to office

adjacent to access to technical
processing room

located behind circulation desk and
wholeclass zone

program activities

storage of materials

storage of a/v materials and videotapes

scanning

digitizing

LEGEND ///

● **fixed equipment**

F1 base/wall cabinets and shelving (base
cabinets with power)

F1.1 casework (poster/map storage)

F3 wall shelving

◻ **loose furnishings**

L4 four drawer lateral file cabinet (1-2)

L11 adjustable height bookshelves

L12 admin workstation (2)

L15 task chair (2)

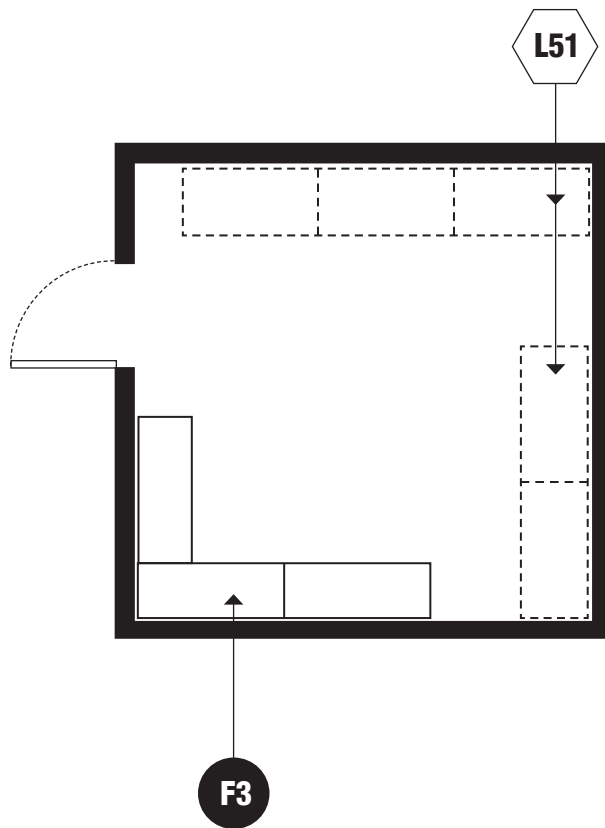
L21 work table

■ **miscellaneous**

M7 desktop computer (2)

▶ **data drop**

READING /
LEARNING /
CIRCULATION



size

150 sf

capacity

staff

ancillary spaces

n/a

spatial relationships

adjacent and access to reading/learning
/circulation

program activities

overnight secure charging area for
laptops/tablets

environmental requirements

secure metal door
electrical outlets designed around a
'parking' strategy for 5-6 laptop
charging carts

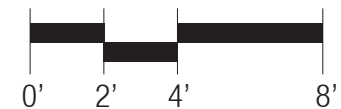
LEGEND ///

● **fixed equipment**

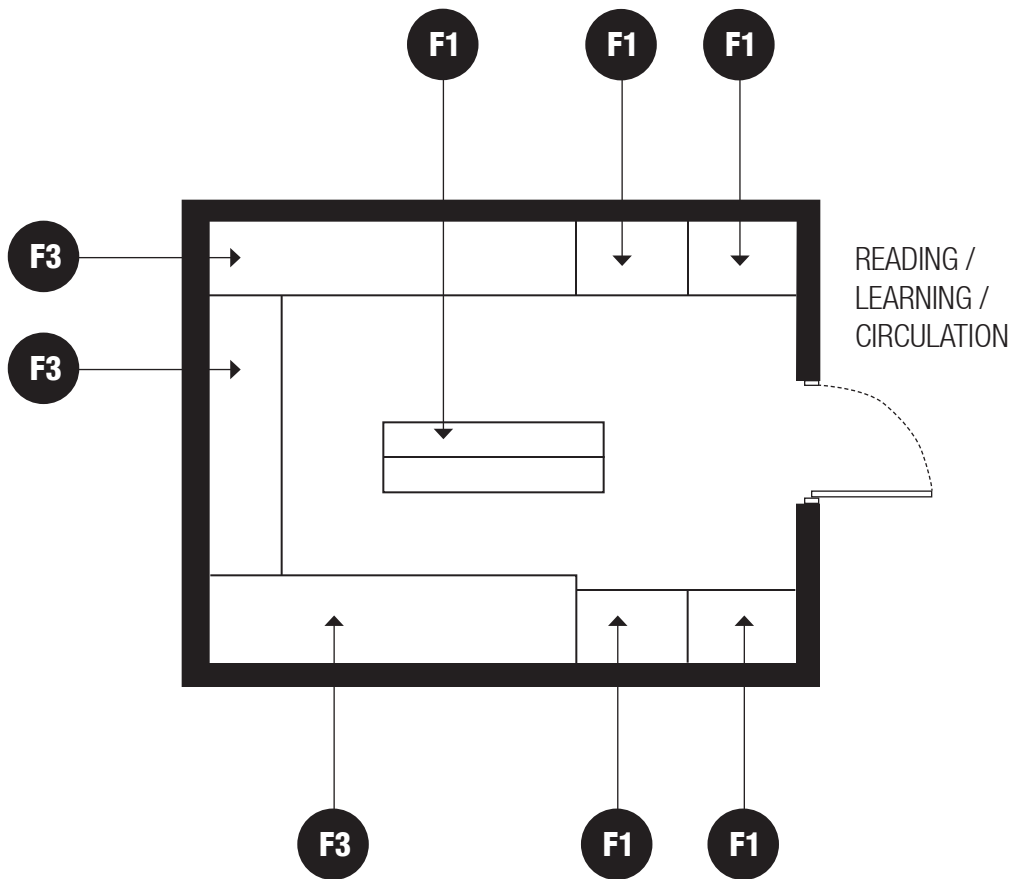
F3 wall shelving (no lower shelves)

⬡ **loose furnishings**

L51 laptop charging cart (5-6)



M-MC /// DEVICE CHARGING ROOM



size

250 sf

capacity

staff

ancillary spaces

n/a

spatial relationships

near core classrooms

program activities

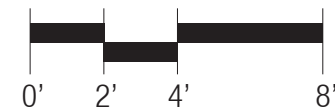
storing and retrieving books / supplies

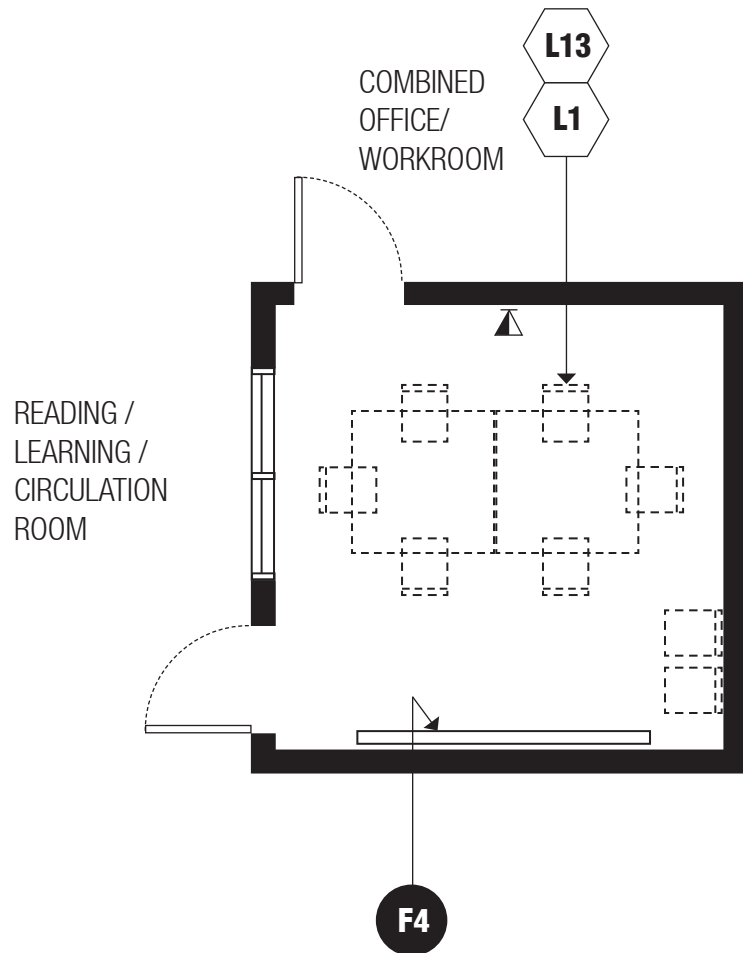
LEGEND ///

● **fixed equipment**

F1 base/wall cabinets and shelving

F3 wall shelving (variety of 12" and 24" deep shelving)





size

150 sf

capacity

up to 8 persons

ancillary spaces

n/a

spatial relationships

adjacent and access to reading / learning / circulation area

program activities

group research projects
meetings
listening and viewing

LEGEND ///

● **fixed equipment**

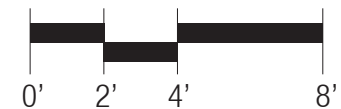
F4 marker board (8 LF)

⬡ **loose furnishings**

L1 stackable/nesting chairs (8)

L13 small table (2)

▶ **data drop**



M-MC /// SMALL GROUP ROOM

THIS PAGE IS LEFT BLANK INTENTIONALLY

M-VA /// **VISUAL ARTS**

ART LAB

ART STORAGE (AND PREP)


KILN ROOM


| SPACE | QUANTITY | SF | TOTAL | NOTES |
|------------------------|-----------------|-----------|--------------|--------------|
| VISUAL ARTS | | | | |
| Art Lab | 1 | 1,300 | 1,300 | |
| Art Storage (and prep) | 1 | 200 | 200 | |
| Kiln Room | 1 | 100 | 100 | |
| Total | | | 1,600 | |

Comments //


The overall total for the Instructional area may be + or – ten percent. See stage for third teaching stations.

KEY ///

direct access 

linked space 

enclosed space 

open space 

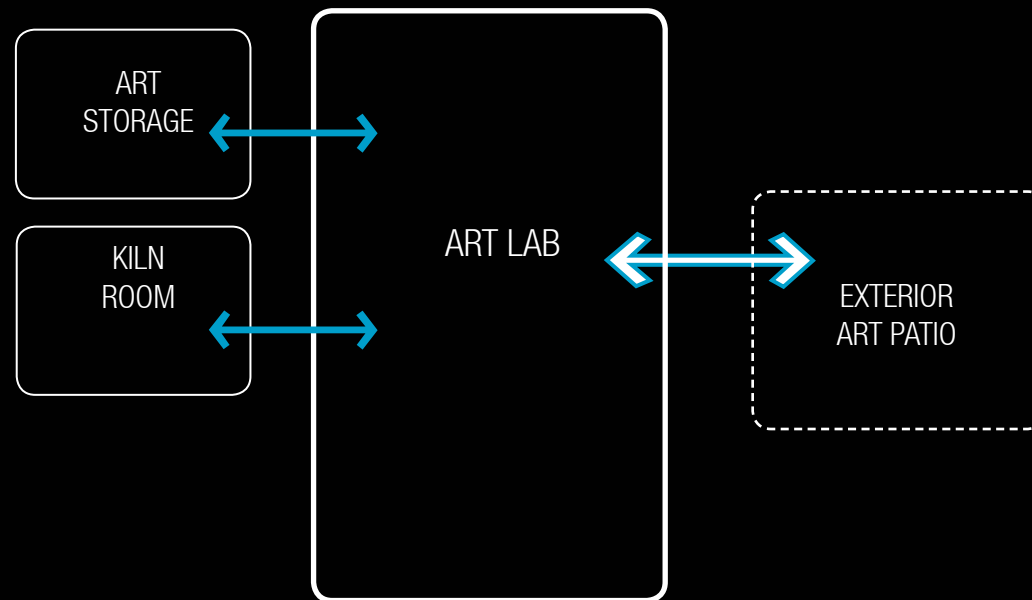
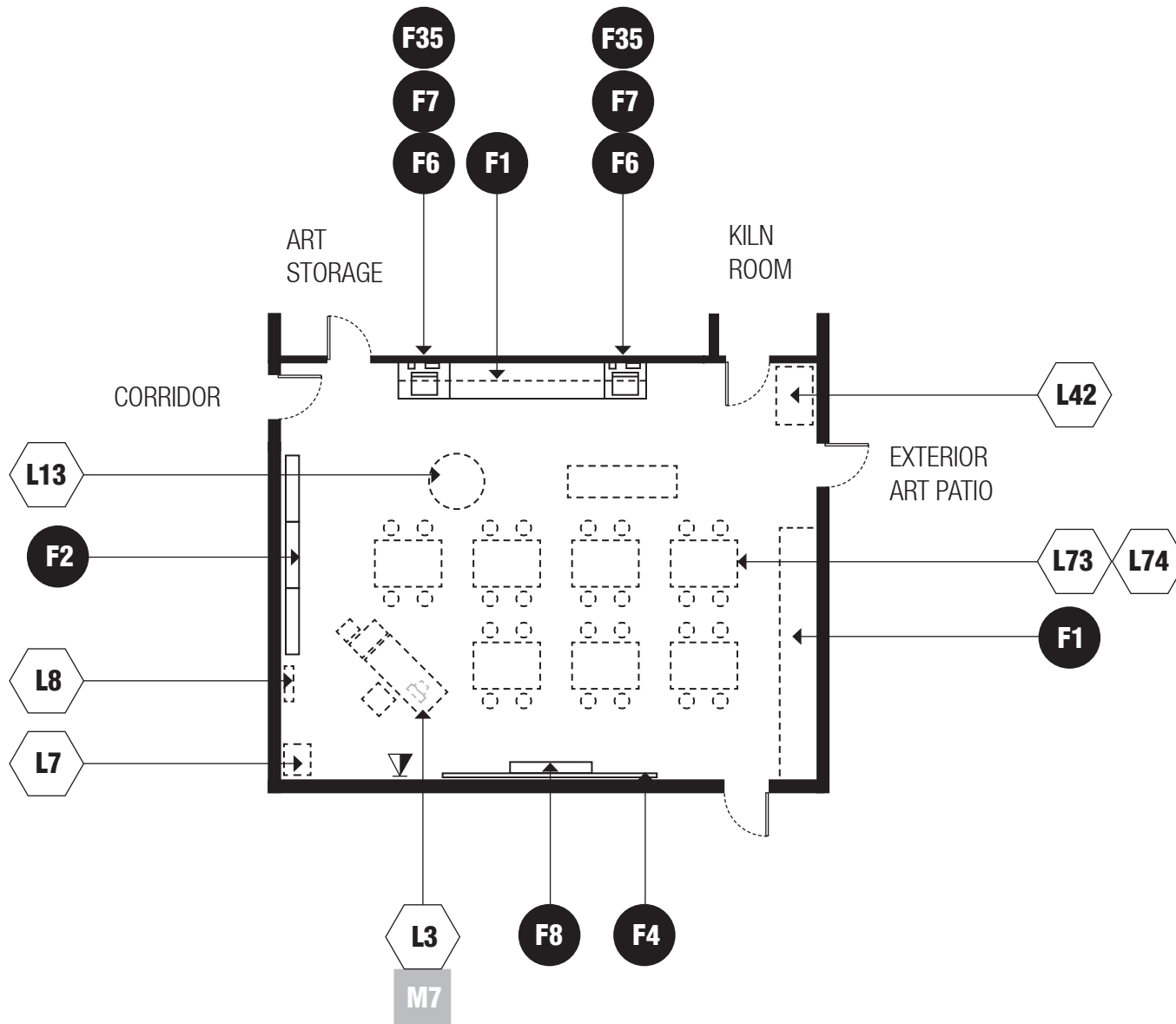


FIG. 9.0 // VISUAL ARTS ADJACENCY DIAGRAM



M-VA /// ARTS LAB

size

1300 sf

capacity

20-24 students

1 teacher

1 student teacher

parent volunteers

ancillary spaces

kiln room

art storage

spatial relationships

centrally located with convenient access
to core academic classrooms

if two labs - one will be located in the
early childhood area and be
furnished with age appropriate
furniture

direct access to art patio - with overhang
adjacent and access to kiln room

program activities

drawing, painting, and print making
sculpture, model-making, collage, and
assembly

ceramics-clay (age appropriate)

computer graphics and mixed media work

viewing prints/slides/movies/art videos

individual and cooperative group work

storage of supplies, projects, and small
equipment

environmental considerations

uniform lighting/track and display lighting

windows to provide natural light and
egress, preferably northern exposure
include outlets on the wall above counter
spaces in raceway

provide one ceiling hung, retractable
electrical outlet

window treatment to darken room for av
presentation is required

finishes

ceiling:

exposed structure, painted with
acoustical treatment

walls:

painted concrete masonry units or
dry wall
one tackable wall

plumbing

2 large, deep sinke (separated by at least
5 ft)

plumbing connections

hvac

manually controlled general exhaust

LEGEND ///

● fixed equipment

F1 base wall cabinets and shelving (12 LF
of 30"high base cabinets w/wall cabinets
above paper storage cabinets. Two sinks
with different heights)

F2 student cubbies

F4 marker board (16 LF)

F6 soap dispenser (at each sink)

F7 towel dispenser (at each sink)

F8 wall mounted interactive electronic
presentation device

F35 hand sink

⬡ loose furnishings

L3 teacher work surface with mobile
storage and two chairs

L7 teacher's lockable wardrobe

L8 tall cabinet with shelves

L13 small table

L42 drying rack (40-80 slats)

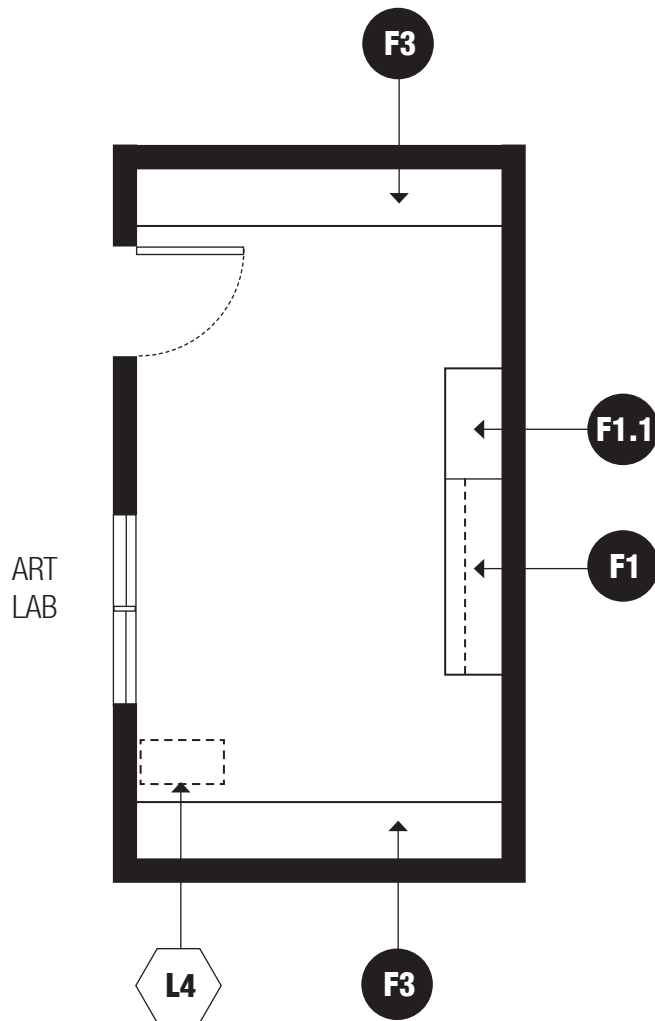
L73 student tall stool (28)

L74 two-person tall art table (7)

■ miscellaneous

M7 desktop computer

▶ data drop



size

200 sf

capacity

1 teacher

ancillary spaces

art lab

spatial relationships

direct access to art lab

visual access to art lab

second storage room provided adjacent to early childhood dining / ELA space

program activities

storage of equipment and supplies

LEGEND ///

● **fixed equipment**

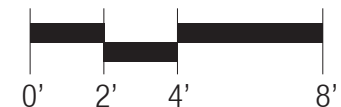
F1 base/wall cabinets and shelving (paper storage cabinets. one cabinet for hazardous materials)

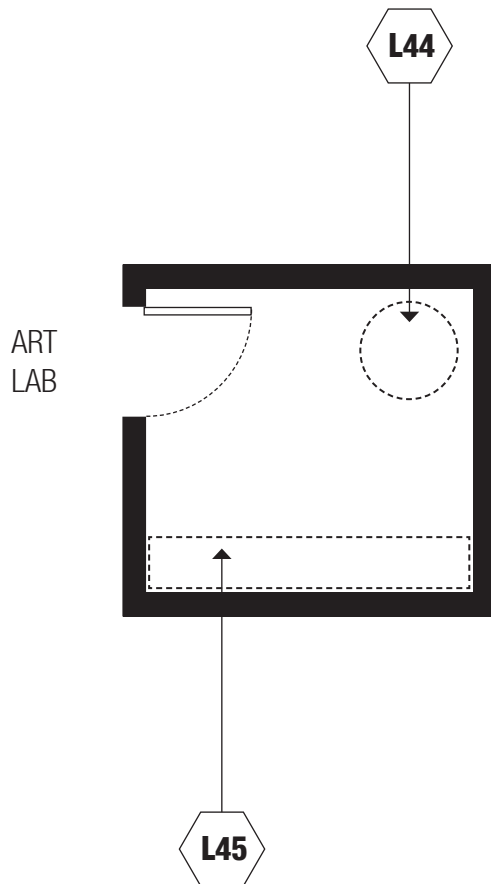
F1.1 casework

F3 wall shelving (18" deep, metal)

⬡ **loose furnishings**

L4 four-drawer lateral file cabinet





size

100 sf

capacity

1-2 persons

ancillary spaces

art lab

spatial relationships

direct access to art lab

program activities

store 3d sculptural work

house kiln equipment

environmental considerations

ventilation controlled by a thermostat

adequate ventilation with vents to the outside for kiln

electrical outlets for equipment

lighting appropriate to task

consider safety in plumbing room layout

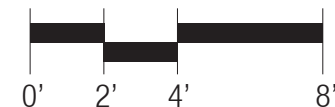
LEGEND ///



loose furnishings

L44 kiln (28+” opening, 27” deep, and ventilation)

L45 greenware shelving



M-PA /// **PERFORMING ARTS**

INSTRUMENTAL MUSIC ROOM
(BAND AND ORCHESTRA)

CHORAL ROOM

ORCHESTRA STORAGE

INSTRUMENT STORAGE

CHORAL STORAGE





CHAIR STORAGE

STAGE (CAFETORIUM)

WING STORAGE

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|-------------------------|-----------------|-----------|--------------|---|
| PERFORMING ARTS | | | | |
| Instrumental Music Room | | | 3,200 | |
| Band | 1 | 1,800 | | |
| Orchestra | 1 | 1,400 | | |
| Choral Room | 1 | 1,250 | 1,250 | |
| Orchestra Storage | 1 | 300 | 300 | |
| Band Storage | 1 | 400 | 400 | |
| Choral Storage | 1 | 200 | 200 | |
| Chair Storage | 1 | 300 | 300 | |
| Stage (Cafetorium) | 1 | 1,000 | 1,000 | refer to student dining for relationship to |
| Wing Storage | 1 | 300 | 300 | cafetorium |
| Total | | | 6950 | |

KEY ///

- direct access 
- linked space 
- enclosed space 
- open space 

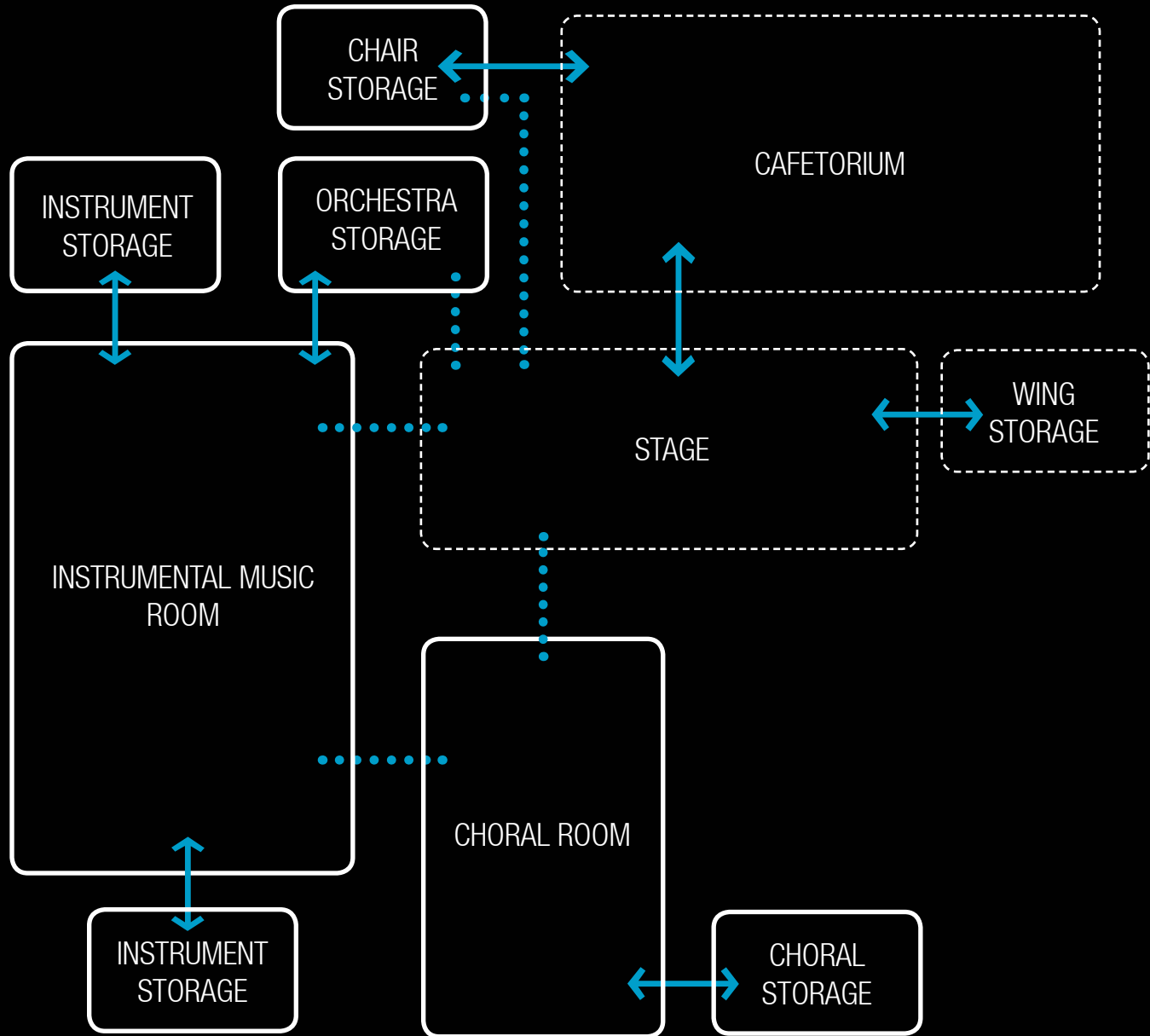
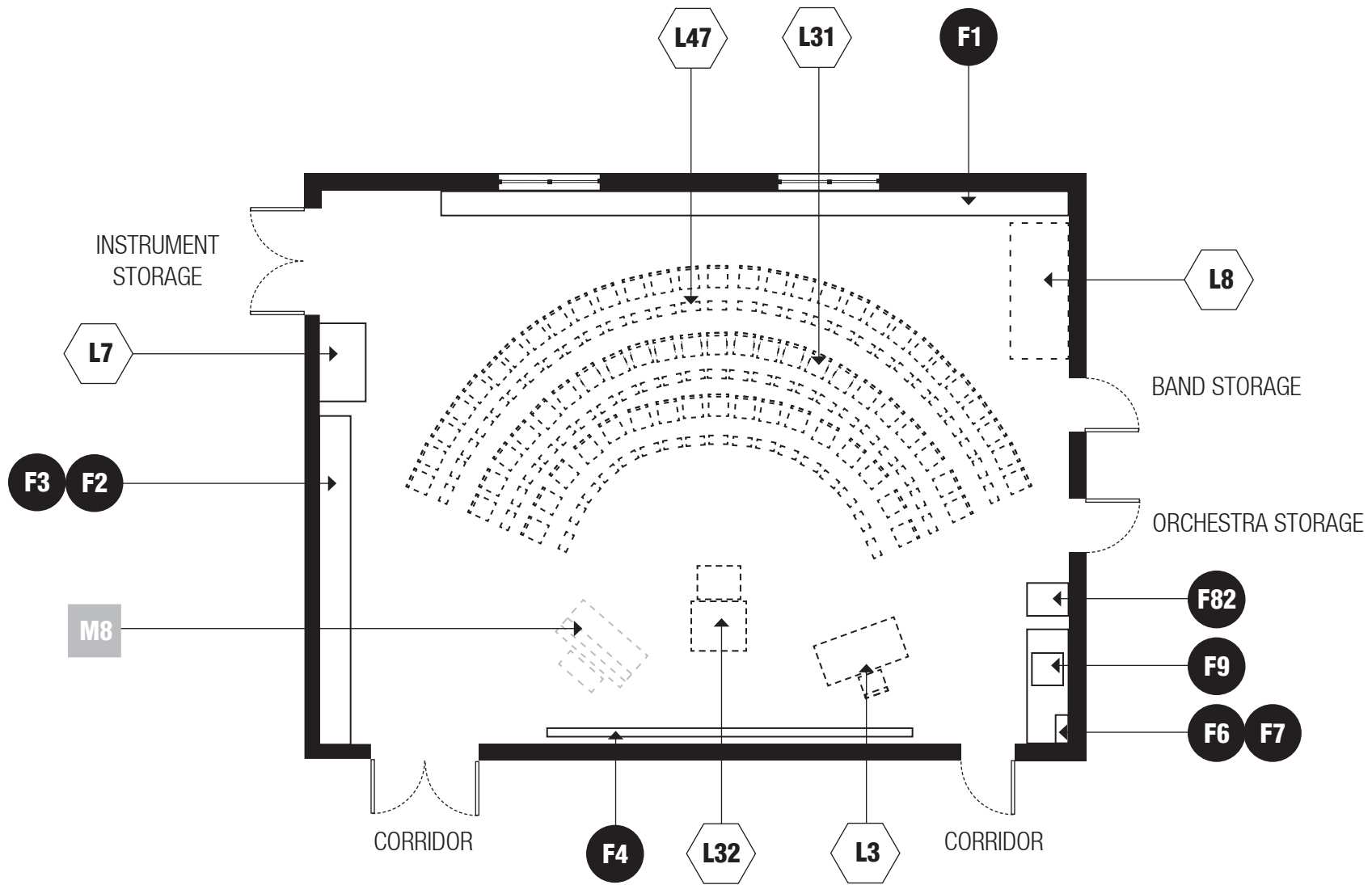


FIG. 10.0 // PERFORMING ARTS ADJACENCY DIAGRAM



M-PA /// INSTRUMENTAL MUSIC ROOM

size

1400 sf for orchestra

1800 sf for band

capacity

20-80 students

1 teacher

ancillary spaces

instrument storage

general storage/workroom

spatial relationships

near the choral room

near the stage

program activities

individual, small, and group practice for
jazz, chamber ensembles, and other
special ensembles

teaching and learning to read music

performance of music

green room for auditorium

environmental considerations

flat floor

quiet HVAC system

vision panels in doors to adjacent rooms

oversize door opening to the outside

8' double doors with removable mullions
throughout this area

sound attenuation in walls

electrical outlets for equipment

high ceiling

appropriate acoustical treatment

windows to provide natural light

LEGEND ///**● fixed equipment**

F1 base/wall cabinets and shelving (6 LF)

F2/3 student cubbies (35-40)/wall shelving

F4 marker board (16 LF, half with music staff
lines)

F6 soap dispenser

F7 towel dispenser

F9 classroom sink

F82 drinking fountain

⬡ loose furnishings

L3 teacher work surface with mobile storage

L7 teacher's lockable wardrobe

L8 tall cabinet with shelves (150 concert-sized
folio capacity)

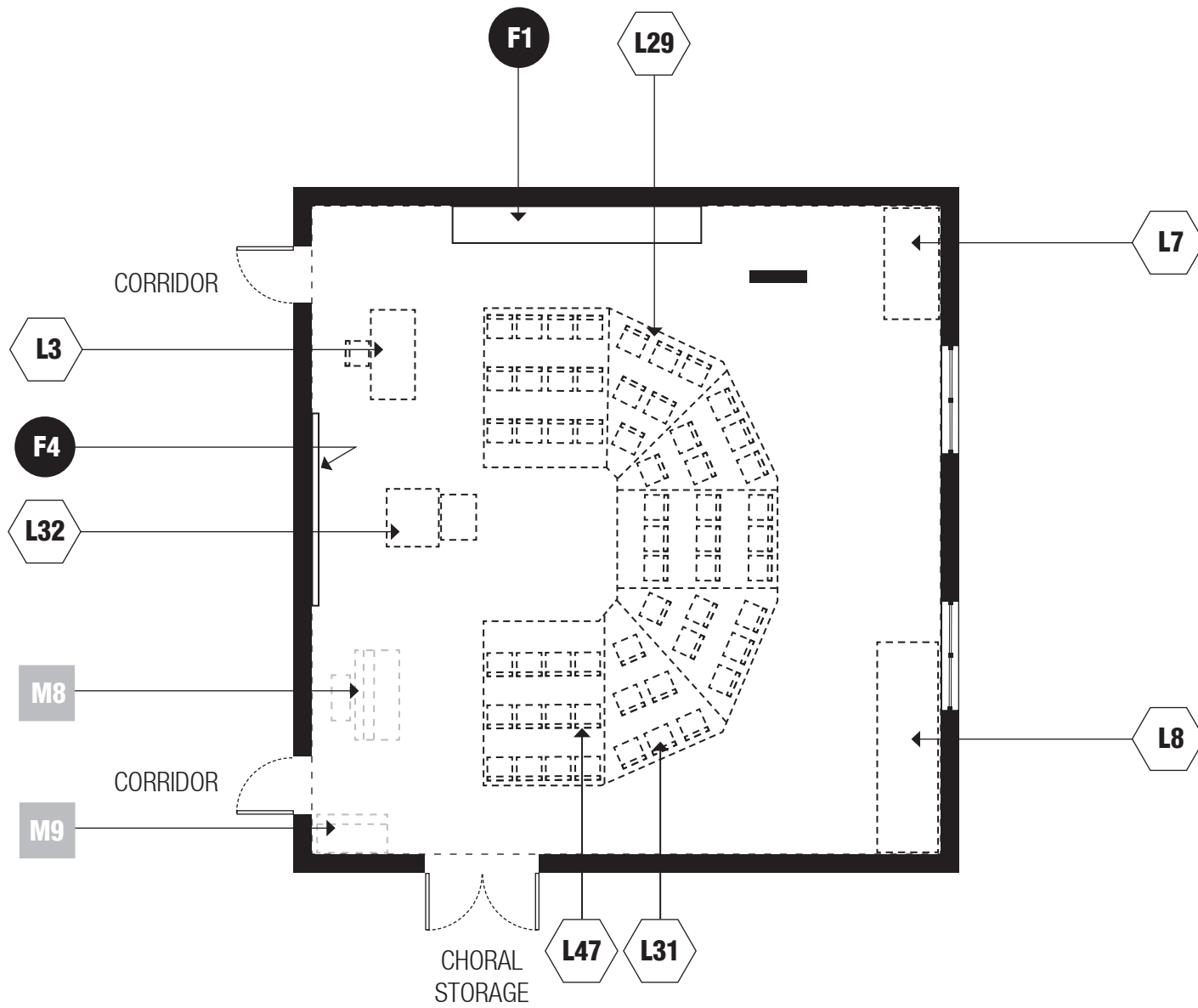
L31 posture chair (60 for band, 30 for orchestra)

L32 conductor's podium and stool

L47 music stand (60 for band, 30 for orchestra)

■ miscellaneous

M8 upright piano



M-PA /// CHORAL ROOM



size

1250 sf

capacity

40 students

1 teacher

ancillary spaces

choral storage

drinking fountain

spatial relationships

near the instrumental room

near the stage

provides access to choral storage

program activities

rehearsals, practice, and instruction

sectional groups and solos

community use

green room for auditorium

environmental considerations

uniform lighting

quiet HVAC system

large doors

appropriate acoustical treatment (not

extremely reverberant, nor designed

acoustically as a square box)

high ceiling

flat floor (no permanent risers)

electrical outlets for equipment

windows to provide natural light

LEGEND ///

● fixed equipment

F1 base/wall cabinets and shelving (6 LF)

F4 marker board (16 LF)

⬡ loose furnishings

L3 teacher work surface with mobile storage

L7 teacher's lockable wardrobe

L8 tall cabinet with shelves (150 concert-sized

folio capacity)

L29 choral risers

L31 posture chair (40)

L32 conductor's podium and stool

L47 music stand (20-40)

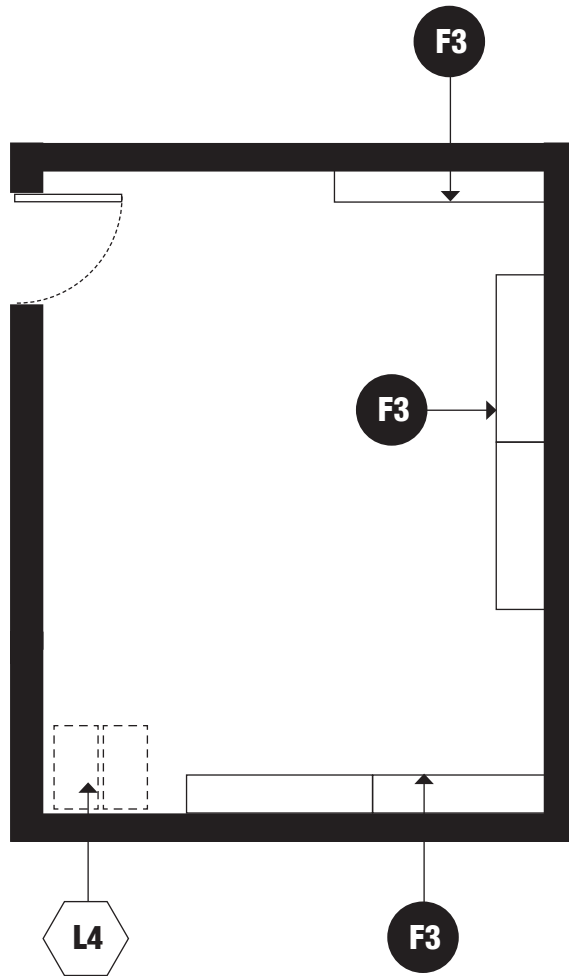
■ miscellaneous

M8 upright piano

M9 MIDI synthesizer (with music software and

audio enhancement equipment)

INSTRUMENTAL
MUSIC ROOM



size

300 sf

capacity

students
teachers

ancillary spaces

instrumental music room

spatial relationships

near stage

program activities

storage and simple repair of accessories
and equipment

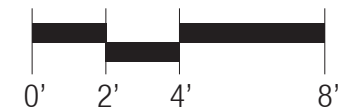
LEGEND ///

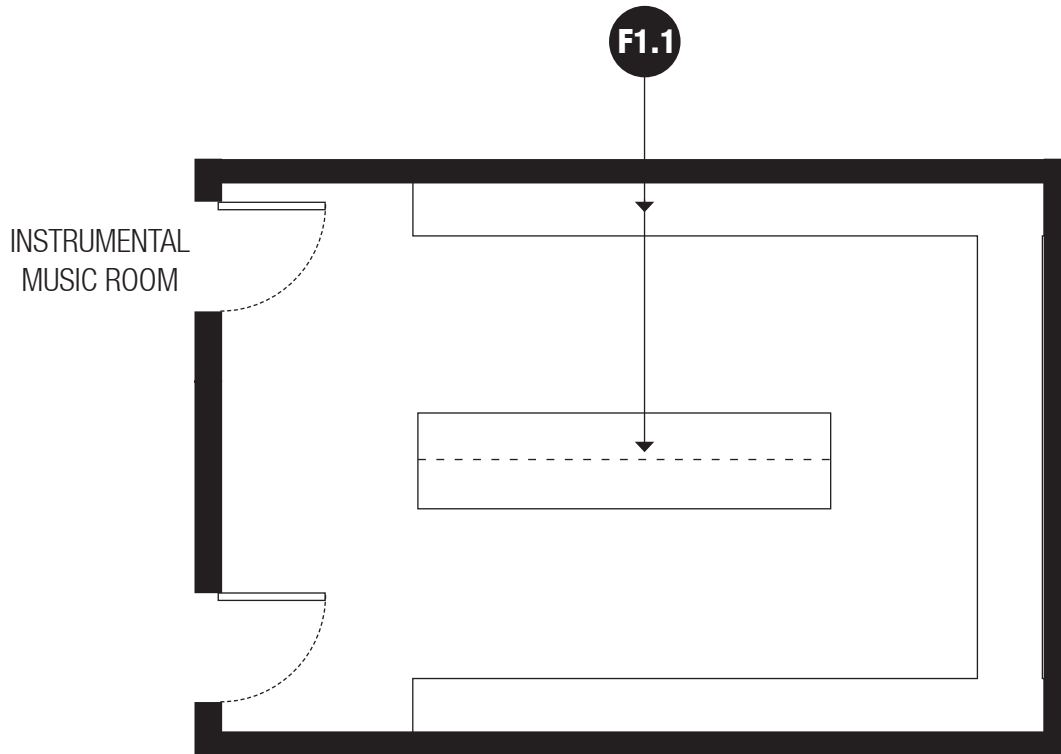
● **fixed equipment**

F3 wall shelving (variety of 12" and 18" deep)

⬡ **loose furnishings**

L4 four drawer lateral file cabinet (2)





INSTRUMENTAL
MUSIC ROOM

F1.1

size

400 sf

capacity

teacher
students

ancillary spaces

instrumental music room

spatial relationships

n/a

program activities

storage

environmental considerations

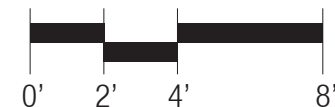
n/dca

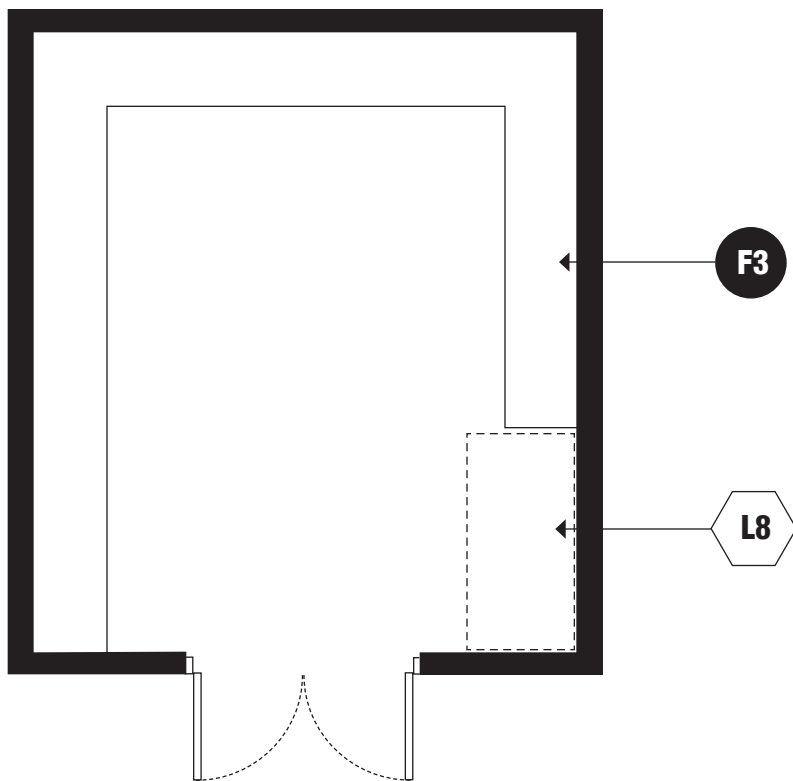
LEGEND ///

● **fixed equipment**

F1.1 casework (adjustable open cubbies for medium and small instruments)

M-PA /// **BAND STORAGE**





size

200 sf

capacity

student assistants

teacher

ancillary spaces

choral room

spatial relationships

n/a

program activities

storage and simple repair of portable
choral risers, accessories, and
equipment

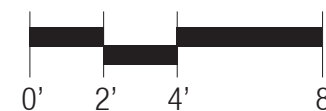
LEGEND ///

● **fixed equipment**

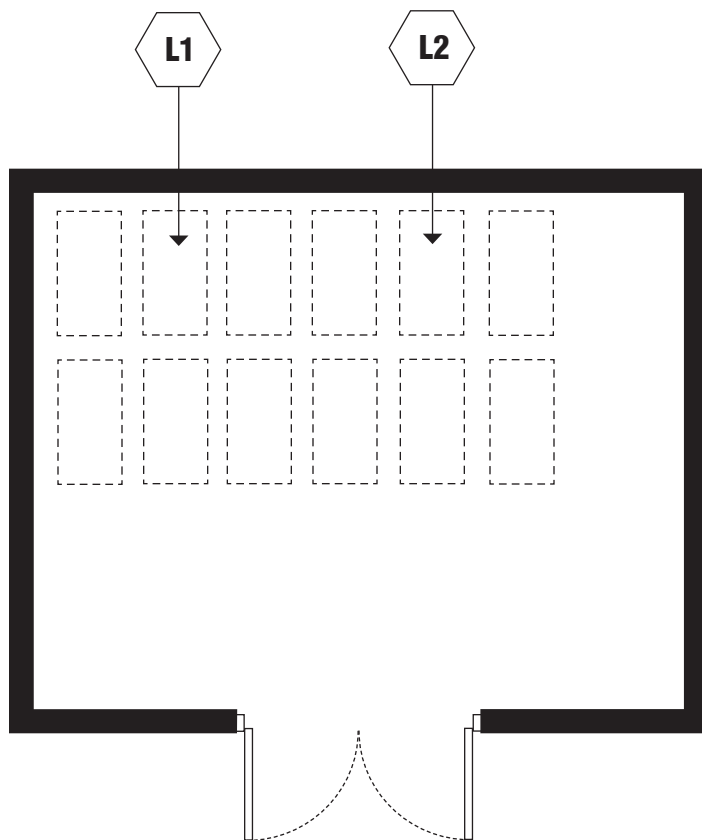
F3 wall shelving

⬡ **loose furnishings**

L8 tall cabinet with shelves



M-PA /// CHORAL STORAGE



M-PA /// CHAIR STORAGE

size

300 SF

capacity

student assistants

teacher

ancillary spaces

cafetorium

spatial relationships

near stage - may provide back of stage access

program activities

storing and retrieving chairs, portable risers, podium, and piano

environmental considerations

uniform lighting

cleanable building surfaces

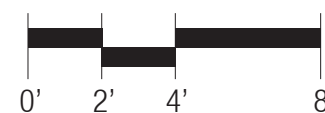
accessibility for moving furniture both in and out

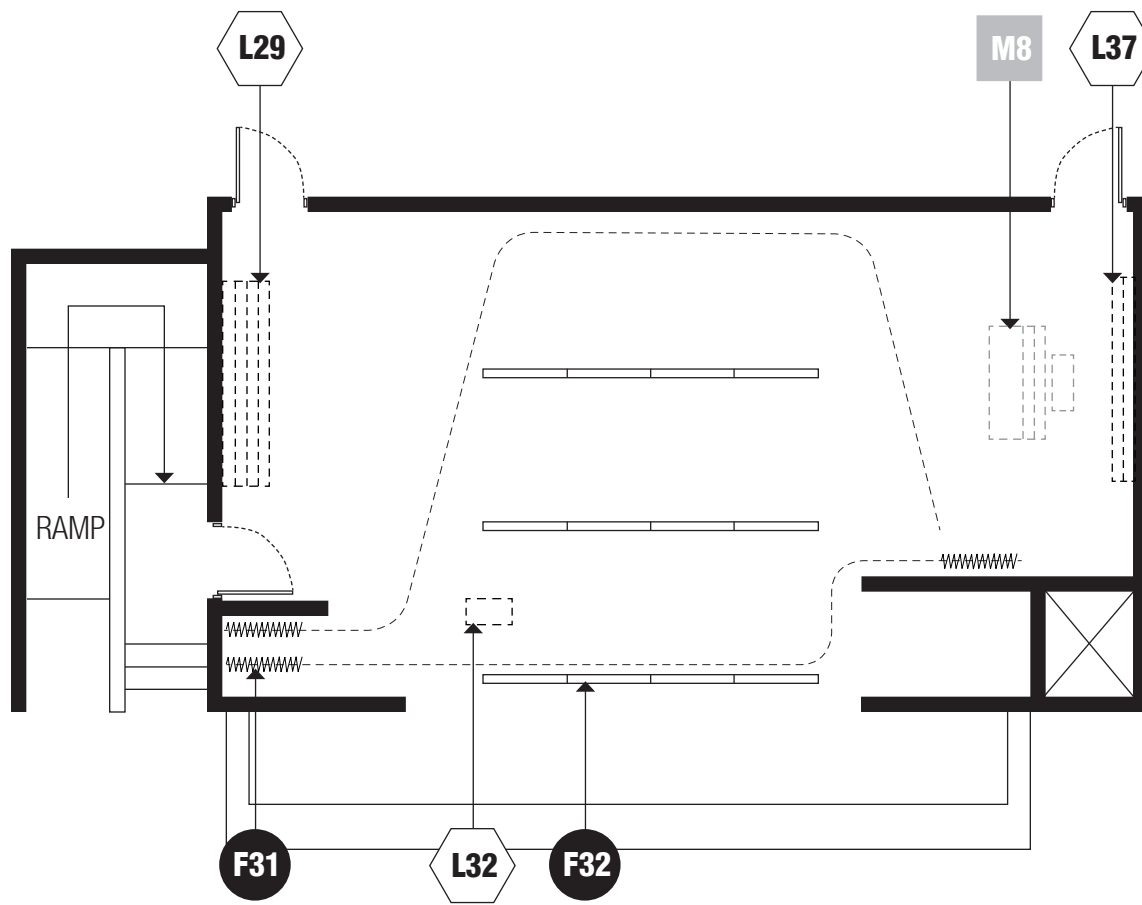
LEGEND ///

⬡ **loose furnishings**

L1 stackable/nesting chairs

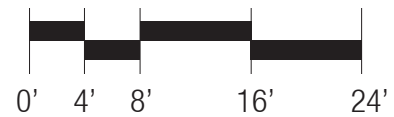
L2 stackable/nesting tables





CAFETORIUM

M-PA /// STAGE



size

1000 SF

capacity

- students (120)
- teachers
- parents/volunteers
- community members

ancillary spaces

- gymnasium
- cafetorium
- music rooms

spatial relationships

- adjacent and access to gymnasium
- near music rooms with ramp access

program activities

- student assembly/award programs
- theatrical/musical performances
- in-service conferences

environmental considerations

- electrical outlets for equipment
- stage to be no more than 21" above floor
- direct and convenient access to stage via stairs/ramps

finishes

- flooring:
 - wood strip flooring for athletic applications

LEGEND ///

● **fixed equipment**

- F13 sound system
- F31 stage curtains
- F32 stage lighting (mounted to ceiling)

◻ **loose furnishings**

- L29 choral risers (mobile and folding)
- L32 conductor's podium and stool (with sound system controls)
- L37 dance barres

■ **miscellaneous**

- M8 upright piano

▶ **data drop**

M-PE /// **PHYSICAL EDUCATION**

GYMNASIUM / MULTIPURPOSE

PUBLIC RESTROOMS

PE OFFICE


PE STORAGE


MULTI-PURPOSE / AFTER SCHOOL SPACE

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|------------------------------|-----------------|-----------|---------------|--|
| PHYSICAL EDUCATION | | | | |
| Gym Lobby | 1 | 1,000 | 1,000 | |
| Gymnasium | 1 | 6,500 | 6,500 | |
| Seating for 600 in bleachers | 1 | 2408 | 2408 | |
| Office | 1 | 300 | 300 | |
| After-School Programs Office | 1 | 300 | 300 | |
| Multipurpose/Fitness Room | 1 | 1,600 | 1,600 | |
| Equipment Storage | 1 | 600 | 600 | |
| Storage | 1 | 250 | 250 | |
| Public Restrooms | | | | provided as a typical classroom with bathrooms |
| Health Classroom | 2 | 900 | 1,800 | |
| Locker Rooms | 2 | 750 | 1500 | |
| Restrooms/showers | 2 | 250 | 500 | |
| Laundry | 1 | 100 | 100 | |
| Total | | | 16,858 | |


Comments //

KEY ///

direct access 

linked space 

enclosed space 

open space 

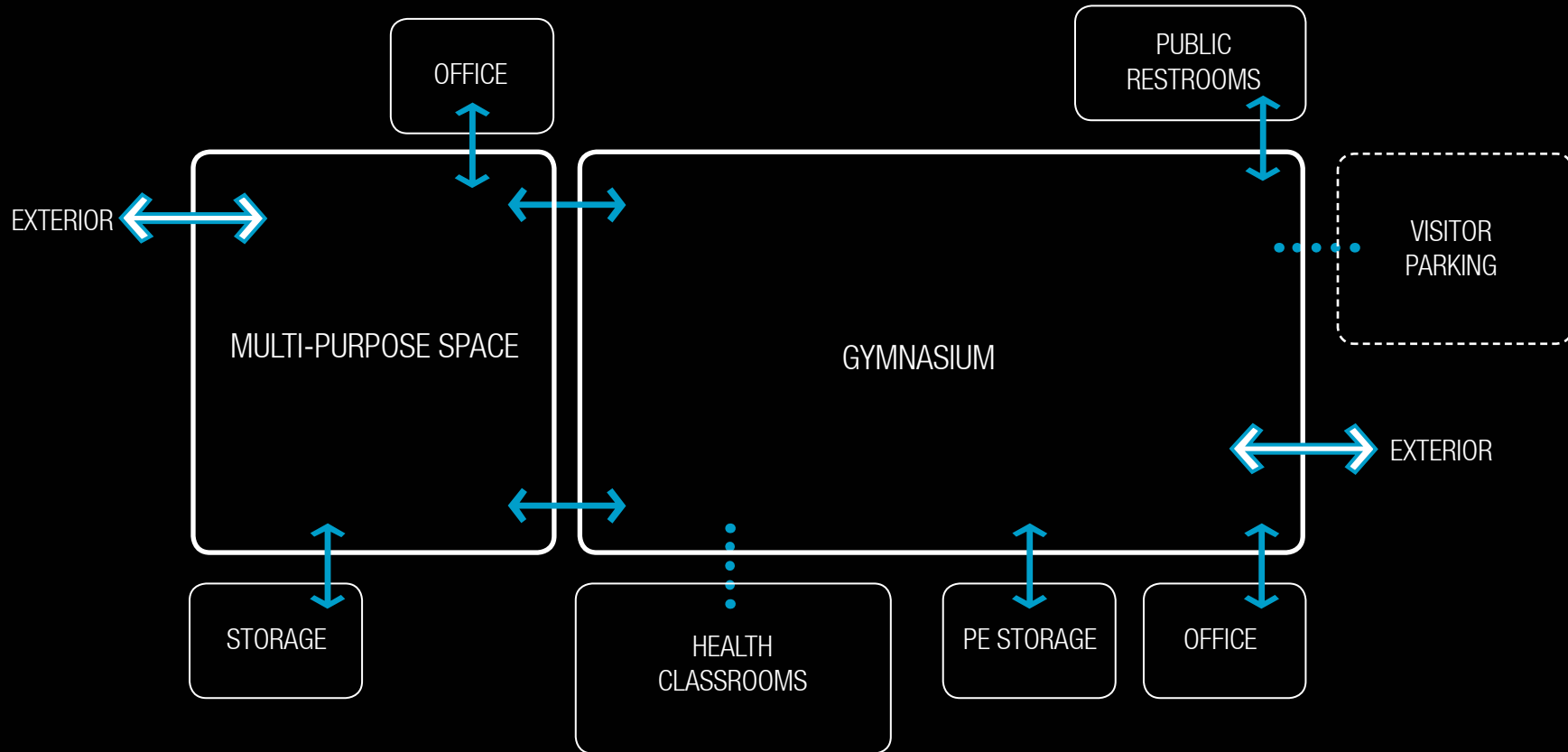
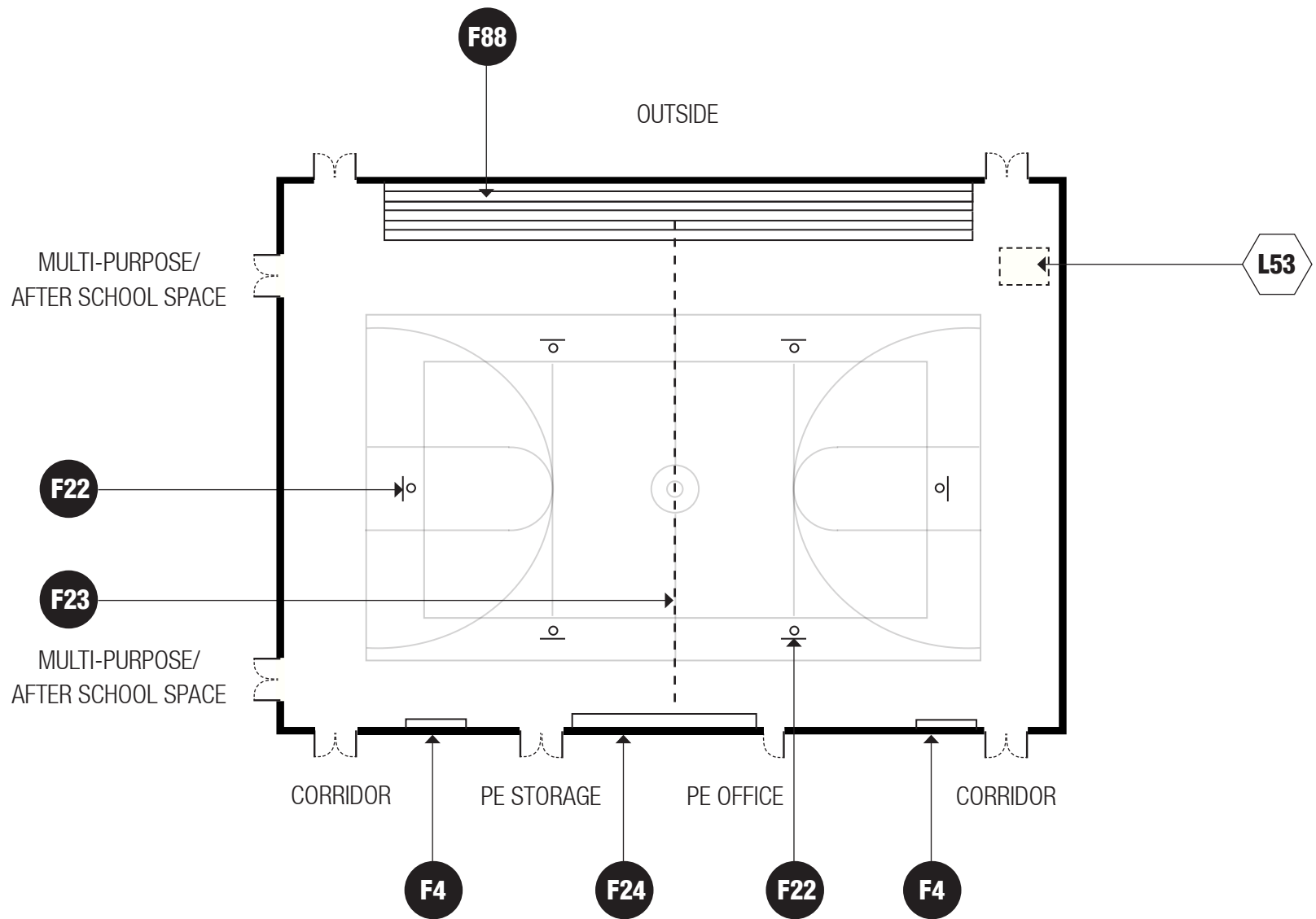


FIG. 11.0 // PHYSICAL EDUCATION ADJACENCY DIAGRAM



M-PE /// GYMNASIUM



size

6,500 SF

capacity

20-24 students per class

2-3 teachers

parents and community members for meetings

assemblies to accomodate at least 1/2 of the student body

finishes

flooring: wood strip flooring for athletic applications or resilient athletic flooring

base: vented resilient base

ceiling: painted exposed structure on acoustical deck

walls: painted concrete masonry units acoustical wall treatment and/or sound absorbing concrete masonry units

padding on lower levels

spatial relationships

near public restrooms

access to outdoor physical education play areas

near visitor parking

located with easy access to rest of school, but must be able to close off area for security during evening activities

adjacent and access to PE office

adjacent and access to PE storage

adjacent to multi-purpose room

program activities

athletic skills and leader games

adaptive physical education

student assemblies and programs

lectures/teaching

community use

environmental considerations

environmental sound control:

wall minimum: STC 50

adequate sound control/acoustics

clear height of 20' from floor to nearest obstruction

electrical outlets for equipment

drinking fountain and open cubbies in adjacent lobby area

structure, lighting, and ducts designed not to trap PE balls; wire gaurds on light fitures

ceiling heights should be proportional to room volume

LEGEND ///

● **fixed equipment**

F4 marker board (8 LF 2 sides of gym with electrical outlet below)

F22 basketball goals (adjustable height, ceiling hung or portable)

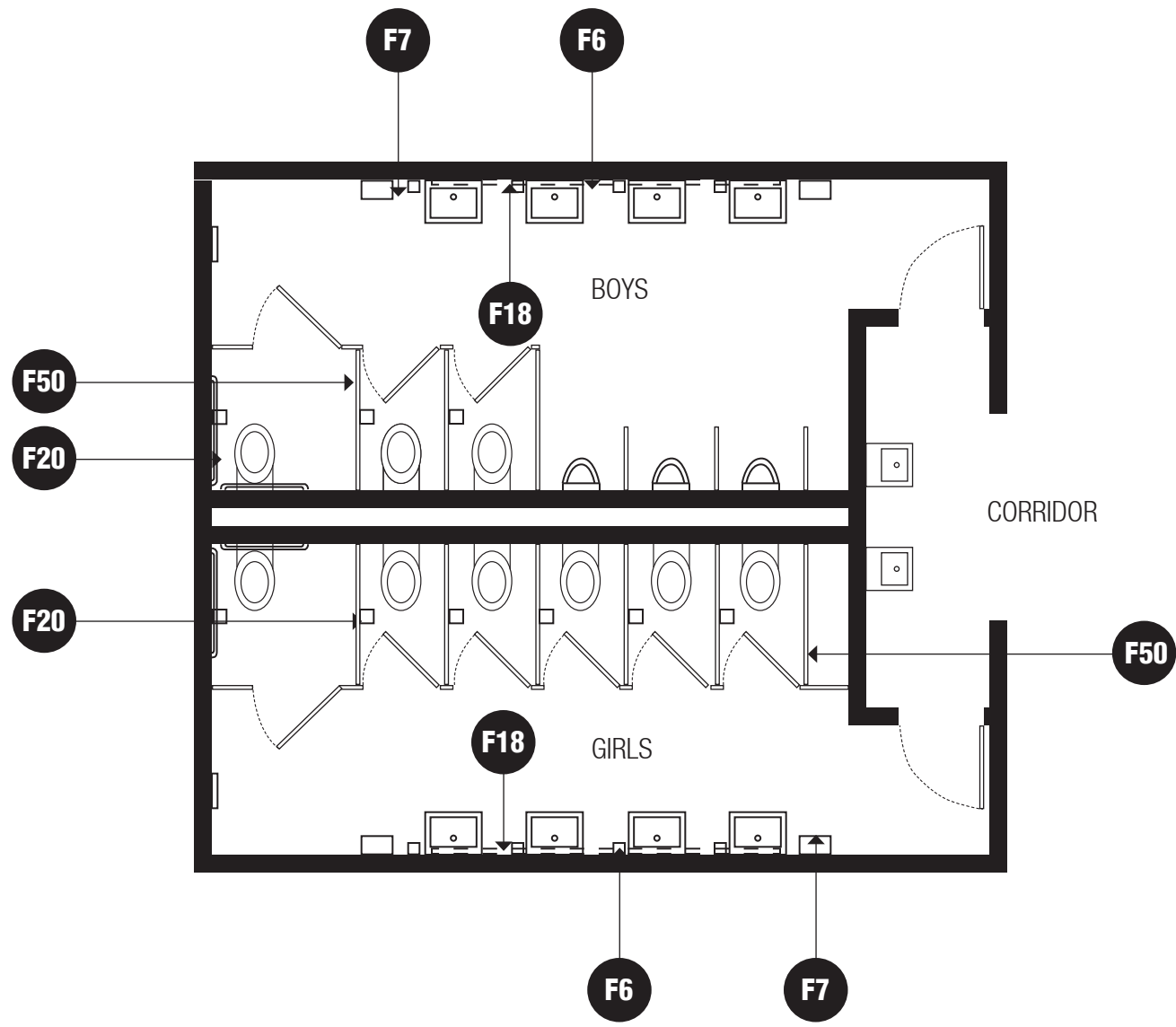
F23 operable partition- motorized

F24 climbing wall

F88 gym bleachers

◡ **loose furnishings**

L53 portable sound system



M-PE /// PUBLIC RESTROOMS

Spaces to be determined by design professional based on the number of fixtures required.

size

based on the sum of the program areas excluding building services, multiplied by 3.5%

capacity

based on size of program area

spatial relationships

near student dining area
near public use areas, such as media center and gymnasium
near academic core area
restrooms located in several areas throughout building

program activities

personal and health needs for the students

plumbing

wall mounted water closets
wall mounted lavatories
or wash fountains
appropriate height fixtures by age
plumbing connections

LEGEND ///

● **fixed equipment**

F6 soap dispenser

F7 towel dispenser

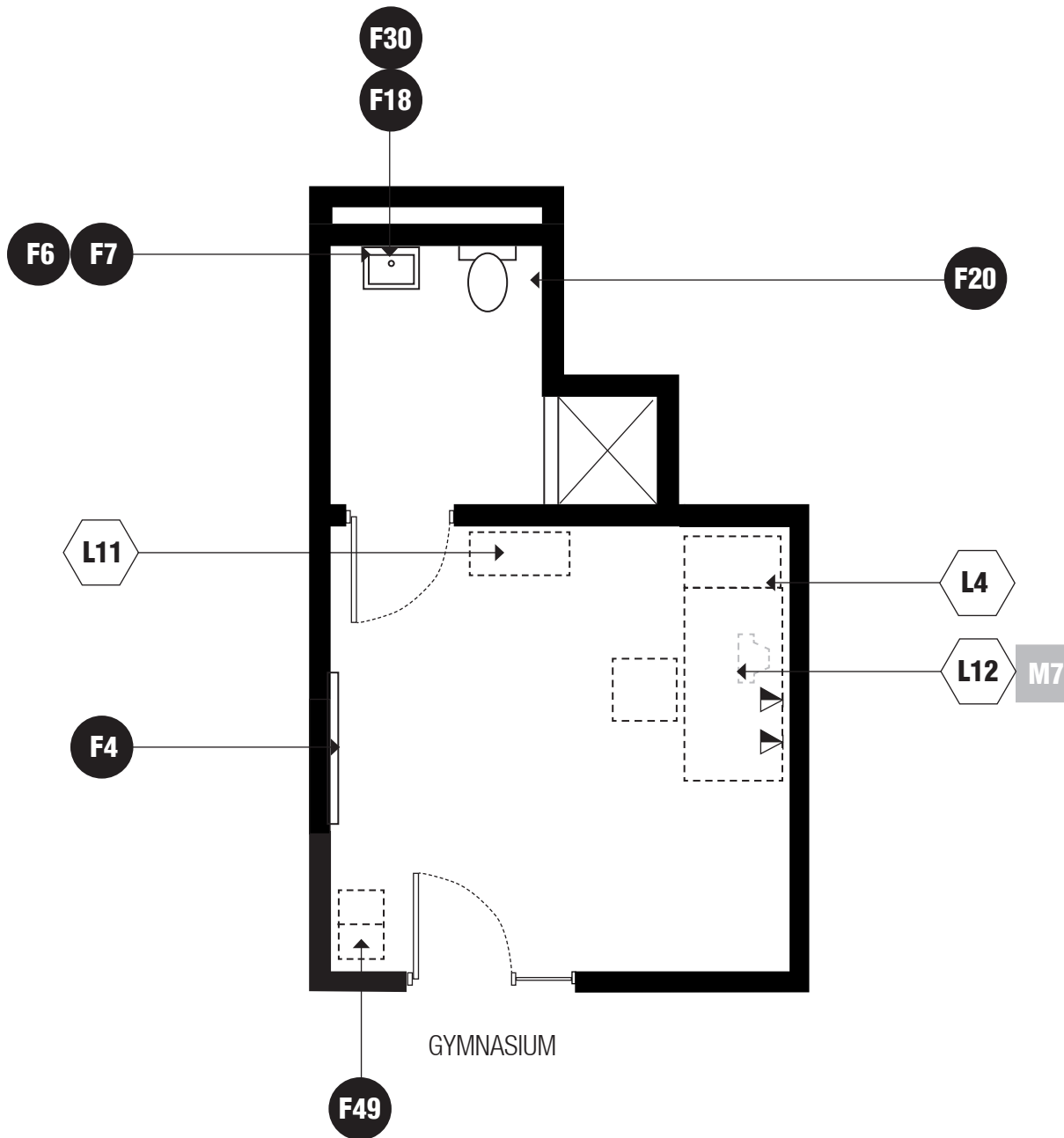
F18 mirror (24" x 60")

F20 bathroom accessories

F50 toilet partitions

NOTES //

Where individual restrooms are provided in lieu of large group restrooms, refer to staff restroom.



E-PE /// PE OFFICE



size

150 SF

capacity

1-2 teachers

student teachers

ancillary spaces

gymnasium

near adult restrooms

spatial relationships

adjacent and access to gymnasium

near restrooms

program activities

ordering

scheduling

planning

maintaining records

meetings

plumbing

wall mounted lavatory

wall mounted water closet

floor drains in restroom and shower

LEGEND ///

● **fixed equipment**

F4 marker board (4 LF)

F6 soap dispenser

F7 towel dispenser

F18 mirror (24" x 60")

F20 bathroom accessories

F30 bathroom sink

F49 lockers (2)

◻ **loose furnishings**

L4 four drawer lateral file cabinet

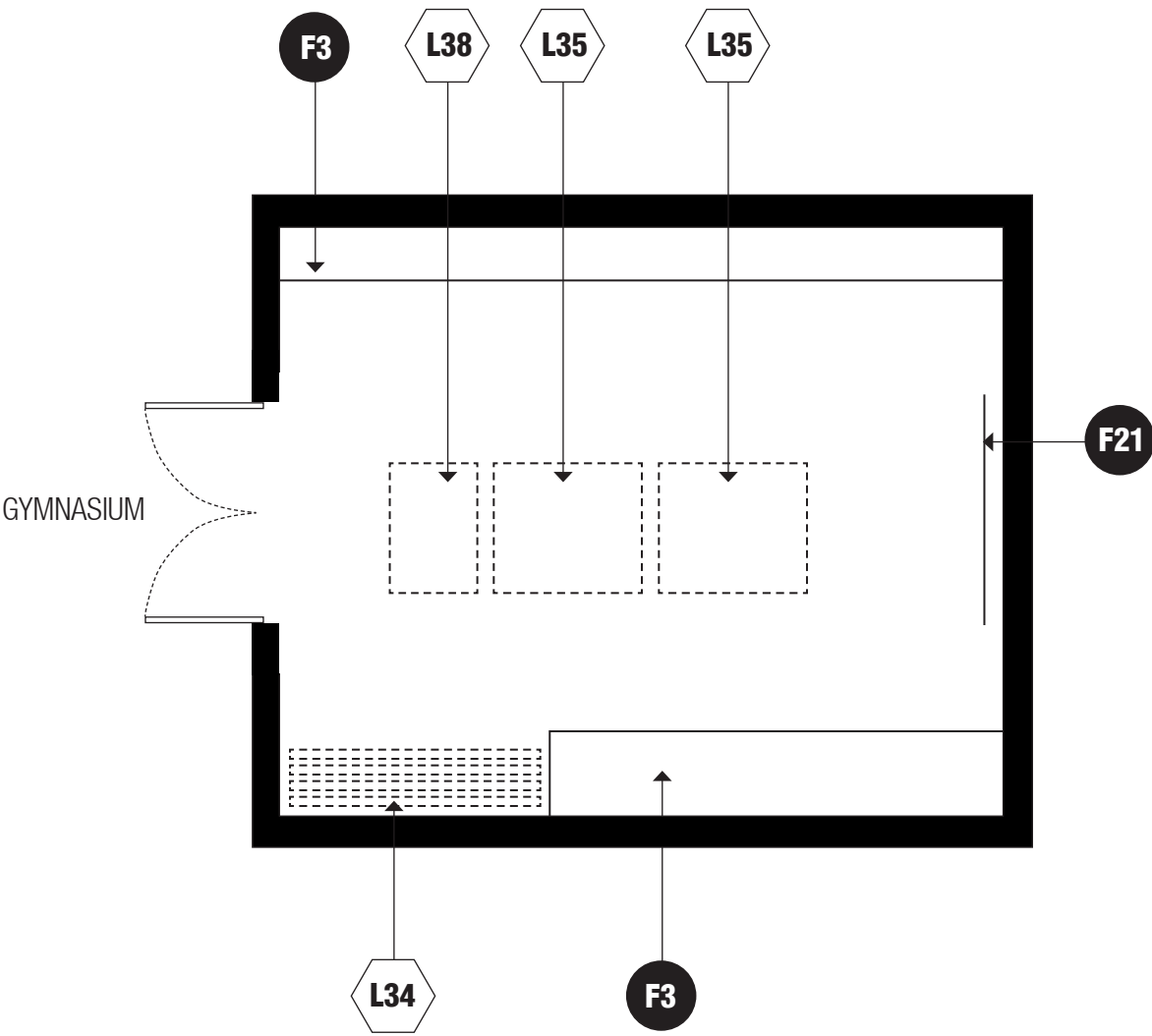
L12 admin workstation and chair

L11 adjustable height bookshelves

■ **miscellaneous**

M7 desktop computer

▶ **data drop**



size

250 SF

capacity

1-2 teachers
student teachers

ancillary spaces

gymnasium
near direct access to exterior for access
to outdoor equipment

program activities

storage

environmental considerations

leave space below shelving on one wall
for portable bins

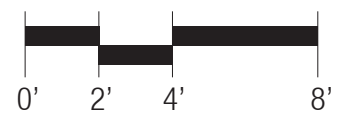
LEGEND ///

● **fixed equipment**

F3 wall shelving (12" and 18" deep)
F21 pegboard (4 LF)

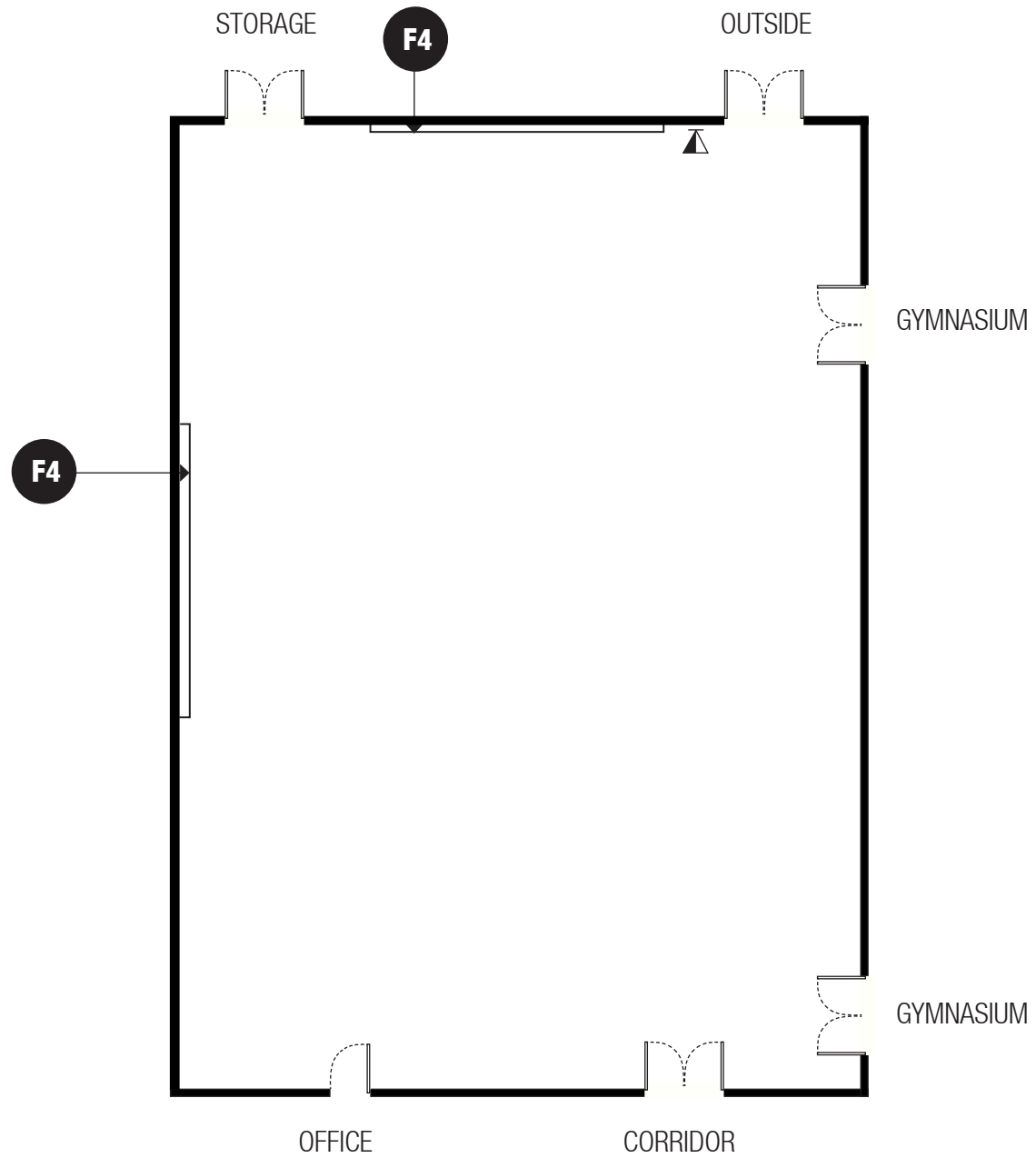
⬡ **loose furnishings**

L34 tumbling mats
L35 ball bins
L38 play equipment

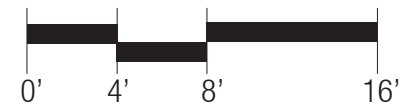


E-PE /// PE STORAGE

THIS PAGE IS LEFT BLANK INTENTIONALLY



E-PE /// MULTI-PURPOSE / AFTER SCHOOL SPACE



size

1,500 SF

capacity

students

teachers and staff

after school staff

community

finishes

flooring: resilient athletic flooring

spatial relationships

near after school entrance to building

near parking area

adjacent and access to after school

storage area

adjacent to gymnasium

program activities

back-up physical education teaching

wellness area

quiet area for students to play cards, work

on homework, read

environmental considerations

elevated ceiling, +/- 18 LF

uniform lighting

flexibility of space

adequate ventilatio and ceiling fans

electrical outlets for equipment

must be able to isolate from the rest of

the school after hours

drinking fountain in adjacent corridor

windows to provide natural light

LEGEND ///

● **fixed equipment**

F4 marker board (on 2 walls, 16 LF each)

⬡ **loose furnishings**

loose furnishings for after school staff TBD

▶ **data drop**





M-AD /// ADMINISTRATION

ENTRANCE LOBBY
WELCOME CENTER/VISITOR CHECK-IN
PRINCIPAL'S OFFICE
SECRETARY
DIRECTOR OF COUNSELING
BUSINESS MANAGER/TREASURER
REGISTRAR
STAFF TOILET
CONFERENCE ROOM
ADMINISTRATIVE WORKROOM
PSYCHOLOGIST
SOCIAL WORKER
OT/PT/ITINERANT
STUDENT RESOURCE OFFICER
DECENTRALIZED ADMINISTRATION SUITE
RECEPTION (MAIL BOXES)
RECORD STORAGE
ASSISTANT PRINCIPAL OFFICE
COUNSELOR OFFICE
CONFERENCE ROOM
DEAN OF STUDENTS
CONFERENCE ROOM
HEALTH SUITE
OFFICE
WAITING/TREATMENT AREA
COTS
STORAGE
TOILET/SHOWER
SUPPLY STORAGE
GENERAL STORAGE
FACE CENTER
OFFICE
STORAGE

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|--|----------|------|--------------|---|
| ADMINISTRATION | | | | |
| Entrance Lobby | 1 | 1500 | 1500 | includes security desk |
| Welcome Center/visitor check-in* | 1 | 600 | 600 | welcoming area, work area for admin asst. |
| Principal's Office* | 1 | 230 | 230 | |
| Administrative assistant | 1 | 100 | 100 | waiting lobby outside principal's office |
| Director of Counseling* | 1 | 150 | 150 | |
| Business Manager/Treasurer* | 1 | 150 | 150 | |
| Registrar* | 1 | 200 | 200 | |
| Staff Toilet* | 1 | 50 | 50 | adjacent Principal's office & main office suite |
| Conference Room* | 1 | 300 | 300 | adjacent to principal's office |
| Administrative Workroom* | 1 | 150 | 150 | |
| Psychologist | 1 | 200 | 200 | include alcove waiting area for 2 people |
| Social Worker | 2 | 150 | 300 | accommodates itinerant OT/PT staff |
| OT/PT/Itinerant | 1 | 250 | 250 | |
| Student Resource Officer | 1 | 150 | 150 | locate near an academic cluster rather than main office administrative spaces |
| Decentralized administration Suite (one per grade) | | | | |
| Student Services Office | 3 | 150 | 450 | |
| Reception (mail boxes) | 3 | 150 | 450 | |
| Record Storage | 3 | 100 | 300 | |
| Assistant Principal Office | 3 | 150 | 450 | |
| Counselor Office | 6 | 120 | 720 | |
| Conference Room | 3 | 200 | 600 | locate near an academic cluster |
| Dean of Students | 1 | 150 | 150 | access from hallway near dean and student resource officer |
| Conference Room | 1 | 150 | 150 | |
| Health Suite | | | | |
| Office | 1 | 100 | 100 | |
| Waiting/Treatment Area | 1 | 150 | 150 | |
| Cots | 2 | 80 | 160 | |
| Storage | 2 | 25 | 50 | 2 separated by curtain |
| Toilet/shower | 1 | 80 | 80 | |
| Dental rm | 1 | 80 | 80 | |
| nurse's office | 1 | 80 | 80 | |
| Supply Storage | 1 | 250 | 250 | |
| General Storage | 1 | 600 | 600 | |
| Family And Community Engagement (FACE) Center | | 350 | 350 | |
| Office | 1 | 150 | 150 | |
| Storage | 2 | 100 | 200 | |
| Total | | | 9,850 | |

Comments // The overall total for the administration area may be + or – ten percent. Some areas may be combined to facilitate circulation. Some areas (*) may be located outside of the suite to make the best use of the existing building.

KEY ///

- direct access 
- linked space 
- enclosed space 
- open space 

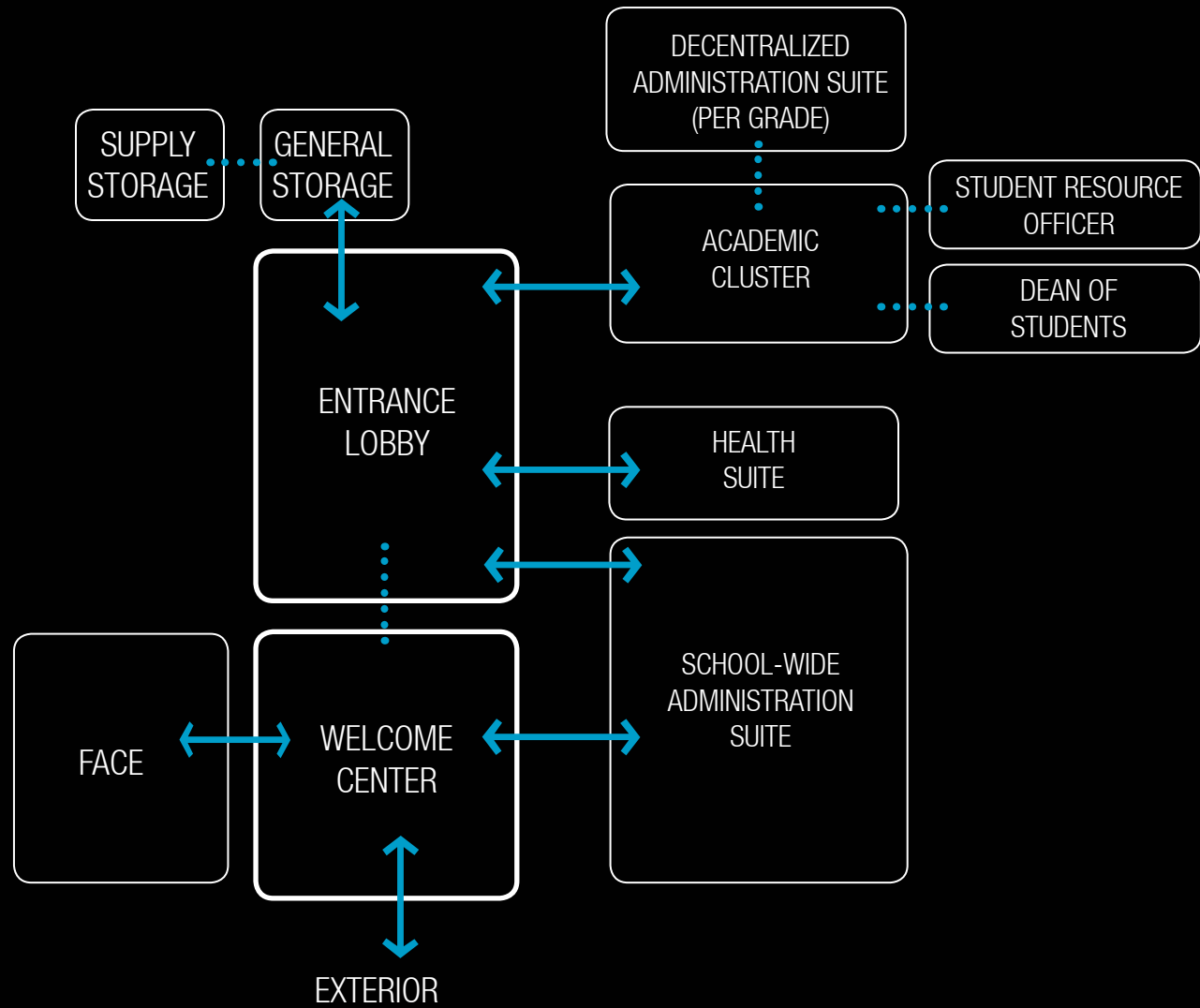
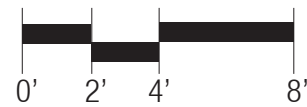
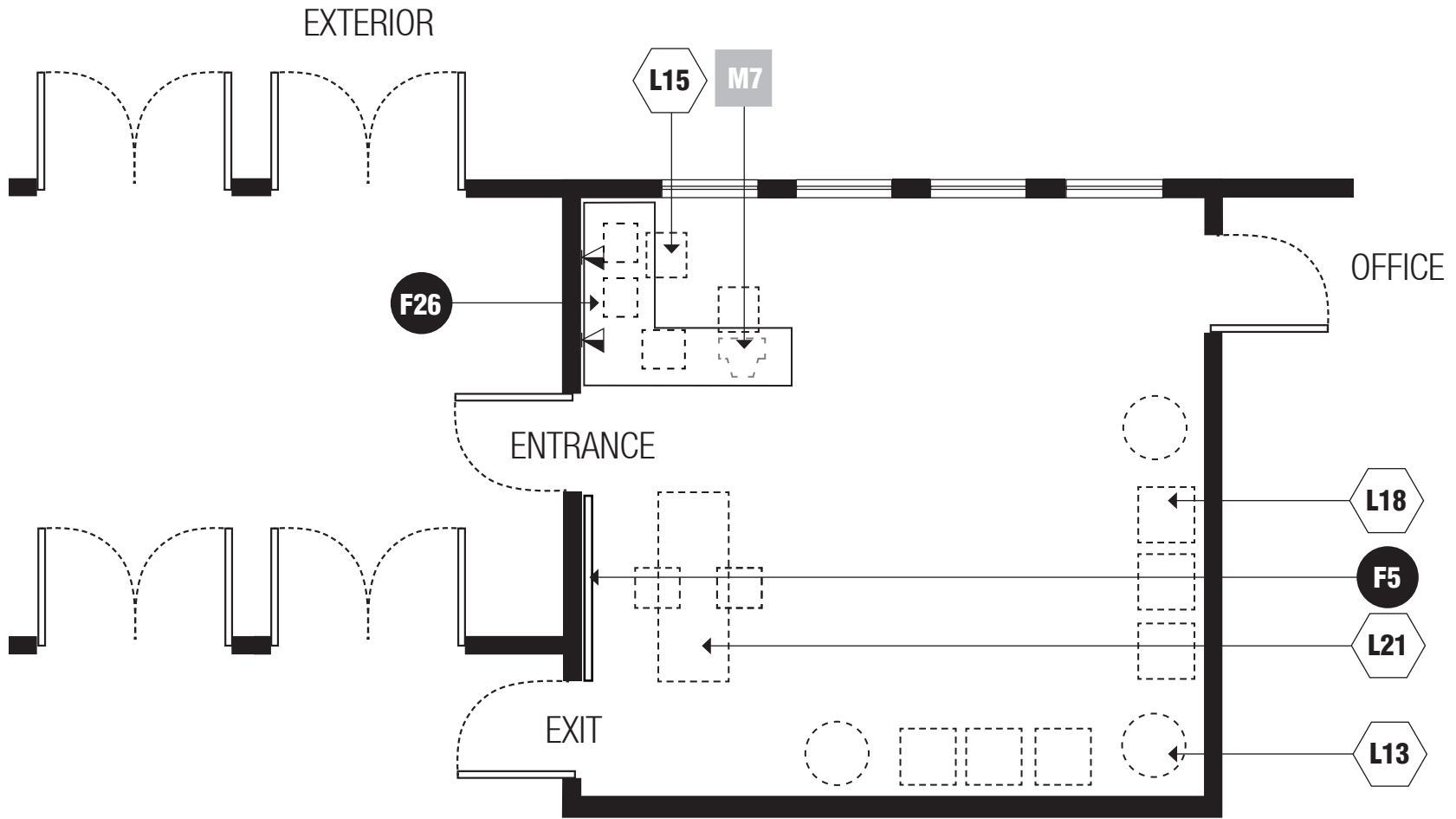


FIG. 12.0 // ADMINISTRATION ADJACENCY DIAGRAM



size

600 SF

capacity

administrative assistants
visitors/parents
students

spatial relationships

see illustration opposite page
located inside the main administrative
area directly accessible from entry
vestibule
near public restrooms
maximize views to exterior and main entry
public address alcove
closet (lockable)

program activities

greeting visitors
student waiting/pick up area
workstation for administrative assistant
second and final access control point
prior to accessing the main school
security check-point

LEGEND ///

● fixed equipment

F5 tackable/magnet wall surface (8 LF)
F26 reception counter (Finish carpentry)

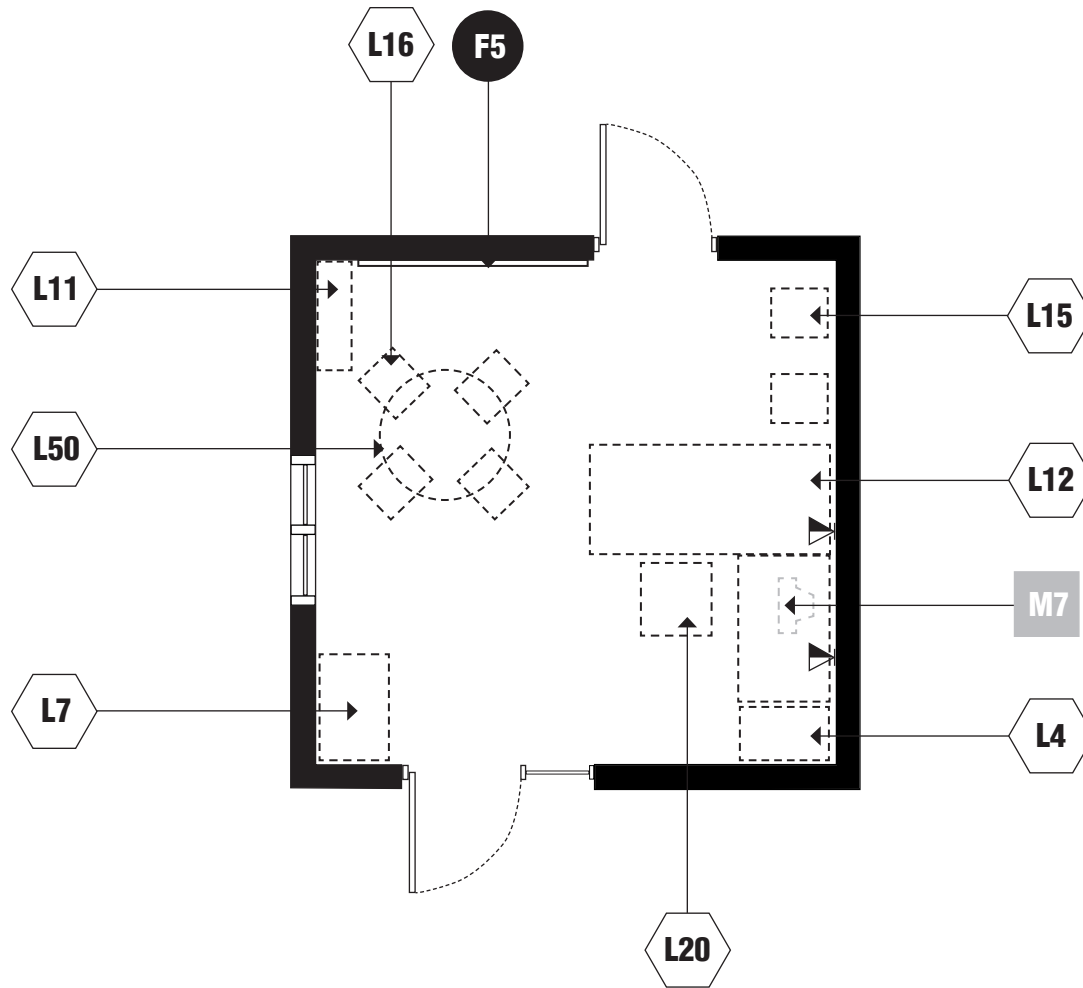
⬡ loose furnishings

L13 small table (3)
L15 task chair (2)
L18 lounge chairs (4-6)
L21 work table for check-in station

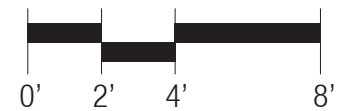
■ miscellaneous

M7 desktop computer

▶ data drop



M-AD /// PRINCIPAL'S OFFICE



size

230 SF

capacity

principal

ancillary spaces

conference Room

spatial relationships

near main entry

near administrative assistant

adjacent and access to conference room

back door to secondary corridor, desirable

program activities

conferences with students, parents,

teachers, staff, and visitors

curriculum development

research and planning

telephone communications

dealing with personnel issues

coordination of school and support

services

LEGEND ///

● **fixed equipment**

F5 tackable/magnet wall surface

⬡ **loose furnishings**

L4 four-drawer file cabinet

L7 teacher's lockable wardrobe

L11 adjustable height bookshelves (12 LF)

L12 admin workstation

L15 task chair (4-6)

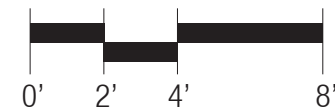
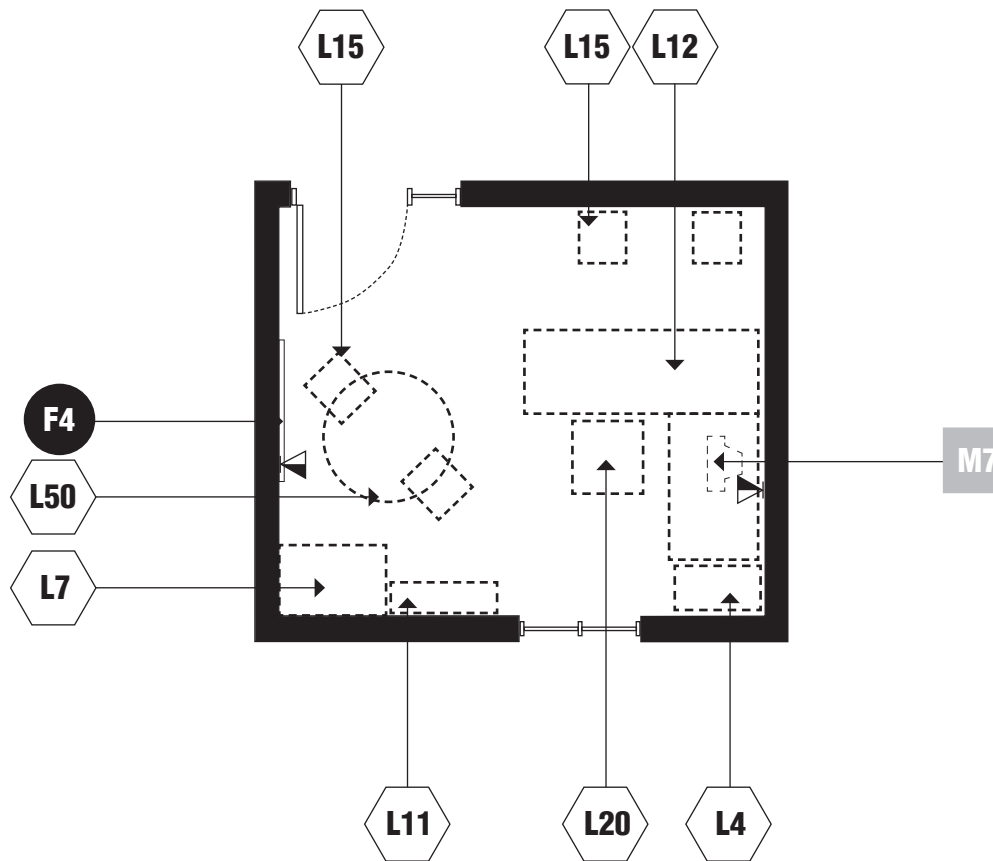
L20 executive chair

L50 small conference table

■ **miscellaneous**

M7 desktop computer

▶ **data drop**



M-AD /// DIRECTOR OF COUNSELING / STUDENT SERVICE OFFICER

size

150 SF

capacity

director of counseling

ancillary spaces

n/a

spatial relationships

may be located near Academic Core for supervision

may be located near administration suite

program activities

conferences with parents

student interaction

conferences with individual teachers or small groups

telephone communications (private)

research and planning

coordination of school and support services

LEGEND ///

● **fixed equipment**

F4 marker board

◻ **loose furnishings**

L4 four-drawer file cabinet

L7 teacher's lockable wardrobe

L11 adjustable height bookshelves (12 LF)

L12 admin workstation

L15 task chair (2-4)

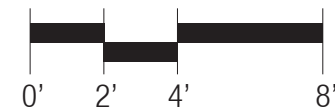
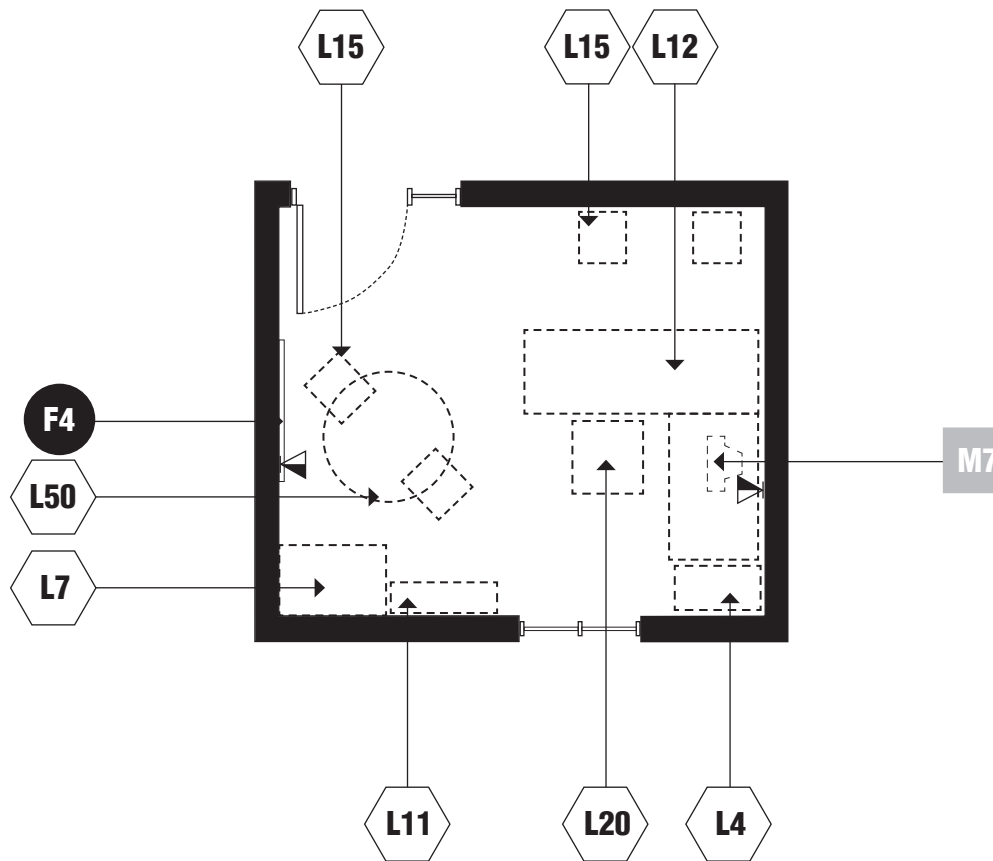
L20 executive chair

L50 small conference table

■ **miscellaneous**

M7 desktop computer

▶ **data drop**



M-AD /// BUSINESS MANAGER / TREASURER

size

150 SF

capacity

business manager/treasurer

ancillary spaces

n/a

spatial relationships

may be located near Academic Core for supervision

may be located near administration suite

program activities

conferences with parents

student interaction

conferences with individual teachers or small groups

telephone communications (private)

research and planning

coordination of school and support services

LEGEND ///

● **fixed equipment**

F4 marker board

⬡ **loose furnishings**

L4 four-drawer file cabinet

L7 teacher's lockable wardrobe

L11 adjustable height bookshelves (12 LF)

L12 admin workstation

L15 task chair (2-4)

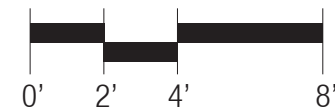
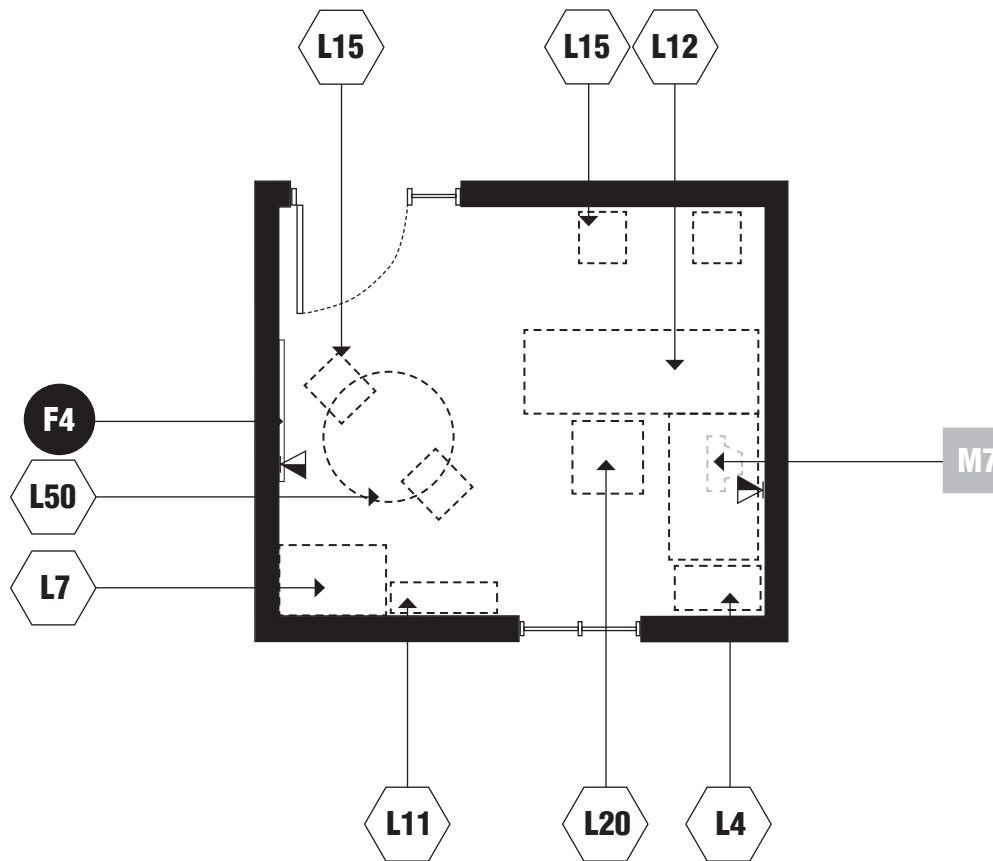
L20 executive chair

L50 small conference table

■ **miscellaneous**

M7 desktop computer

▶ **data drop**



size

200 SF

capacity

registrar

ancillary spaces

n/a

spatial relationships

may be located near Academic Core for supervision

may be located near administration suite

program activities

conferences with parents

student interaction

conferences with individual teachers or small groups

telephone communications (private)

research and planning

coordination of school and support services

LEGEND ///

● **fixed equipment**

F4 marker board

◻ **loose furnishings**

L4 four-drawer file cabinet

L7 teacher's lockable wardrobe

L11 adjustable height bookshelves (12 LF)

L12 admin workstation

L15 task chair (2-4)

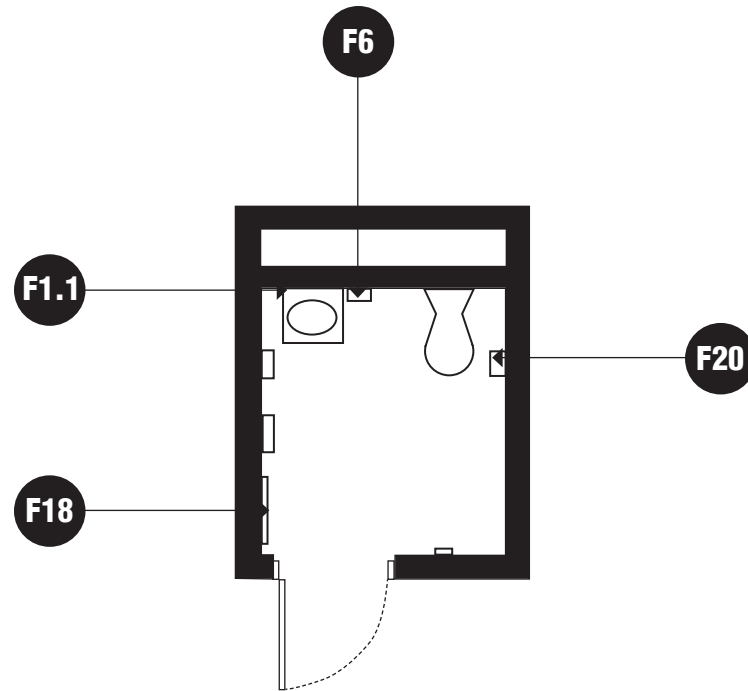
L20 executive chair

L50 small conference table

■ **miscellaneous**

M7 desktop computer

▶ **data drop**



M-AD /// STAFF TOILET



size

50 SF

capacity

staff

spatial relationships

near welcome center

near principal's office

plumbing

wall-mounted water closet

wall-mounted lavatory

plumbing connections

floor drain

LEGEND ///

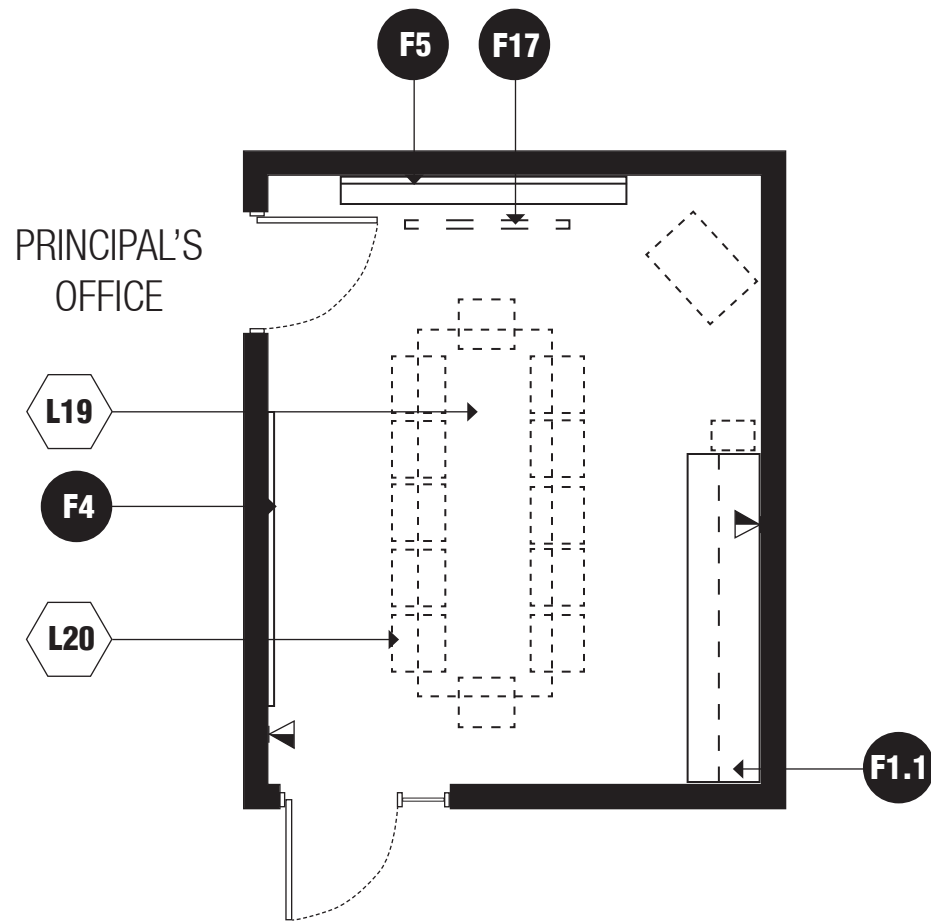
● **fixed equipment**

F1.1 casework (wall cabinet)

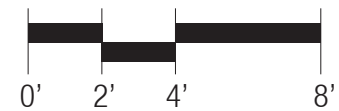
F7 towel dispenser

F18 mirror

F20 bathroom accessories



M-AD /// CONFERENCE ROOM



size

300 SF

capacity

staff

ancillary spaces

n/a

spatial relationships

near welcome center

centrally located within administrative area

adjacent and access to principal's offices

program activities

conferences with staff, students, parents, and visitors

LEGEND ///

● **fixed equipment**

F1.1 casework (6 LF)

F4 marker board (8 LF)

F5 tackable/magnet wall surface (8LF)

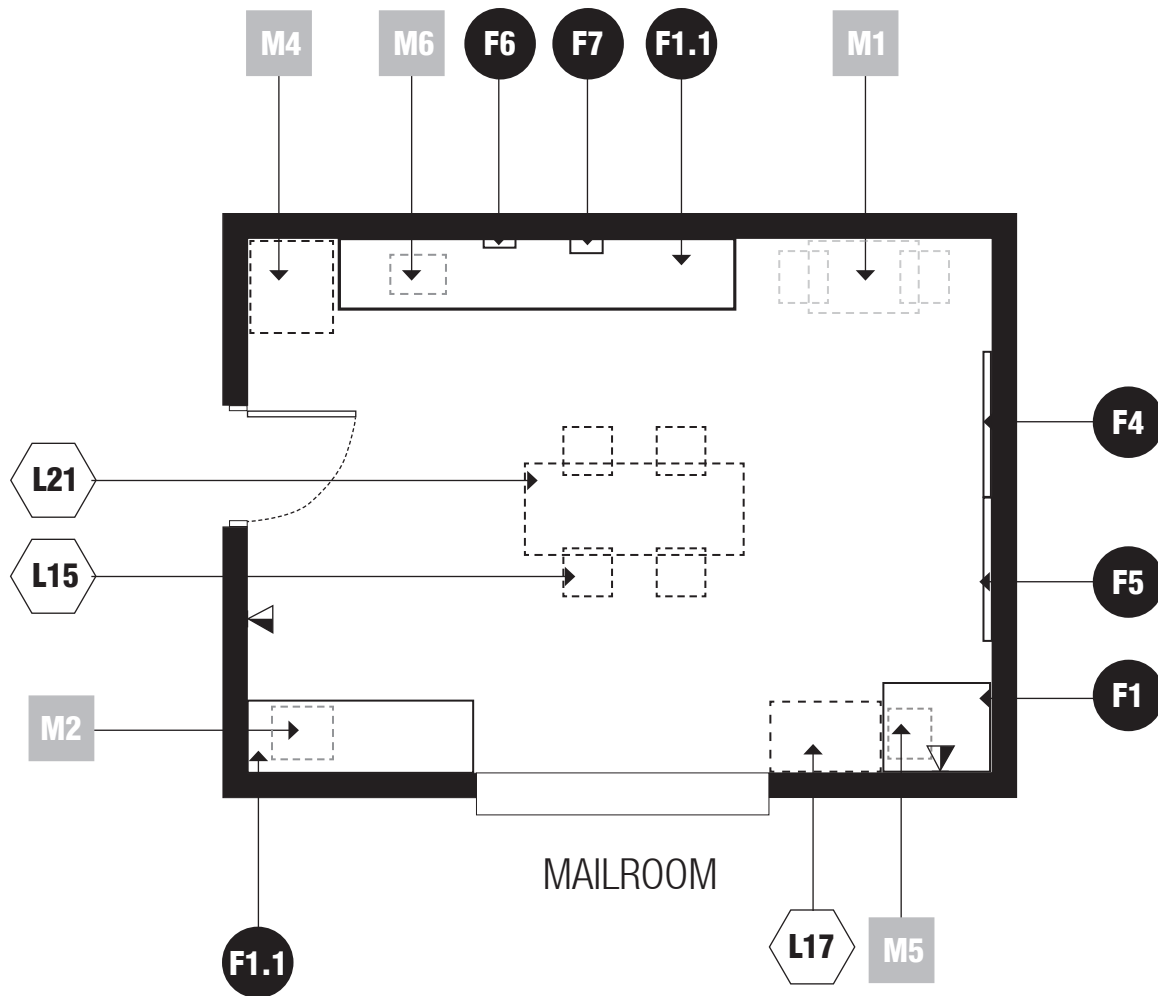
F17 audio/video recording and playback equipment

⬡ **loose furnishings**

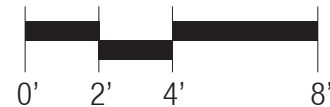
L19 Conference table (with table technology installations-VGA jacks, data outlets, power outlets, etc.)

L20 Executive chairs (12)

▶ **data drop**



M-AD /// ADMINISTRATIVE WORKROOM



size

150 SF

capacity

secretaries and administrators
volunteers
staff

ancillary spaces

n/a

spatial relationships

near welcome center
adjacent to mail room

program activities

copying
collating
sorting of files
preparing communications for mailing
binding reports
telephone communications

plumbing

plumbing connections
sink, single/deep bowl

LEGEND ///

● **fixed equipment**

- F1 base/wall cabinets and shelving
- F1.1 casework (base/wall cabinets and shelving)
- F4 marker board (4 LF)
- F5 tackable/magnet wall surface (4 LF)
- F6 soap dispenser
- F7 towel dispenser

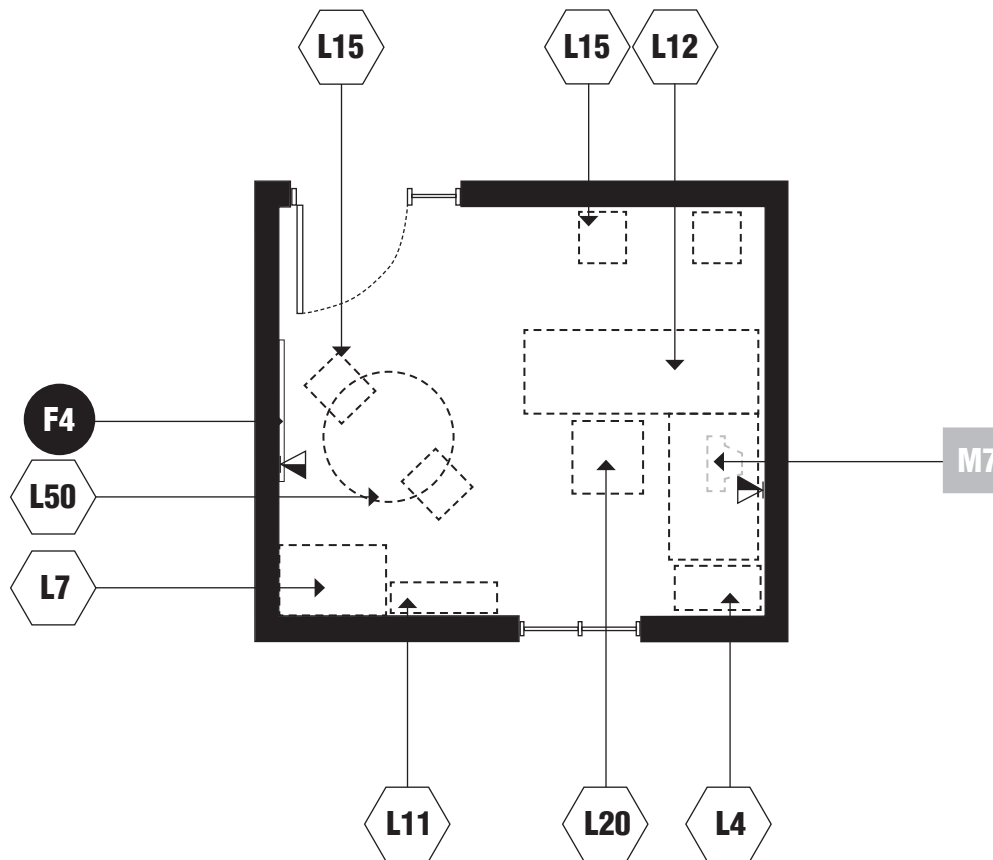
◻ **loose furnishings**

- L15 task chair (4)
- L17 printer station
- L21 work table

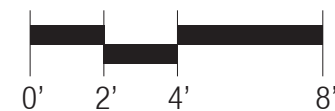
■ **miscellaneous**

- M1 high speed and/or Large format printers
- M2 color printers
- M4 photocopy machine
- M5 digital scanner
- M6 laminator

▶ **data drop**



M-AD /// PSYCHOLOGIST



size

200 SF

capacity

psychologist

ancillary spaces

n/a

spatial relationships

may be located near Academic Core for supervision

may be located near administration suite

program activities

conferences with parents

student interaction

conferences with individual teachers or small groups

telephone communications (private)

research and planning

coordination of school and support services

LEGEND ///

● **fixed equipment**

F4 marker board

⬡ **loose furnishings**

L4 four-drawer file cabinet

L7 teacher's lockable wardrobe

L11 adjustable height bookshelves (12 LF)

L12 admin workstation

L15 task chair (2-4)

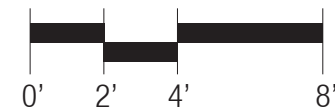
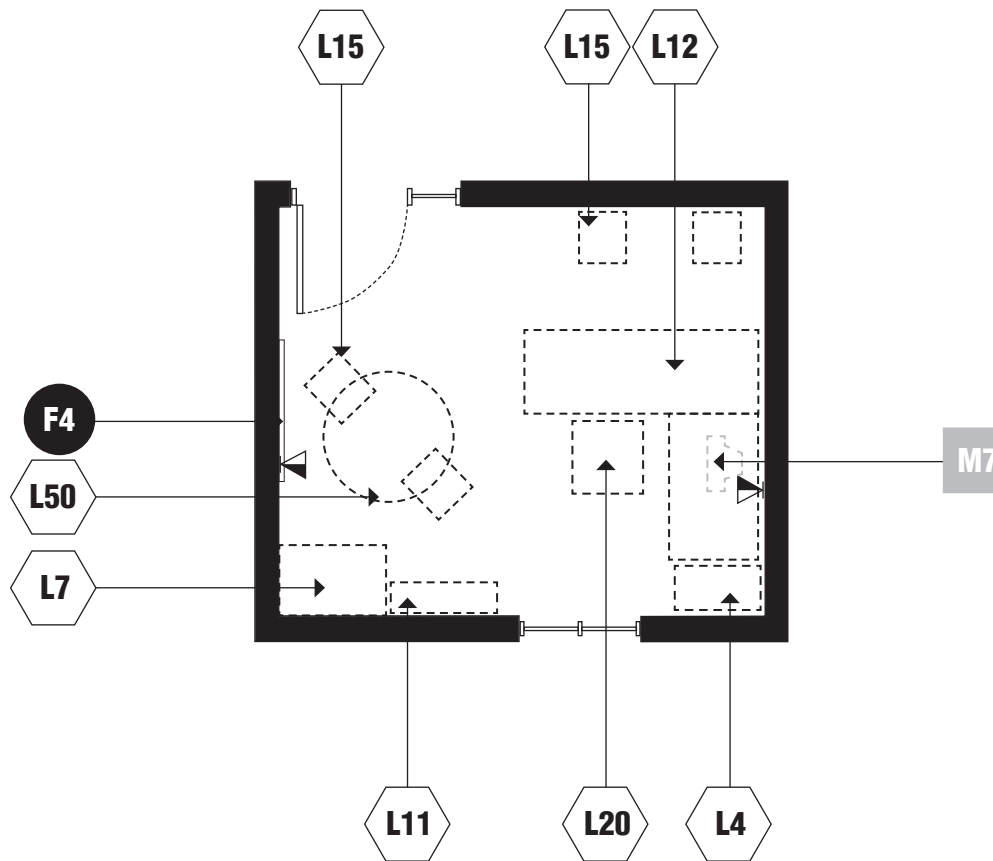
L20 executive chair

L50 small conference table

■ **miscellaneous**

M7 desktop computer

▶ **data drop**



M-AD /// SOCIAL WORKER

size

150 SF

capacity

social worker

ancillary spaces

n/a

spatial relationships

may be located near Academic Core for supervision

may be located near administration suite

program activities

conferences with parents

student interaction

conferences with individual teachers or small groups

telephone communications (private)

research and planning

coordination of school and support services

LEGEND ///

● **fixed equipment**

F4 marker board

⬡ **loose furnishings**

L4 four-drawer file cabinet

L7 teacher's lockable wardrobe

L11 adjustable height bookshelves (12 LF)

L12 admin workstation

L15 task chair (2-4)

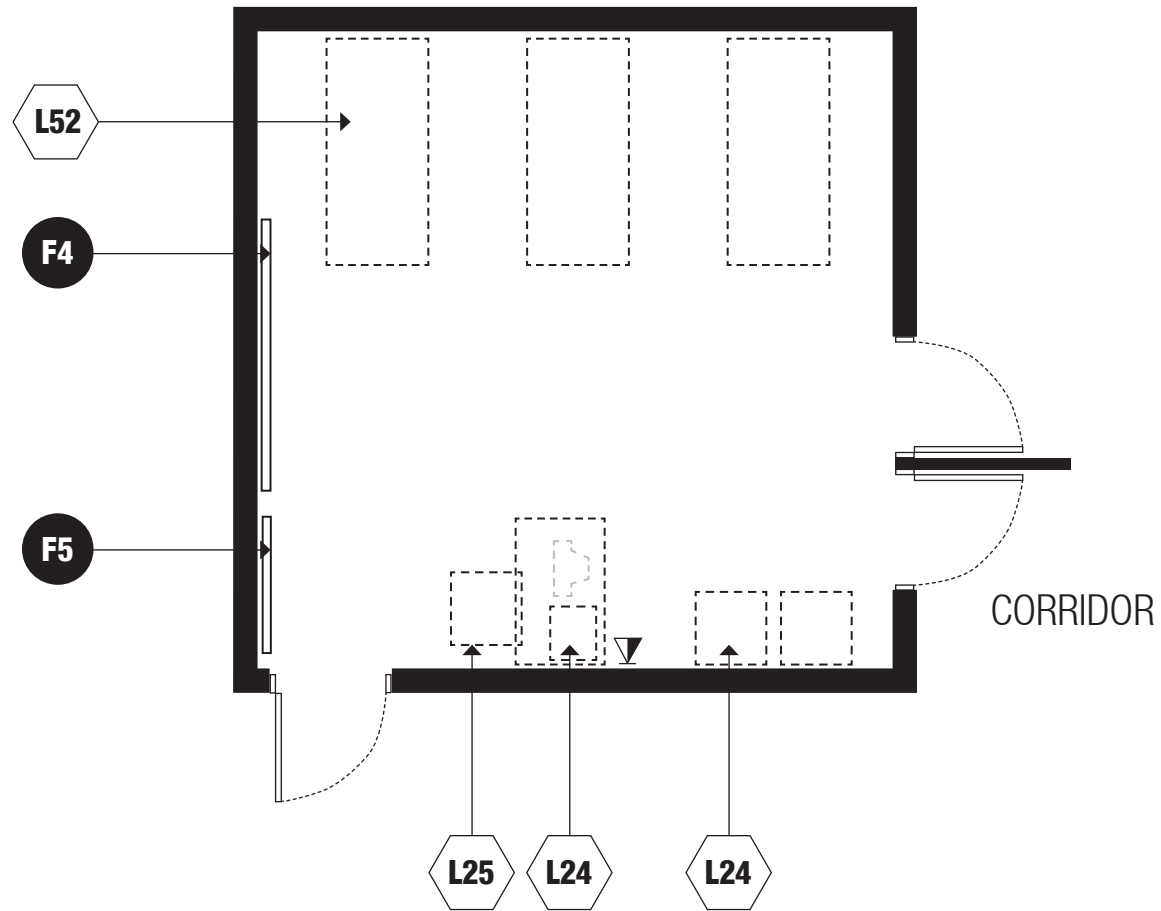
L20 executive chair

L50 small conference table

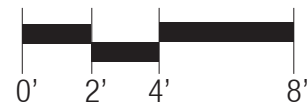
■ **miscellaneous**

M7 desktop computer

▶ **data drop**



M-AD /// OCCUPATION / PHYSICAL / ITINERANT



size

250 SF

capacity

itinerant

up to four staff members

ancillary spaces

n/a

spatial relationships

near student services conference room

near speech

near special needs classroom

near FACE center

program activities

therapy

exercise

assistive technology evaluation

occupational and physical therapy

environmental considerations

electrical outlets for equipment

wheelchair accessibility

reinforcing structure in ceiling to support

lift equipment

LEGEND ///

● **fixed equipment**

F4 marker board (8 LF)

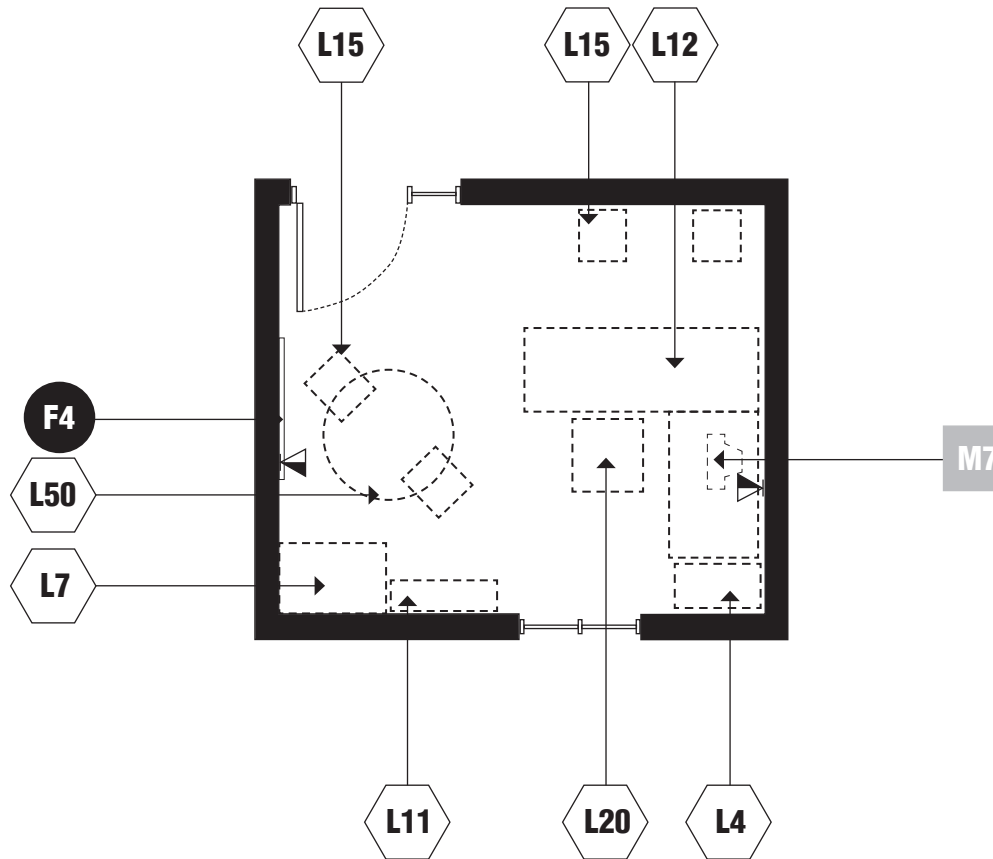
F5 tackable/magnet wall surface (flanking
marker board)

⬡ **loose furnishings**

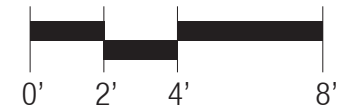
L52 physical therapy table (8 LF)

▶ **data port**

* student resource officer near academic cluster



M-AD /// STUDENT RESOURCE OFFICER



size

150 SF

capacity

student resource officer

ancillary spaces

n/a

spatial relationships

may be located near academic cluster for supervision

may be located near decentralized administration suite (per grade)

program activities

conferences with parents

student interaction

conferences with individual teachers or small groups

telephone communications (private)

research and planning

coordination of school and support services

LEGEND ///

● **fixed equipment**

F4 marker board

◻ **loose furnishings**

L4 four-drawer file cabinet

L7 teacher's lockable wardrobe

L11 adjustable height bookshelves (12 LF)

L12 admin workstation

L15 task chair (2-4)

L20 executive chair

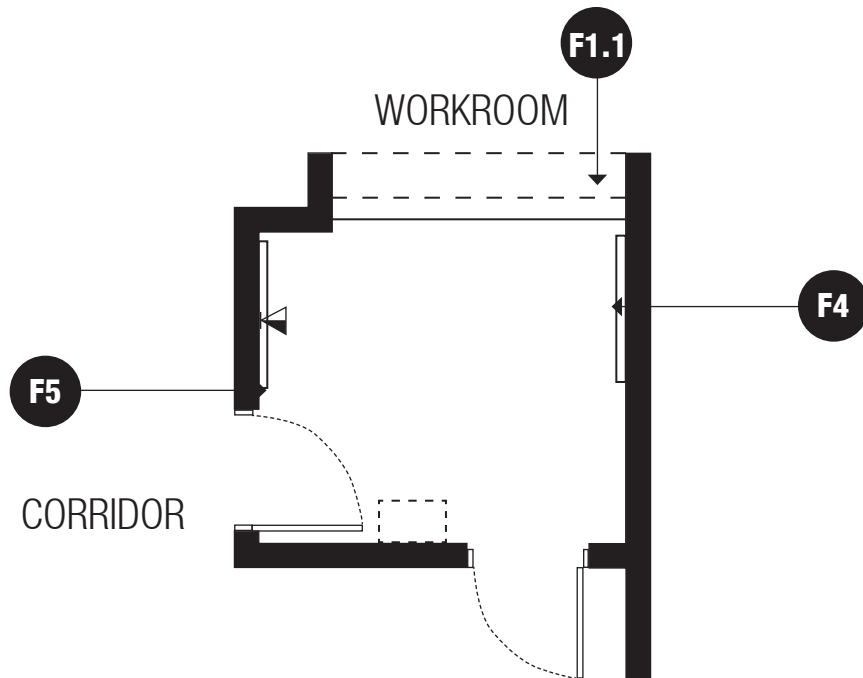
L50 small conference table

■ **miscellaneous**

M7 desktop computer

▶ **data drop**

* locate near academic cluster (decentralized administration suite per grade)



size

150 SF

capacity

staff

faculty

ancillary spaces

n/a

spatial relationships

adjacent to administrative workroom

located in administrative area near academic cluster (decentralized admin suite per grade)

accessible from main corridor

program activities

delivery of general mail

LEGEND ///

● **fixed equipment**

F1.1 casework - mail slots

12" wide x 6" high x 15" deep

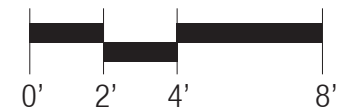
(65, 80, 95 total slots) pass-through

cabinets below

F4 marker board (4 LF)

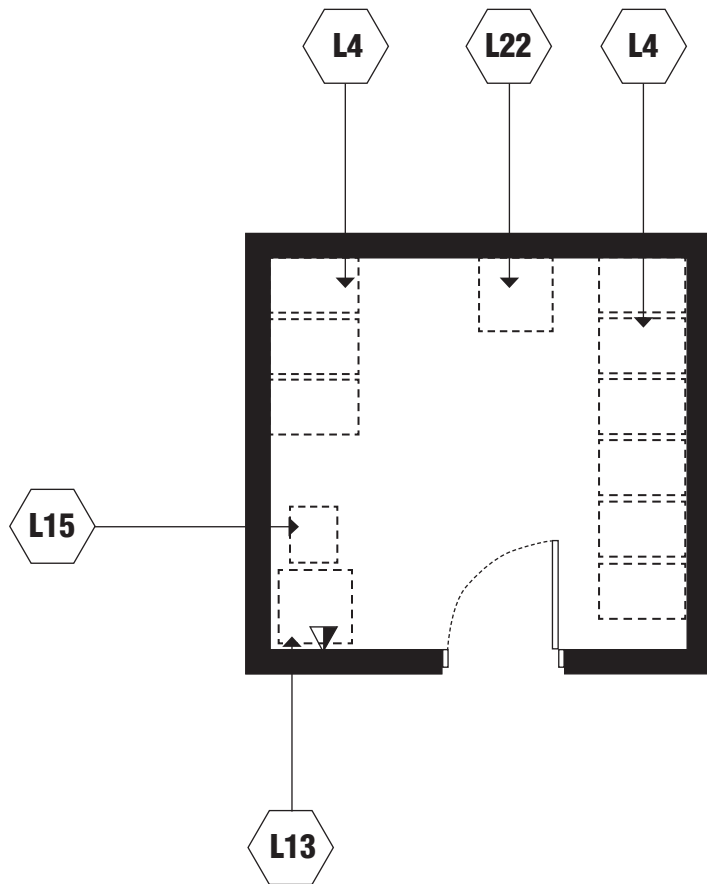
F5 tackable/magnet wall surface (4 LF)

▷ **data drop**



M-AD /// RECEPTION (MAILBOXES)

* locate near academic cluster (decentralized administration suite per grade)



M-AD /// RECORD STORAGE

size

100 SF

capacity

secretaries
staff

ancillary spaces

n/a

spatial relationships

near main office

program activities

storing of money and other valuable
items
storage of files and records
accessible to administration staff

LEGEND ///



loose furnishings

L4 four-drawer file cabinets (8-10 fireproof
file cabinets)

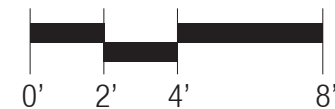
L13 small table

L15 chair

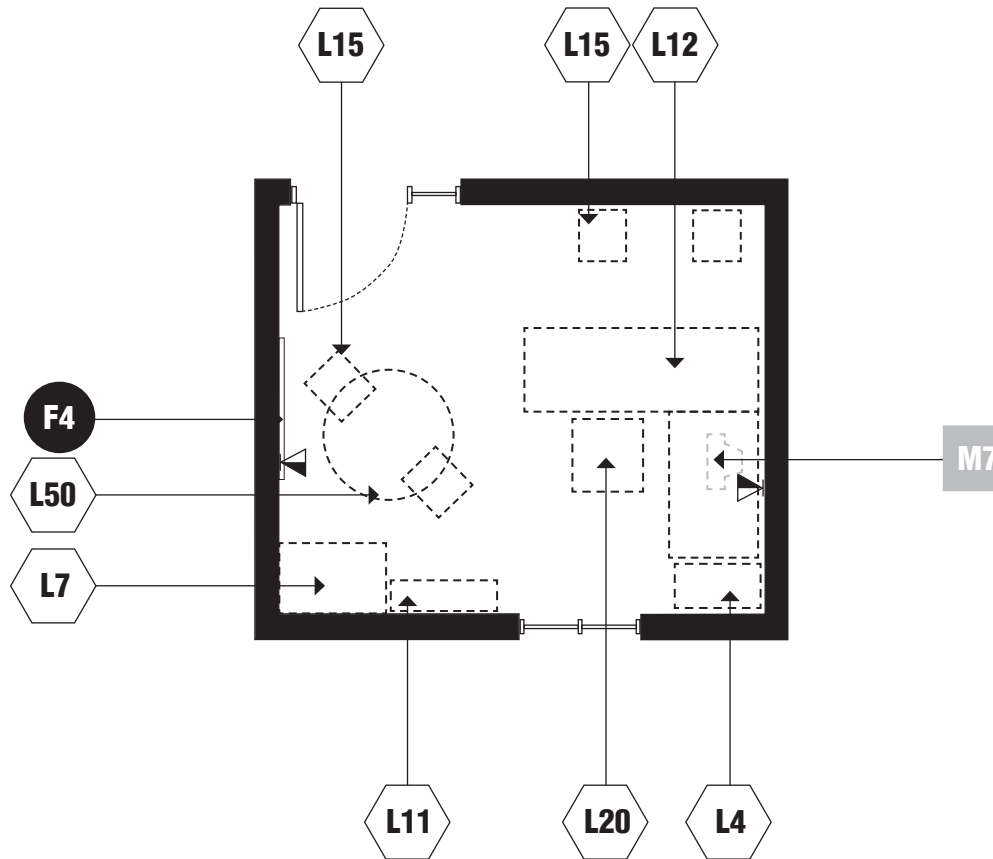
L22 safe



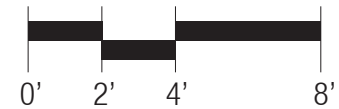
data drop



* locate near academic cluster (decentralized administration suite per grade)



M-AD /// ASST. PRINCIPAL'S OFFICE



size

150 SF

capacity

assistant principal

ancillary spaces

n/a

spatial relationships

may be located near Academic Core for supervision

may be located near administration suite

program activities

conferences with parents

student interaction

conferences with individual teachers or small groups

telephone communications (private)

research and planning

coordination of school and support services

LEGEND ///

● **fixed equipment**

F4 marker board

⬡ **loose furnishings**

L4 four-drawer file cabinet

L7 teacher's lockable wardrobe

L11 adjustable height bookshelves (12 LF)

L12 admin workstation

L15 task chair (2-4)

L20 executive chair

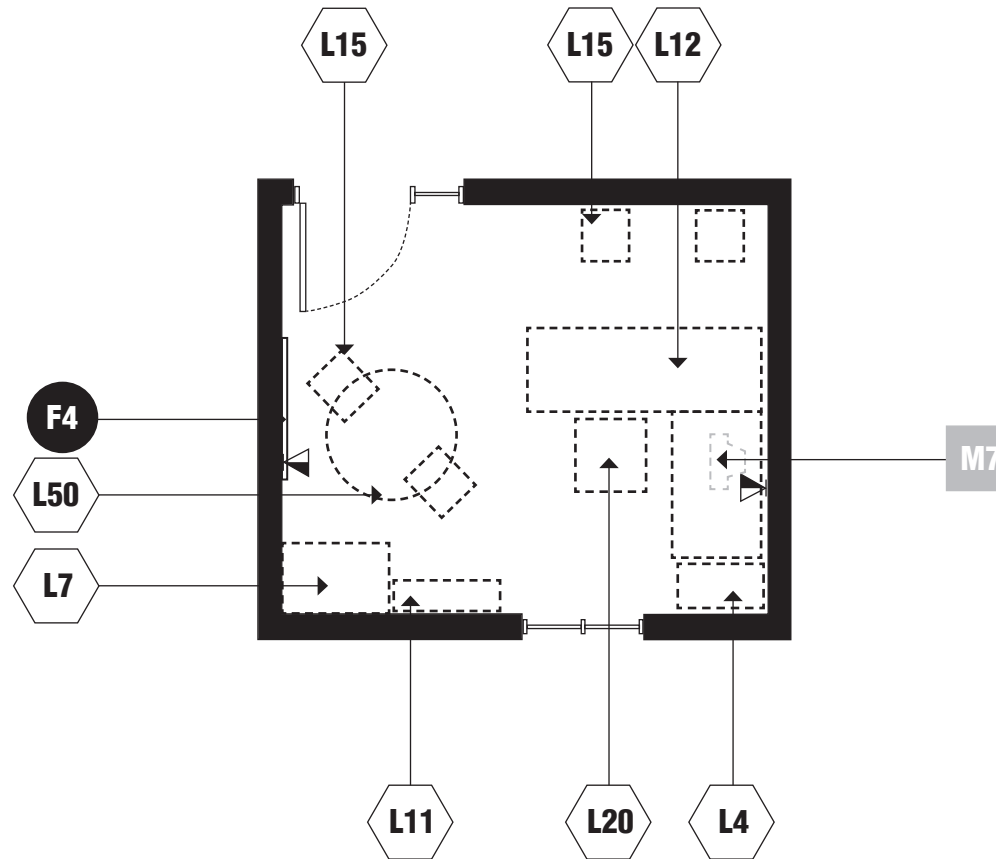
L50 small conference table

■ **miscellaneous**

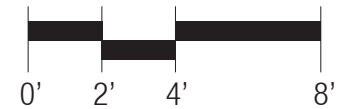
M7 desktop computer

▶ **data drop**

* locate near academic cluster (decentralized administration suite per grade)



M-AD /// COUNSELOR OFFICE



size

120 SF

capacity

counselor

ancillary spaces

n/a

spatial relationships

may be located near Academic Core for supervision

may be located near administration suite

program activities

conferences with parents

student interaction

conferences with individual teachers or small groups

telephone communications (private)

research and planning

coordination of school and support services

LEGEND ///

● **fixed equipment**

F4 marker board

⬡ **loose furnishings**

L4 four-drawer file cabinet

L7 teacher's lockable wardrobe

L11 adjustable height bookshelves (12 LF)

L12 admin workstation

L15 task chair (2-4)

L20 executive chair

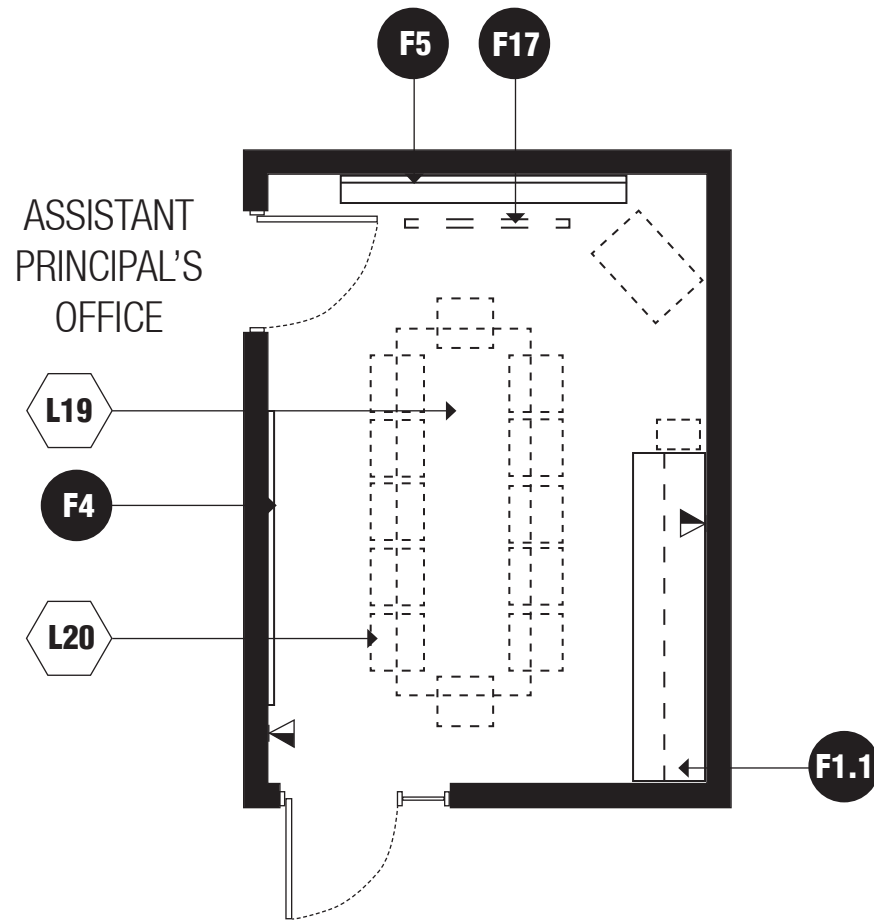
L50 small conference table

■ **miscellaneous**

M7 desktop computer

▶ **data drop**

* locate near academic cluster (decentralized administration suite per grade)



M-AD /// CONFERENCE ROOM



size

200 SF

capacity

staff

ancillary spaces

n/a

spatial relationships

near welcome center

centrally located within administrative area

adjacent and access to principal's offices

program activities

conferences with staff, students, parents, and visitors

LEGEND ///

● **fixed equipment**

F1.1 casework (6 LF)

F4 marker board (8 LF)

F5 tackable/magnet wall surface (8LF)

F17 audio/video recording and playback equipment

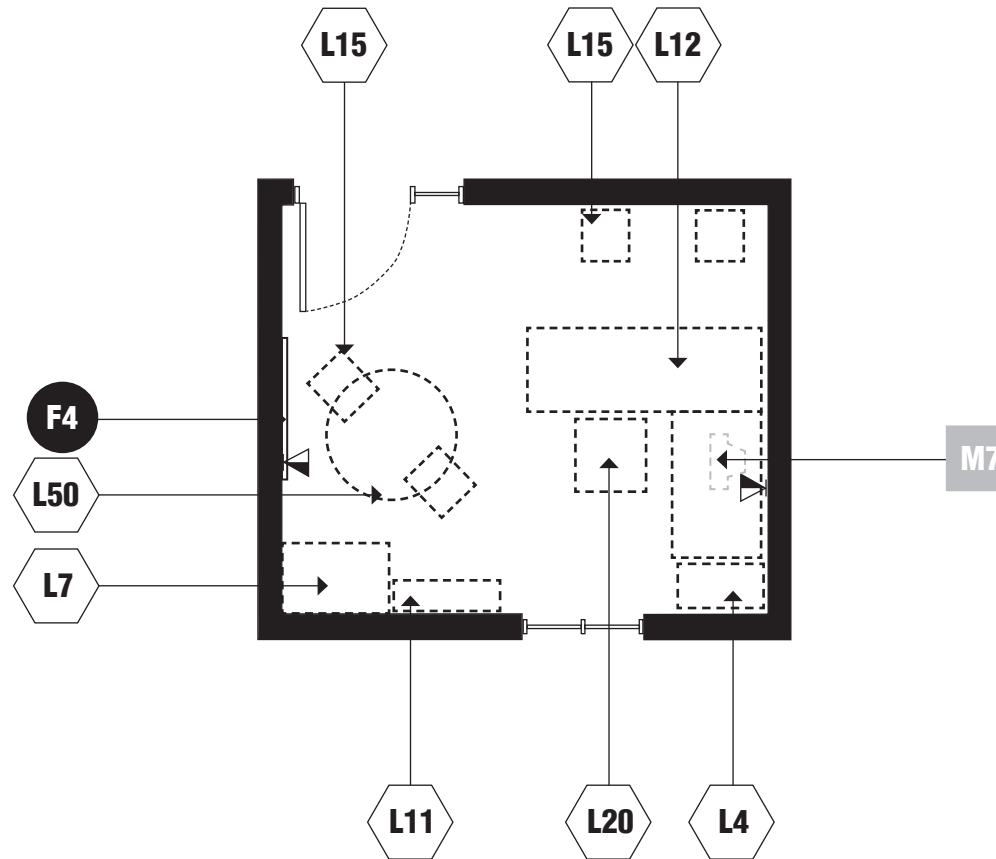
◻ **loose furnishings**

L19 Conference table (with table technology installations-VGA jacks, data outlets, power outlets, etc.)

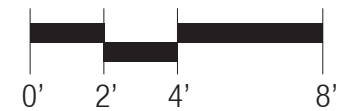
L20 Executive chairs (12)

▶ **data drop**

* dean of students near academic cluster



M-AD /// DEAN OF STUDENTS



size

150 SF

capacity

dean of students

ancillary spaces

n/a

spatial relationships

may be located near Academic Core for supervision

may be located near administration suite

program activities

conferences with parents

student interaction

conferences with individual teachers or small groups

telephone communications (private)

research and planning

coordination of school and support services

LEGEND ///

● **fixed equipment**

F4 marker board

◻ **loose furnishings**

L4 four-drawer file cabinet

L7 teacher's lockable wardrobe

L11 adjustable height bookshelves (12 LF)

L12 admin workstation

L15 task chair (2-4)

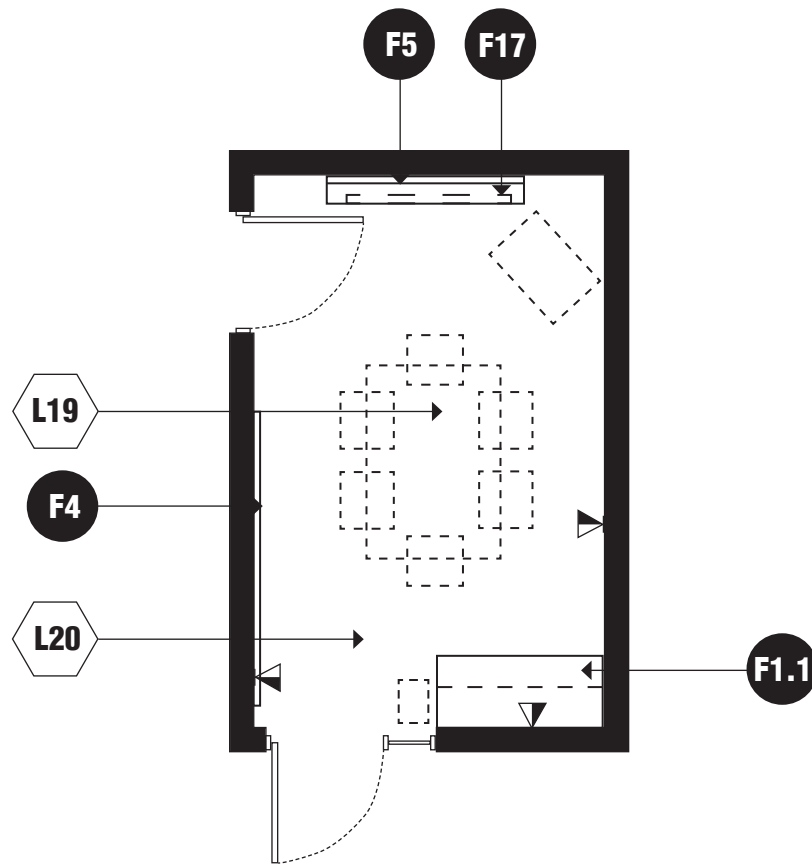
L20 executive chair

L50 small conference table

■ **miscellaneous**

M7 desktop computer

▶ **data drop**



M-AD /// CONFERENCE ROOM

size

150 SF

capacity

staff

ancillary spaces

n/a

spatial relationships

near welcome center

centrally located within administrative area

adjacent and access to principal's offices

program activities

conferences with staff, students, parents, and visitors

LEGEND ///

● **fixed equipment**

F1.1 casework (6 LF)

F4 marker board (8 LF)

F5 tackable/magnet wall surface (8LF)

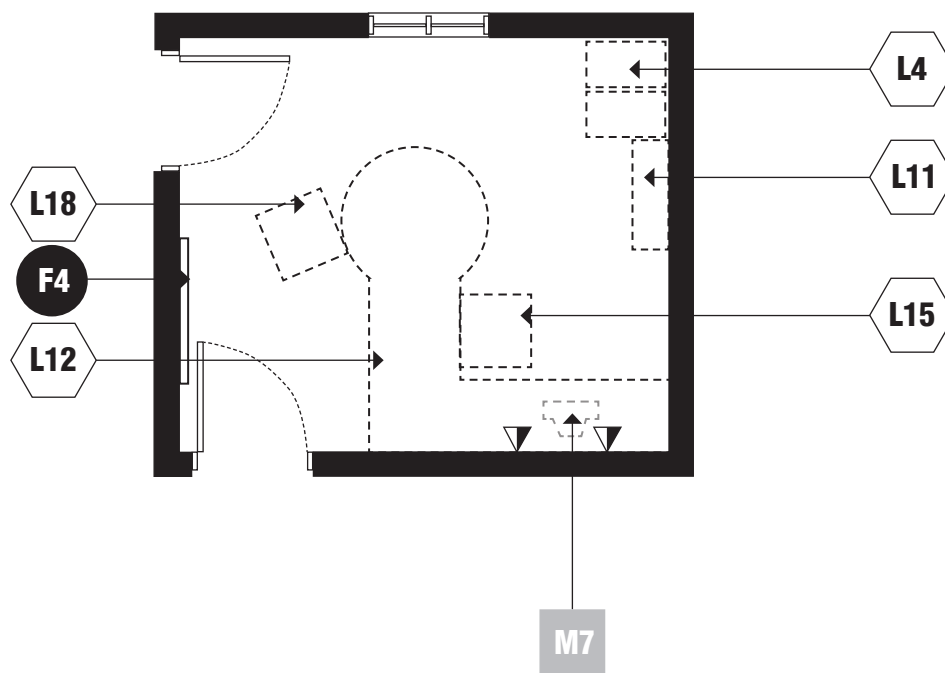
F17 audio/video recording and playback equipment

⬡ **loose furnishings**

L19 Conference table (with table technology installations-VGA jacks, data outlets, power outlets, etc.)

L20 Executive chairs (12)

▶ **data drop**



M-AD /// HEALTH SUITE: OFFICE AREA

size

100 SF

capacity

Staff

Students

Parents

Visitors

ancillary spaces

Treatment area

Storage

program activities

Meeting area for students, parent or guardian

Administrative activities by school nurse

Private conversations

environmental conditions

Independent temperature controls and operable window

Health suites should comply with CDC requirements for number of air exchanges per hour to help prevent spreading illness

Prefer not to have automated or low-flow sinks

LEGEND ///

● **fixed equipment**

F4 Marker board

◻ **loose furnishings**

L4 Four-drawer file cabinet

L11 Adjustable height bookshelves

L12 Admin workstation

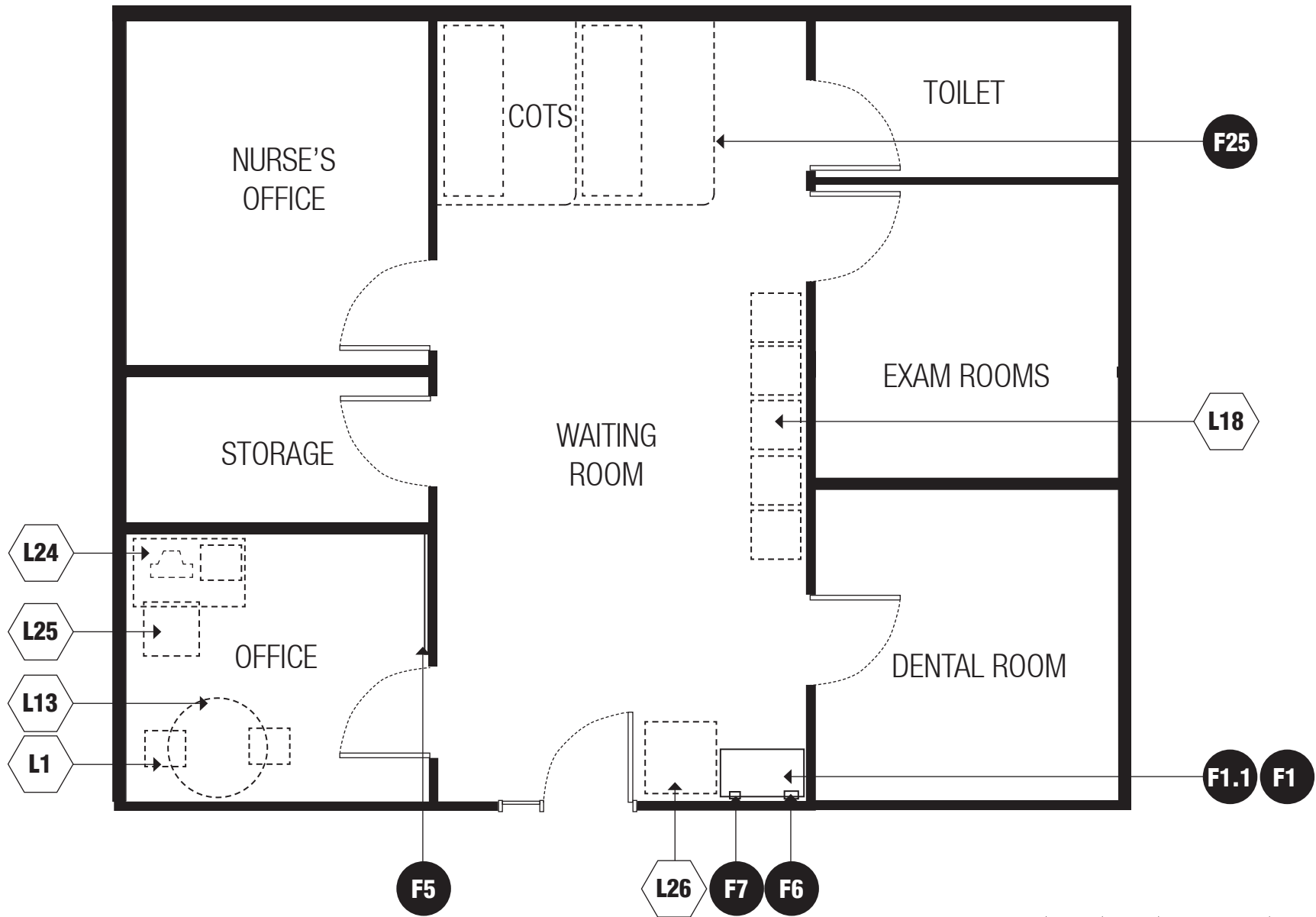
L15 Task chair

L18 Lounge chair

■ **miscellaneous**

M7 Desktop computer

▶ **data drop**



M-AD /// HEALTH SUITE: WAITING + TREATMENT AREA

size

150 SF

capacity

1 nurse
students

ancillary spaces

nurse's office
cots
storage
toilet/shower
waiting/area
office for partners
dental room

spatial relationships

near welcome center
near lobby entrance

program activities

first aid
consultation with students
health screening
medical treatments
medication administration
student resting while awaiting pick-up by
parent or guardian

environmental conditions

stain-resistant floor covering
sink with hot and cold water
adequate ventilation
visual control to office/waiting or
welcome center

plumbing

plumbing connections:

deep sink with hands-free gooseneck
hook-up for ice-maker for refrigerator

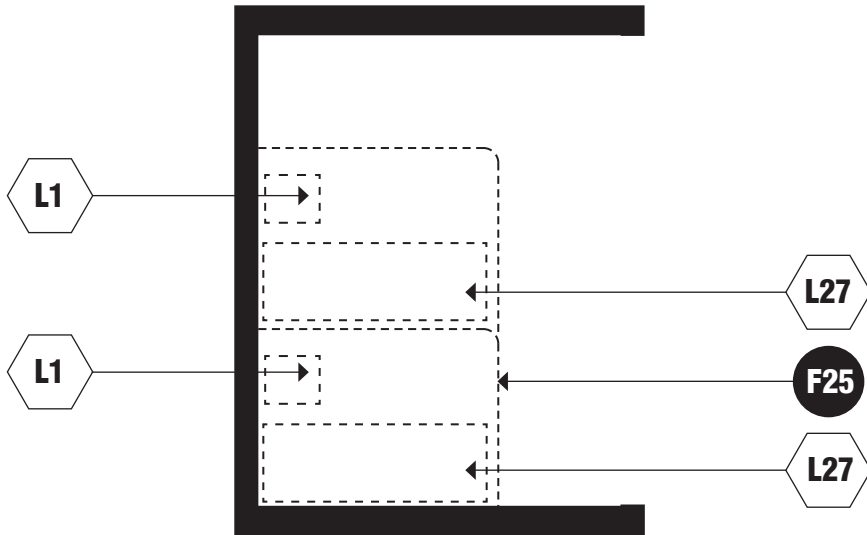
LEGEND ///

● **fixed equipment**

- F1 base/wall cabinets and shelving (place for refrigerator connected to back-up generator)
- F1.1 casework (seamless, non-porous counter)
- F5 tackable/magnet wall surface
- F6 soap dispenser
- F7 towel dispenser
- F25 treatment cubicle curtain

◻ **loose furnishings**

- L1 stackable/nesting chairs (2-3)
- L13 small table
- L24 mobile exam table
- L25 nurse stool
- L26 refrigerator (lockable)



size

80 SF

capacity

staff
students

ancillary spaces

located near the toilet in the health suite

program activities

a resting place for students and staff
when feeling ill

LEGEND ///

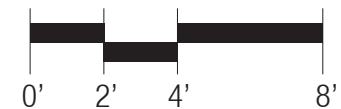
● **fixed equipment**

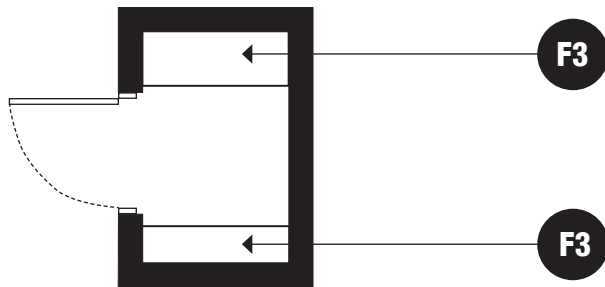
F25 treatment cubicle curtains

◡ **loose furnishings**

L1 stackable/nesting chairs (2)

L27 health suite cot (2)





size

25 SF

capacity

staff

ancillary spaces

office/waiting area (E-AD-15)

program activities

storing chemicals, equipment, and supplies

environmental conditions

security of equipment, supplies, and

medicines

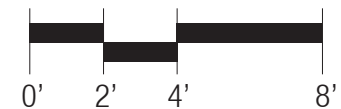
security of door

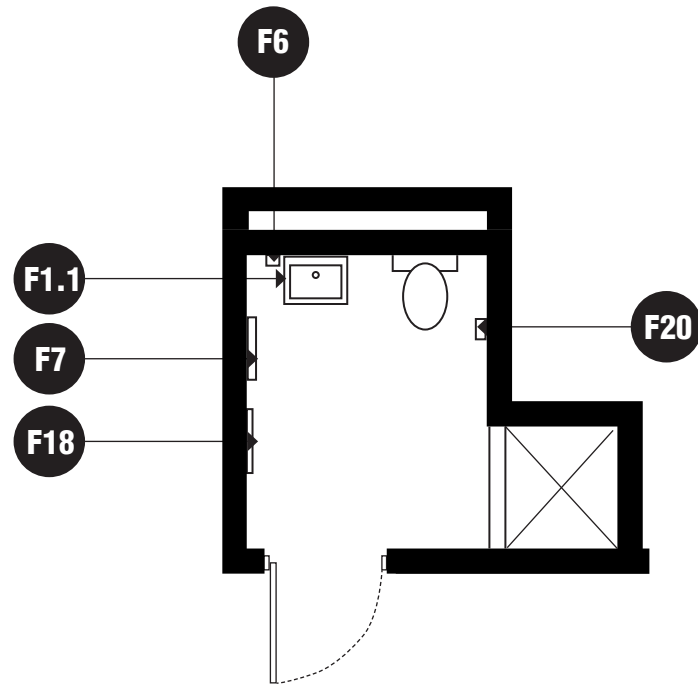
LEGEND ///

● **fixed equipment**

F3 wall shelving (12" deep)

F3 wall shelving (18" deep)





M-AD /// HEALTH SUITE: TOILET / SHOWER



size

80 SF

capacity

staff

students

ancillary spaces

Located near the cots within the health suite

plumbing

wall mounted water closet (deep well)

wall mounted lavatory

shower

plumbing connections

floor drain

LEGEND ///

● **fixed equipment**

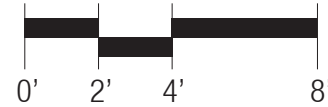
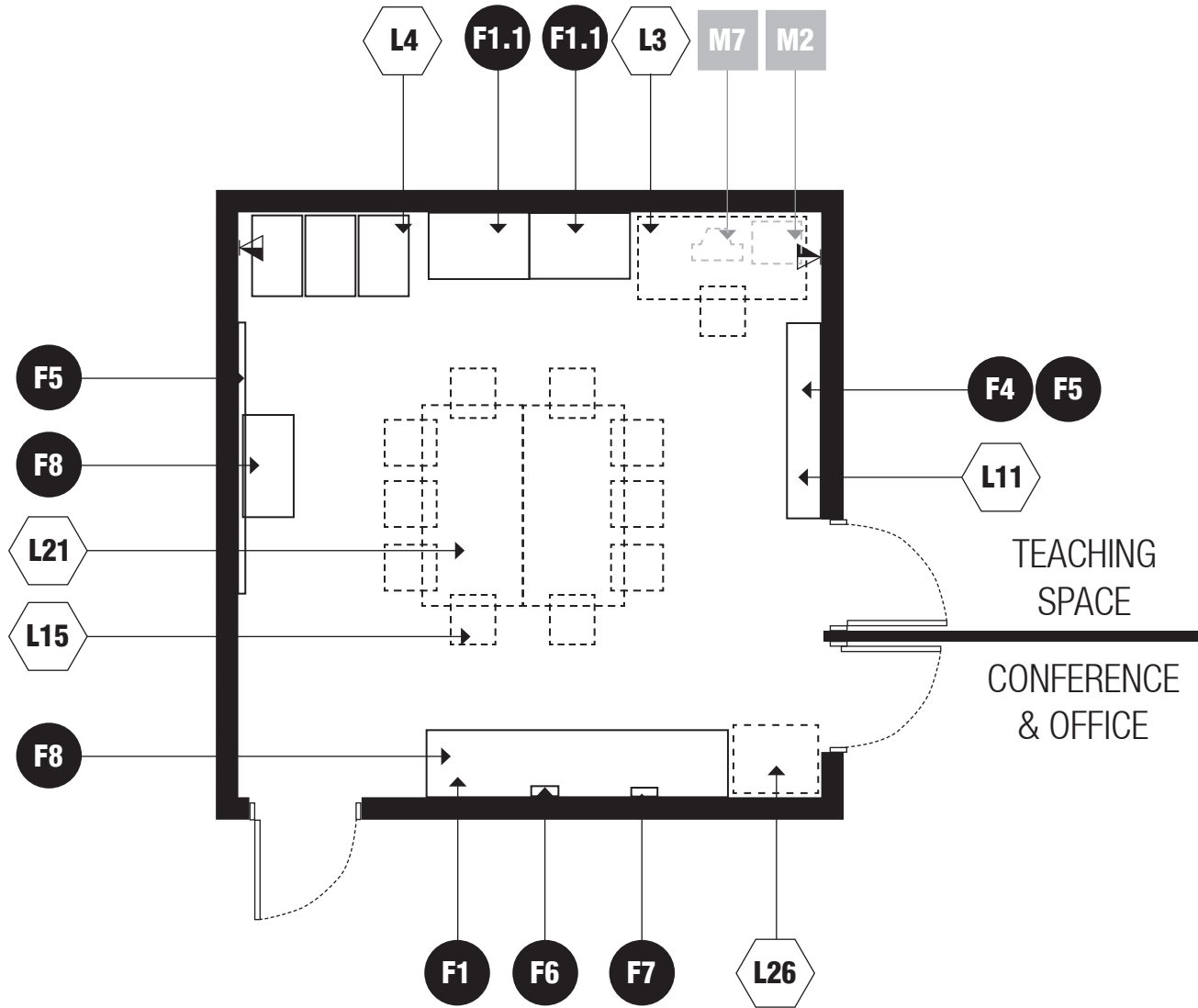
F1.1 casework: wall cabinet

F6 soap dispenser

F7 towel dispenser

F18 mirror (24"x60")

F20 bathroom accessories



M-AD /// FAMILY + COMMUNITY ENGAGEMENT CENTER

size

350 SF

capacity

8-10 parents

1- parent liaison

volunteers

ancillary spaces

n/a

spatial relationships

near lobby entrance

adjacent parent liaison office with connecting door*

adjacent teaching space for up to 20

adjacent conference room

program activities

small group meetings

work area

storage for personal items

parent training

private consultation

parent employment research

volunteer registration

plumbing

sink w/ goose neck faucet

*Office for Parent liaison- see typical office description

LEGEND ///

● **fixed equipment**

F1 base/wall cabinets and shelving (place for a refrigerator)

F1.1 casework (Wardrobe cabinet)

F1.1 casework (Storage cabinets)

F4 marker board (8 LF)

F5 tack board (8 LF)

F6 soap dispenser

F7 towel dispenser

F8 wall-mounted, interactive, electronic presentation device

◻ **loose furnishings**

L4 four-drawer file cabinet

L11 adjustable height bookshelves (20 LF)- workstation for computer/printer

L15 ten chairs

L18 lounge chairs

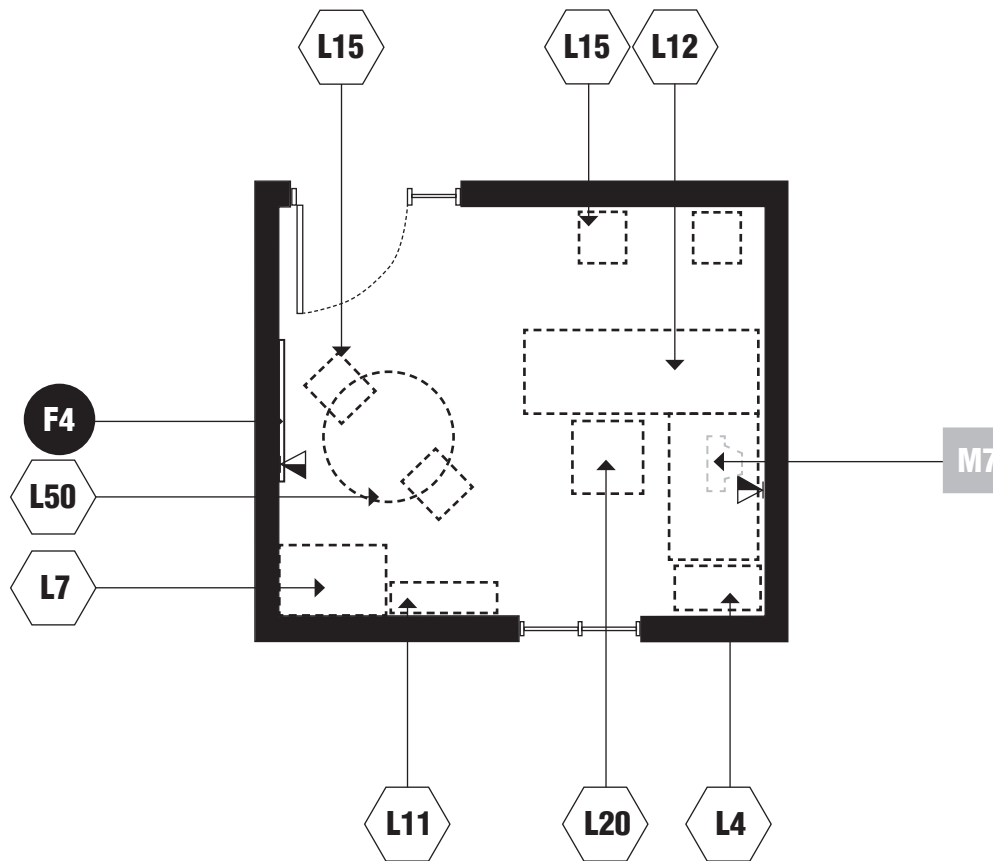
L21 two work tables (36" x 72")

L26 refrigerator

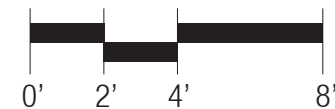
■ **miscellaneous**

M7 desktop computer

▶ **data drop**



M-AD /// FACE CENTER: OFFICE



size

150 SF

capacity

staff

ancillary spaces

n/a

spatial relationships

may be located near Academic Core for supervision

may be located near administration suite

program activities

conferences with parents

student interaction

conferences with individual teachers or small groups

telephone communications (private)

research and planning

coordination of school and support services

LEGEND ///

● **fixed equipment**

F4 marker board

◻ **loose furnishings**

L4 four-drawer file cabinet

L7 teacher's lockable wardrobe

L11 adjustable height bookshelves (12 LF)

L12 admin workstation

L15 task chair (2-4)

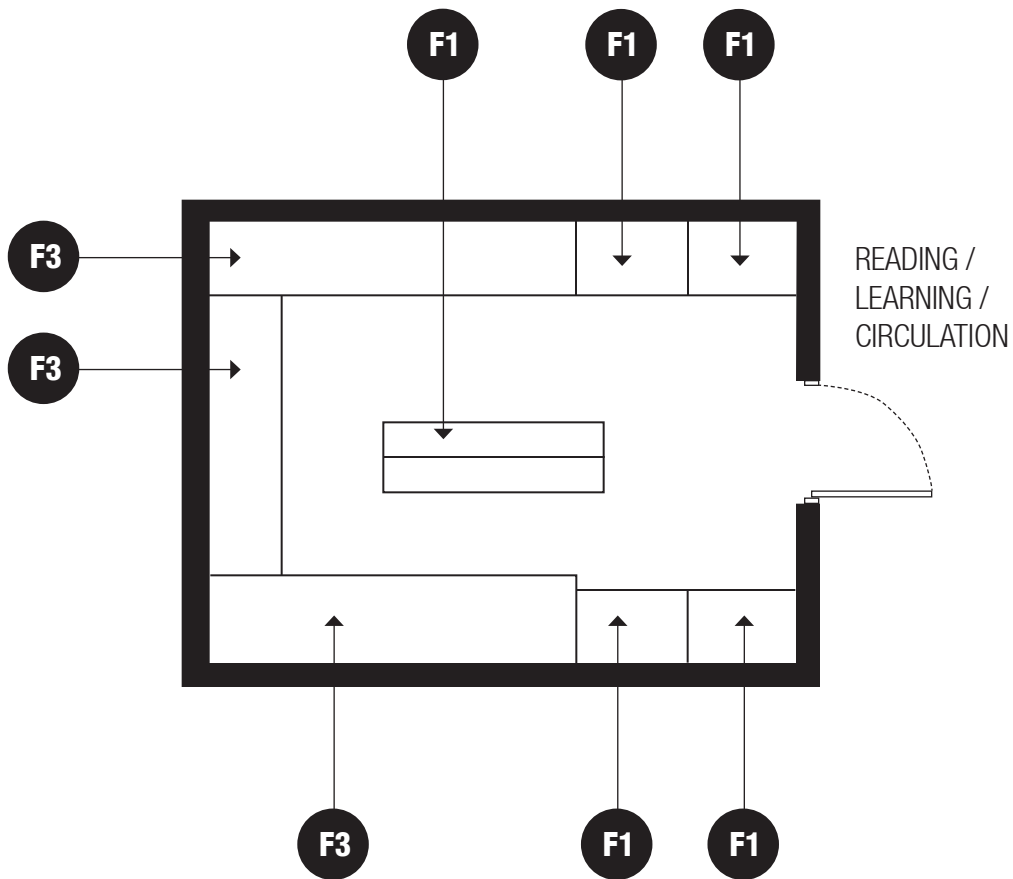
L20 executive chair

L50 small conference table

■ **miscellaneous**

M7 desktop computer

▶ **data drop**



size

100 sf

capacity

staff

ancillary spaces

n/a

spatial relationships

near core classrooms

program activities

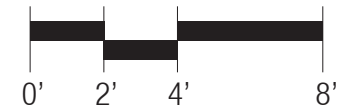
storing and retrieving books / supplies

LEGEND ///

● **fixed equipment**

F1 base/wall cabinets and shelving

F3 wall shelving (variety of 12" and 24" deep shelving)



M-AD /// FACE CENTER: STORAGE

THIS PAGE IS LEFT BLANK INTENTIONALLY

M-SD /// **STUDENT DINING**





DINING / MULTIPURPOSE
CHAIR AND TABLE STORAGE
SERVING AREA
COOKING KITCHEN
 FOOD PREP AREA
 DRY FOOD STORAGE
 FREEZER / COOLER
 WARE WASHING
 CLEANING STORAGE
 LOCKERS / TOILET
FOOD SERVICE OFFICE

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|---------------------------|-----------------|-----------|---------------|---|
| STUDENT DINING | | | | |
| Dining Area/Multi-purpose | 1 | 6,500 | 6,500 | includes the seating for the stage; stage and student dining should be co-located |
| Chair, Table Storage | 1 | 600 | 600 | |
| Serving area | 1 | 1000 | 1000 | |
| Cooking Kitchen | 1 | | | |
| Food Prep Area | 1 | 2000 | 2000 | |
| Dry Storage | 1 | 500 | 500 | |
| Freezer & Cooler | 1 | 500 | 500 | |
| Ware washing | 1 | 300 | 300 | |
| Cleaning Storage | 1 | 100 | 100 | |
| Lockers/Toilet | 1 | 300 | 300 | |
| Food Service Office | 1 | 120 | 120 | |
| Total | | | 11,920 | |

Comments //

The overall total for the Dining and Food Services area may be + or – ten percent if the existing dining area and kitchen are undersized for the proposed capacity. If these spaces are replaced, the school would like to keep the current dining as a multi-purpose area if feasible. If this area is expanded, the room should be dividable.

KEY ///

- direct access 
- linked space 
- enclosed space 
- open space 

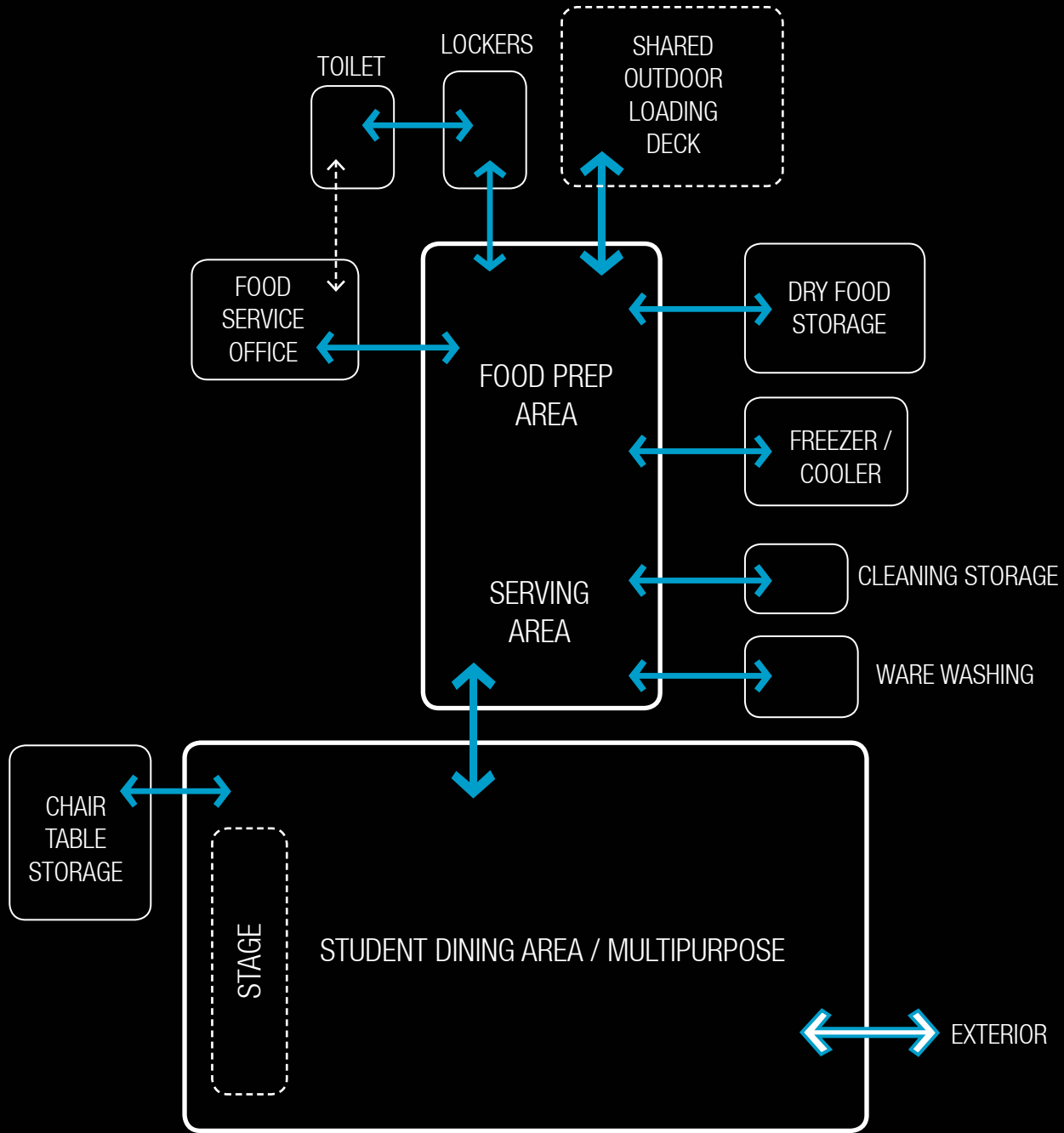
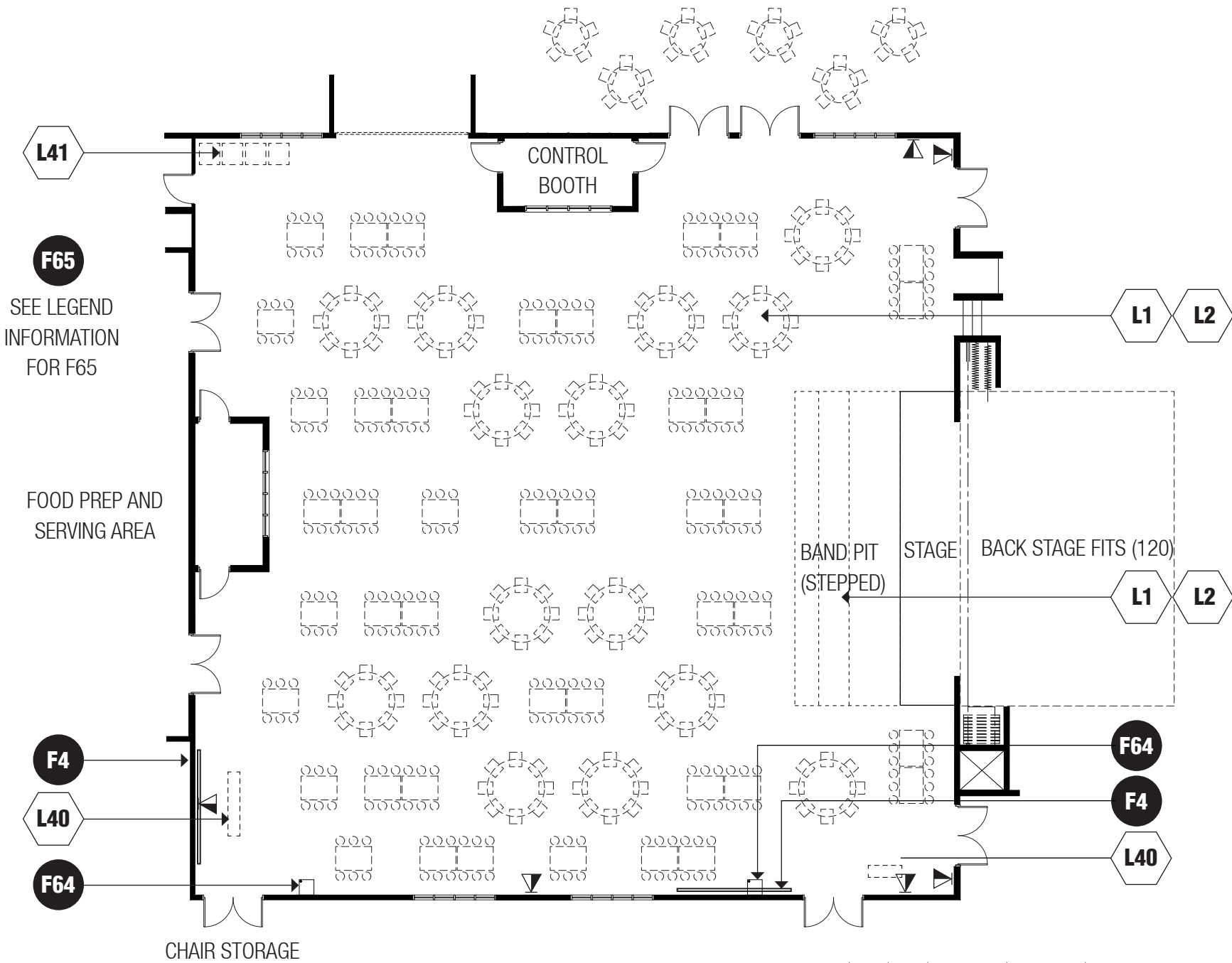
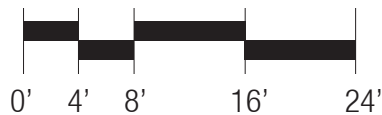


FIG. 13.0 // STUDENT DINING ADJACENCY DIAGRAM



M-SD /// DINING / MULTIPURPOSE (GRADES 6-8)



size

6,500 SF

capacity

1/3 of the projected capacity per lunch period

3-6 staff members

members of community (after hours)

configuration

consider two spaces - primary and intermediate – with separate serving lines

alternatively, consider a flexible wall varies, see table

ancillary spaces

serving area (E-SD-3B)

stage (optional)

band pit included

spatial relationships

centrally located to office area, classrooms, and media center near parking and entry to building near food lab classroom (consider overhead rolling door)

program activities

student dining

school and community programs

meetings and activities

environmental considerations

electrical outlets for student use; consider some peripheral counters with power provide a sound system

provide large motorized projection screen with ceiling mounted projector
configure larger spaces to manage sound and for multiple users; configure serving lines for conversational voice
higher than normal ceiling height
if feasible, provide patio for outside seating options
cleanable building surfaces
windows to provide ample natural light
good sight lines to all areas of the room for supervision
window treatment to darken room for AV presentation; this is required if the stage is located in this area
outlets and data ports for salad bar and point of sale locations; flush to ground with cover

LEGEND ///

● fixed equipment

F4 marker board on two walls - 16 LF each

with electric outlet below

F64 filtered water fountain w/ bubbler and

goose neck bottle filler

F65 recycling center (work with food service

staff on location and design)

◻ loose furnishings

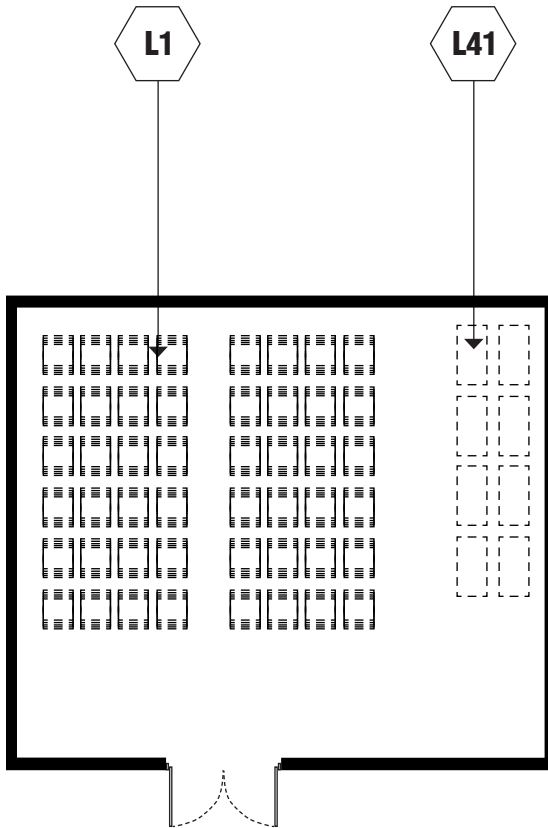
L1 tables and seating to accommodate 1/3 of school capacity (vary seating options) varying heights

L2 student chairs

L41 dollies to move furniture

L40 point of sale stations

▶ data drop



size

600 SF

capacity

n/a

ancillary spaces

student dining area / multipurpose

spatial relationships

adjacent and access to student dining

area / multipurpose

may provide back of stage access

program activities

storage

environmental considerations

uniform lighting

cleanable and resilient building surfaces

accessibility for moving furniture in and

out

LEGEND ///



loose furnishings

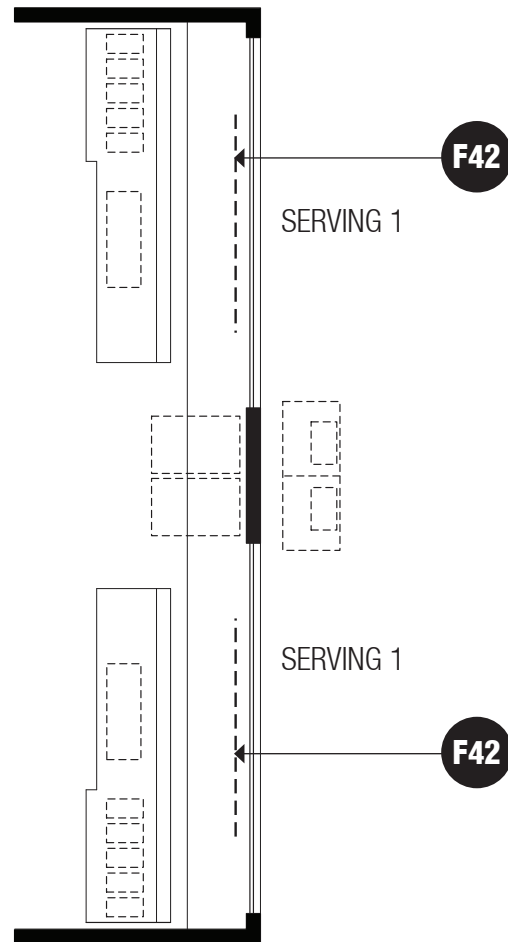
L1 stackable/nesting chairs (stacked)

L41 chair dollies



M-SD /// CHAIR AND TABLE STORAGE

THIS PAGE IS LEFT BLANK INTENTIONALLY



M-SD /// SERVING AREA

size

1000 SF

capacity

students
staff
community

ancillary spaces

student dining area / multipurpose
kitchen

spatial relationships

within student dining area / multipurpose
or food preparation area
beginning of serving line should be
near entry door of students dining
area / multipurpose
open to food preparation area

program activities

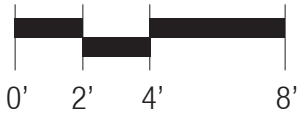
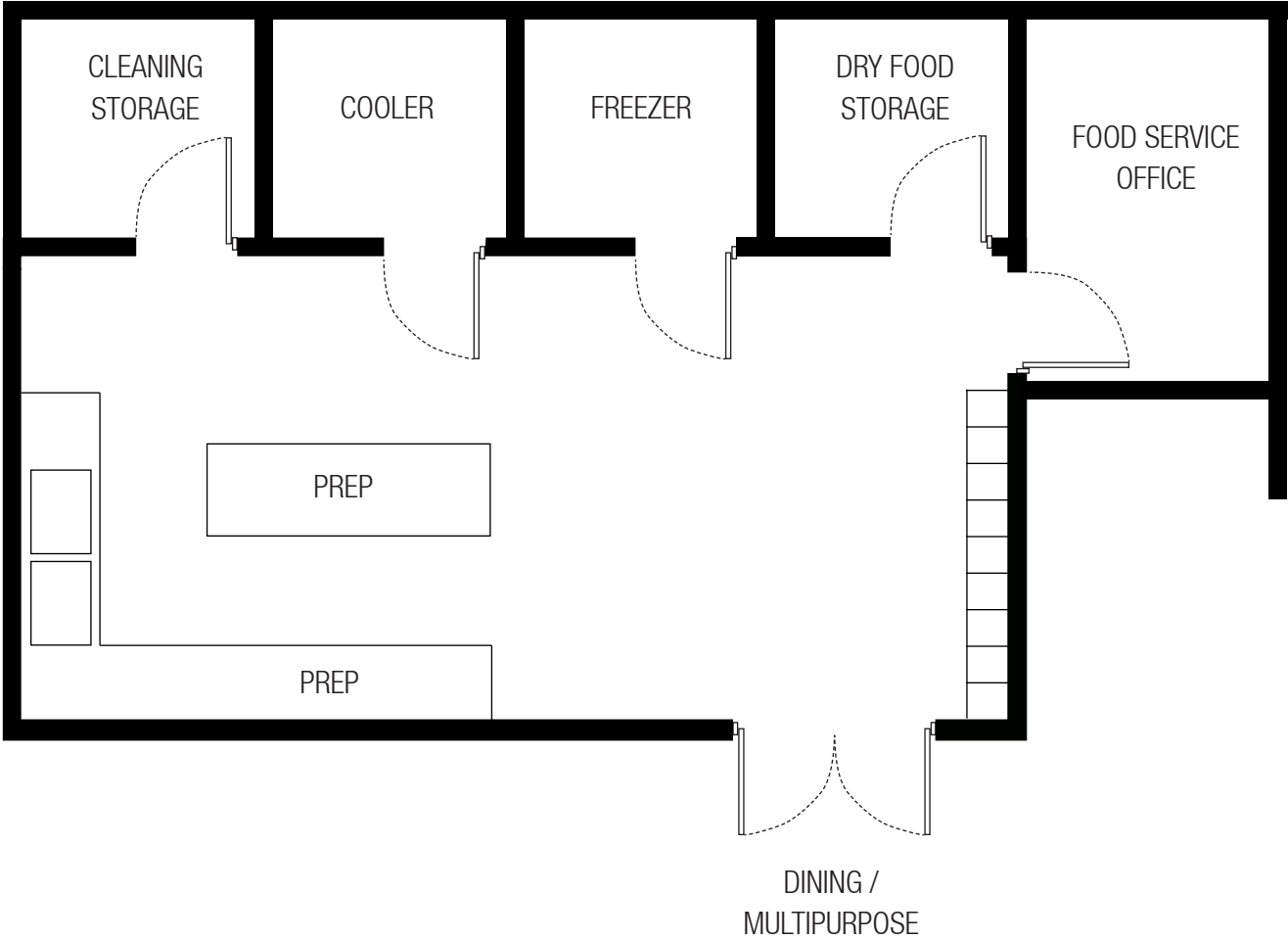
serve food

*serving line configuration and design will be
determined in consultation with School Nutrition
Services

LEGEND ///

● **fixed equipment**

F42 drop-in individually controlled heated
electric food wells and full service sneeze
guard (student height) with over shelf
F47 drop-in self-contained refrigerated cold
pan for side items (counter and sneeze
guards are lower than normal for better
viewing and service to middle school
students)



M-SD /// COOKING KITCHEN

size

see table

capacity

students
staff

ancillary spaces

student dining area / multipurpose

spatial relationships

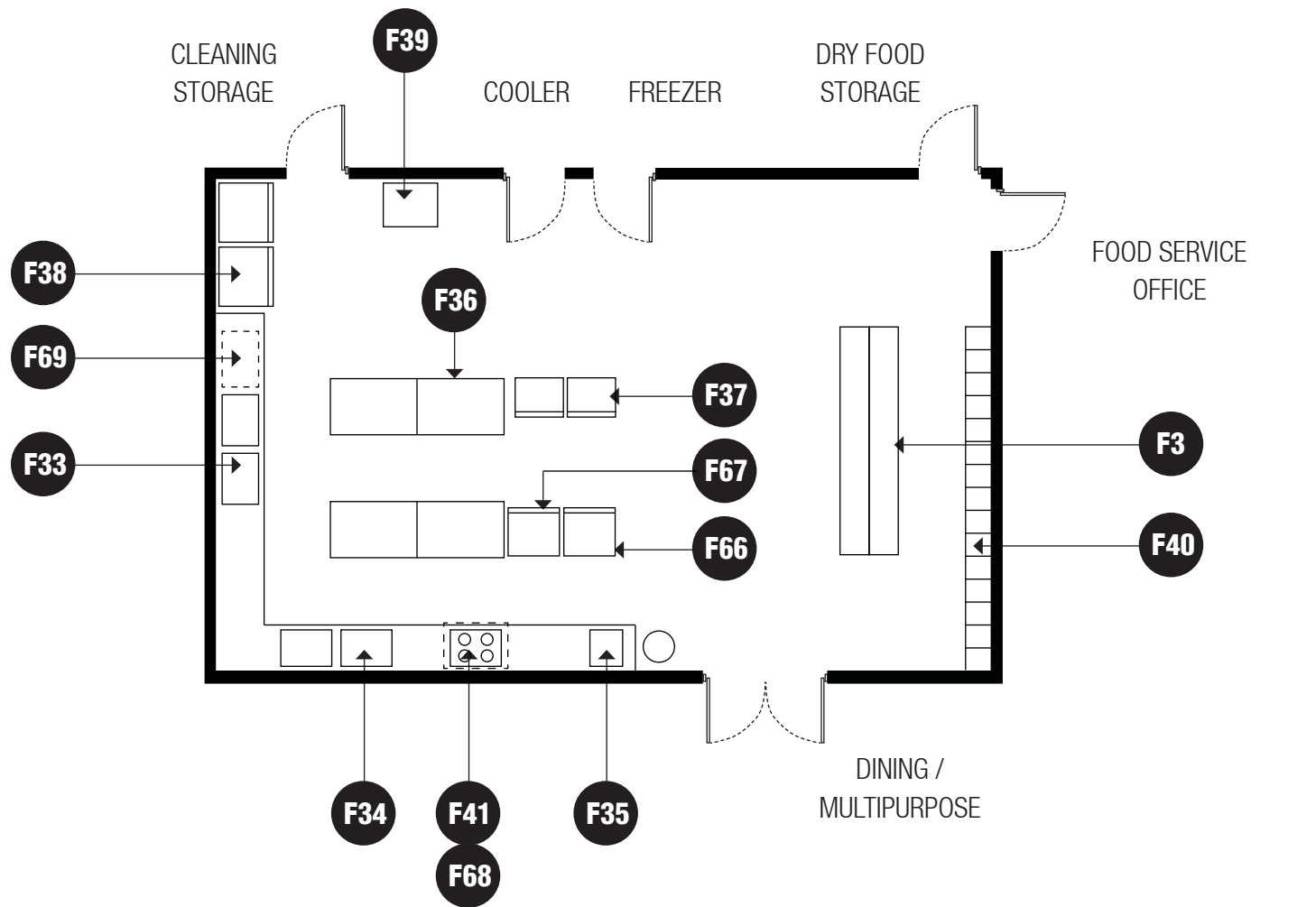
near loading dock to permit truck access
to docking and storage areas (site specific)
adjacent and access to student dining area / multipurpose
near dumpsters
cafeteria serving arrangement

program activities

prep food
serve food
storage
point of sale (in the dining area associated with the serving area)

environmental considerations

durable seamless flooring
proper ventilation of space to remove cooking odors
cleanable building surfaces



M-SD /// FOOD PREP AREA

size

2000 SF

capacity

staff

ancillary spaces

kitchen

spatial relationships

adjacent to student dining area

multipurpose

open to serving area

program activities

prepare food

environmental considerations

uniform lighting

proper ventilation of space to remove

cooking odors

cleanable building surfaces

electrical/plumbing / mechanical

connections for food service

equipment

finishes

flooring

easy clean, non-slip flooring - single

surface

poured or rolled flooring

base

resilient base

ceiling

cleanable, suspended, acoustic

walls

epoxy-painted concrete masonry units

plumbing

connections to food service equipment

plumbing and gas connections

hand washing lavatory

floor drains

food preparation sink with adjacent trash bin

HVAC

supply/return air system

independent temperature control

kitchen canopy exhaust system

air conditioning

electrical

duplex receptacles

connections to food service equipment

single-level switching

clock

central sound system

LEGEND ///

● **fixed equipment**

F3 storage shelving

F33 pot washing sinks

F34 food preparation sinks

F35 hand sinks with adjacent trash bin

F36 work tables

F37 warming/holding/cabinets

F38 refrigeration/reach-ins

F39 mop washing sink

F40 lockable chemical storage

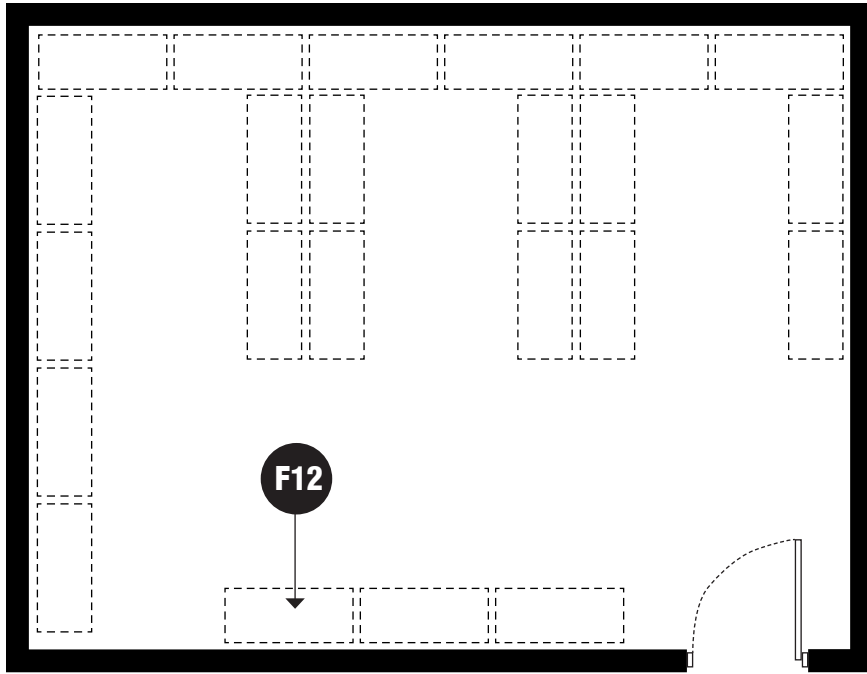
F41 exhaust hood systems, including fire suppression

F66 combi oven

F67 convection steamer

F68 range, with oven

F69 ware washing machine with appropriate accessories (tables, booster heater, disposer, etc.)



FOOD PREP AREA

size

500 SF

capacity

n/a

spatial relationships

near supply storage/receiving

adjacent and access to food prep area

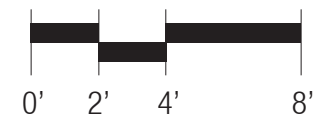
program activities

storage

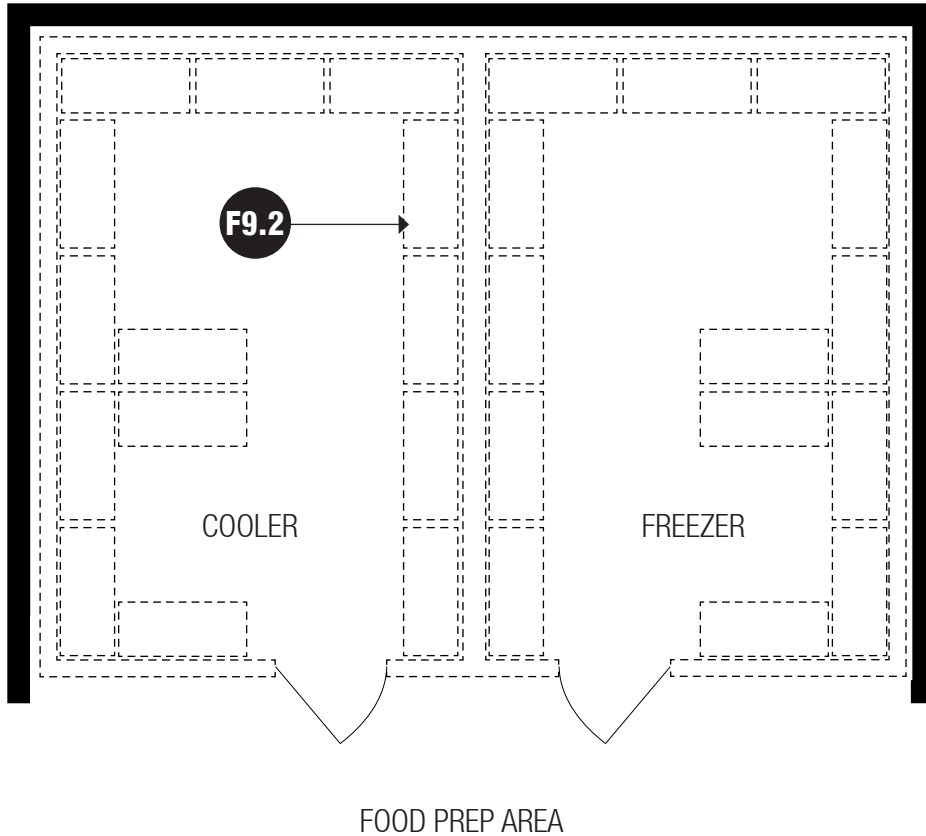
LEGEND ///

● **fixed equipment**

F12 rust resistant 24" deep shelving and dunnage racks



M-SD /// **DRY FOOD STORAGE**



size

500 SF

capacity

n/a

ancillary spaces

kitchen

spatial relationships

adjacent and access to food prep area

near the supply storage/receiving

environmental considerations

ventilation for refrigeration machinery

equipment

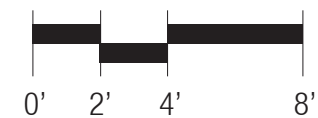
floor to be flush with adjacent kitchen floor

electrical service for refrigeration equipment

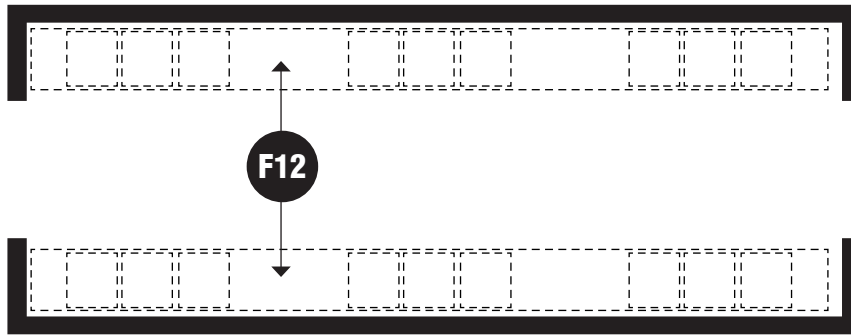
LEGEND ///

● **fixed equipment**

F9.2 rust resistant 24" deep shelving and dunnage racks



M-SD /// **FREEZER / COOLER**



STUDENT DINING /
MULTIPURPOSE

NOTE //

This is an example of a ware washing area. Food service equipment will vary from school to school; confirm requirements with ACPS Food Service Department.

M-SD /// WARE WASHING

size

300 SF

capacity

n/a

ancillary spaces

kitchen

spatial relationships

pass-through into student dining area/

multipurpose for tray drop-off

adjacent and access to food prep area

environmental considerations

proper ventilation of space to remove

steam and condensation

cleanable building surfaces

plumbing

connections to food service equipment

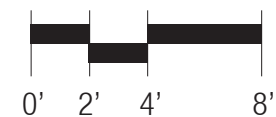
three compartment sink

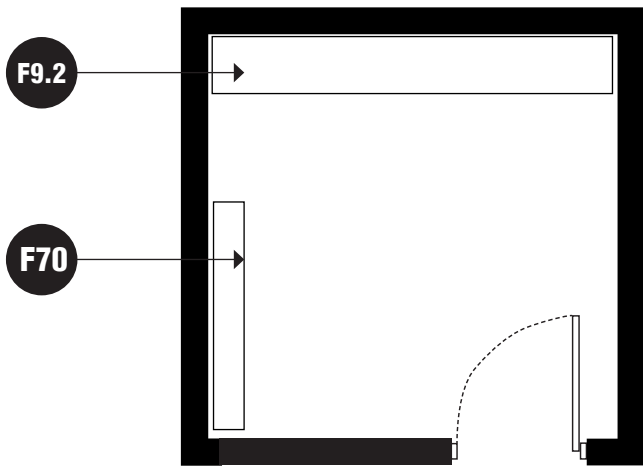
floor drain

LEGEND ///

● **fixed equipment**

F12 rust resistant 24" deep shelving and
dunnage racks





M-SD /// CLEANING STORAGE

size

100 SF

capacity

food service staff

ancillary spaces

kitchen

spatial relationships

adjacent and access to kitchen

program activities

storing chemicals and equipment

environmental considerations

cleanable building surfaces

sensors for spilled chemicals

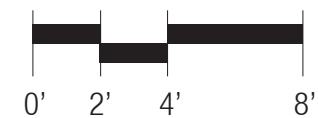
adequate exhaust/ventilation

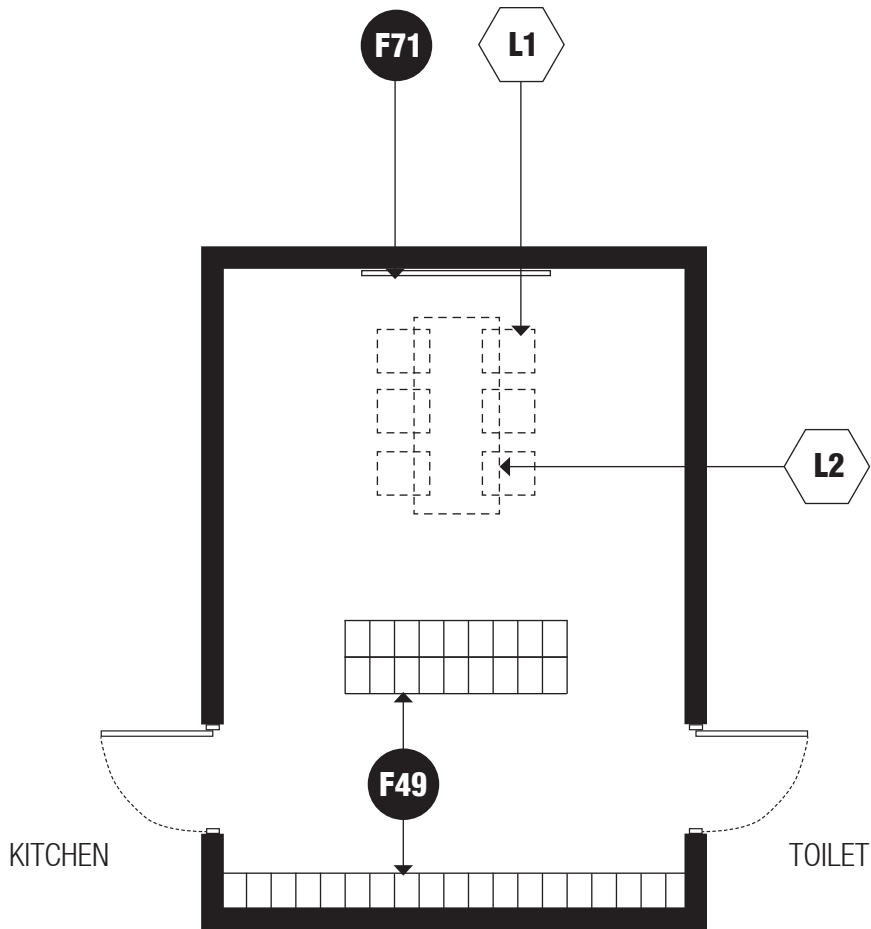
LEGEND ///

● **fixed equipment**

F9.2 rust resistant shelving for chemicals

F70 mop rack





size

300 SF

capacity

food service personnel

ancillary spaces

kitchen

program activities

space for the storage of towels, aprons, etc.

space to allow food staff personnel to take breaks

LEGEND ///

● **fixed equipment**

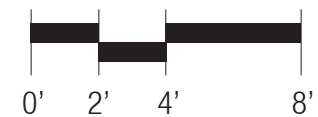
F71 12" wide x 12" deep x 72" high tack board (4 LF)

F49 lockers

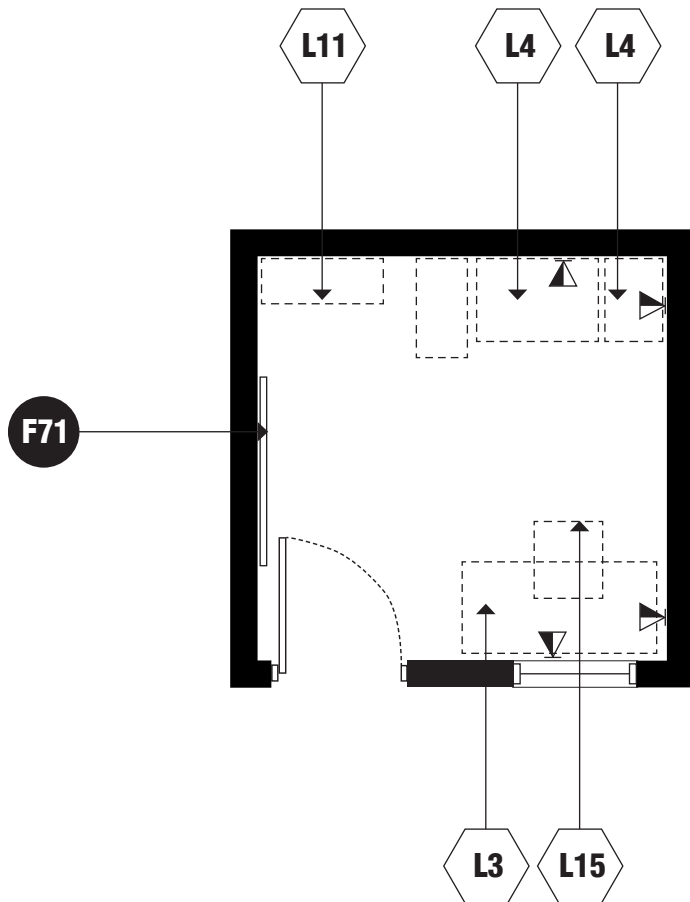
◡ **loose furnishings**

L1 (4-6) chairs

L2 (30"x60") table



M-SD /// LOCKERS / TOILET



size

120 SF

capacity

food service manager
 food service staff

ancillary spaces

kitchen

program activities

scheduling
 staff evaluations/discipline/meetings

LEGEND ///

● **fixed equipment**

F71 tack board (4 LF)

⬡ **loose furnishings**

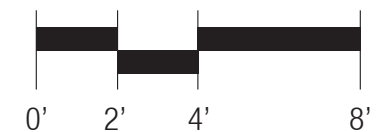
L3 desk

L4 four drawer file cabinet

L15 ergonomic task chair

L11 adjustable height bookshelves (12 LF)

▶ data drop



M-MC /// **MAINTENANCE & CUSTODIAL**

SUPPLY STORAGE / RECEIVING


TOILET / SHOWER / LOCKERS


CUSTODIAL OFFICE

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|------------------------------------|-----------------|-----------|--------------|--------------|
| MAINTENANCE & CUSTODIAL | | | | |
| Supply Storage / Receiving | 1 | 900 | 900 | |
| Toilet / Showers / Lockers | 2 | 150 | 300 | |
| Custodial Office | 1 | 150 | 150 | |
| Total | | | 1,350 | |


Comments //

KEY ///

direct access 

linked space 

enclosed space 

open space 

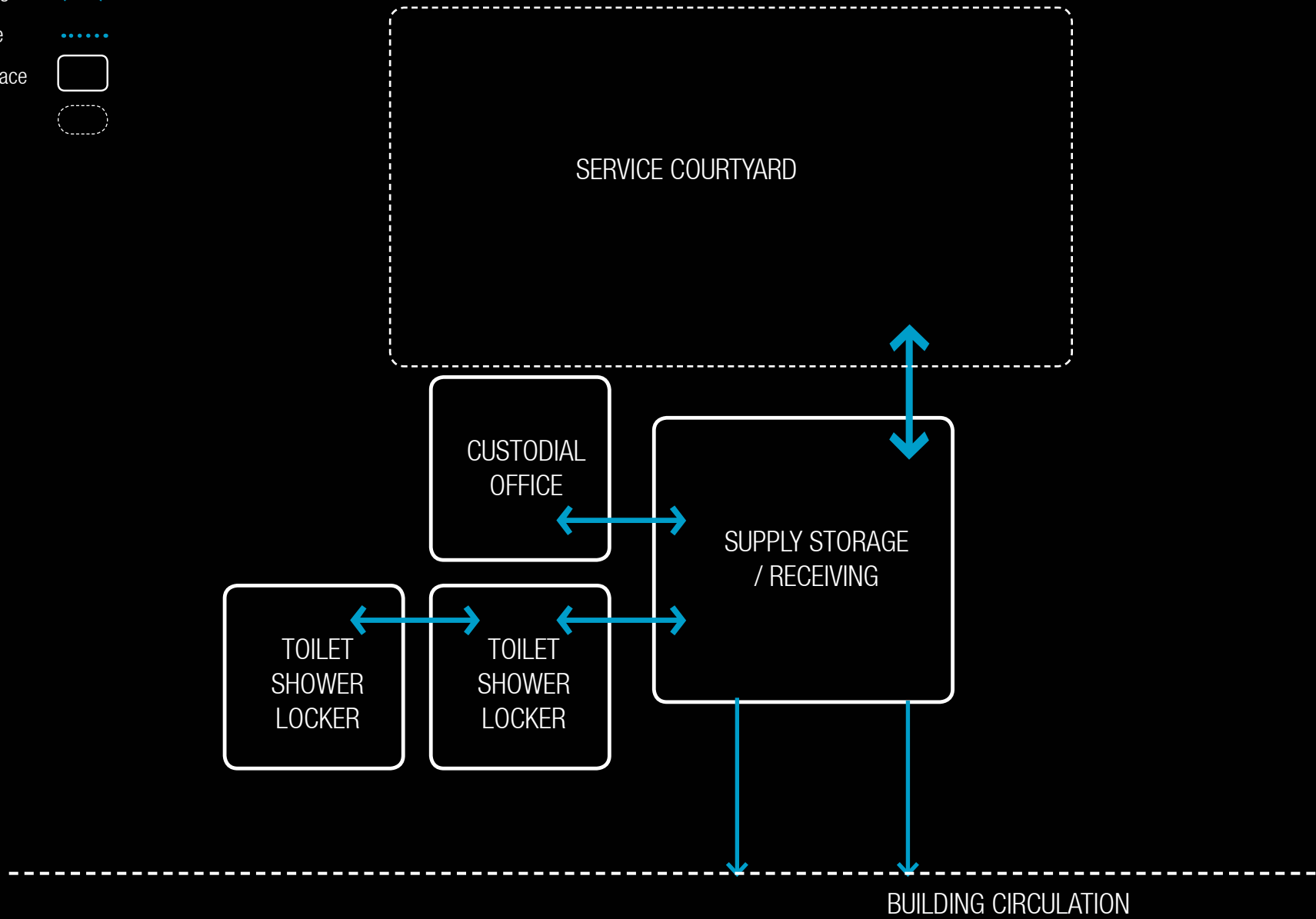
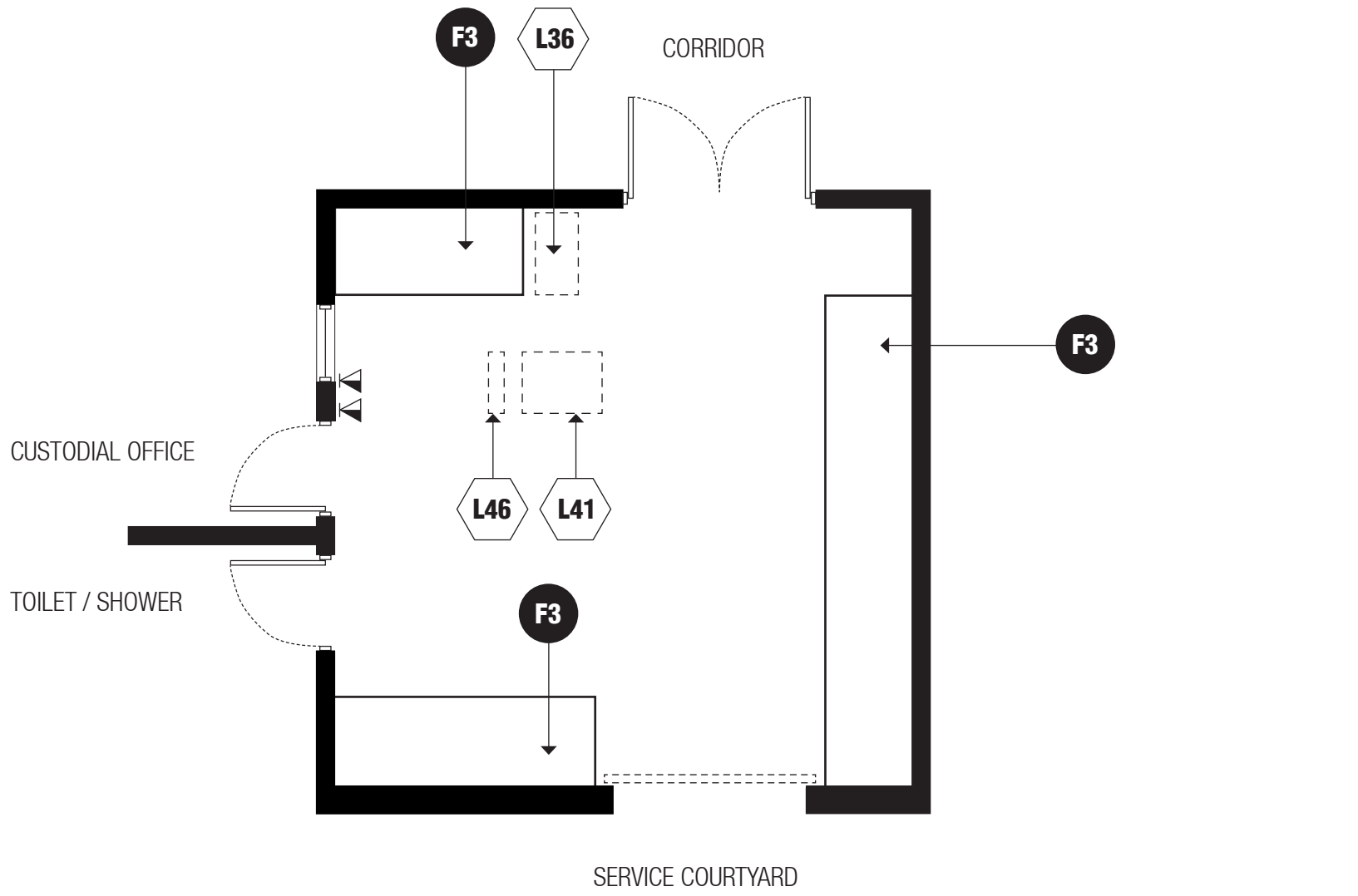


FIG. 14.0 // MAINTENANCE & CUSTODIAL ADJACENCY DIAGRAM



M-MC // SUPPLY STORAGE / RECEIVING

size

varies, see table

capacity

maintenance personnel

spatial relationships

adjacent and access to loading dock area

and service courtyard

access to corridor

adjacent and access to custodial office

adjacent and access to toilet/shower/locker

room

program activities

loading and unloading

storage of furniture, materials for special

events, paper, and general supplies

plumbing

plumbing connections service sink

environmental considerations

supplemental heating source

double door with removable mullions

overhead door to service courtyard

LEGEND ///

● **fixed equipment**

F3 storage shelving, 84" high x 36" deep

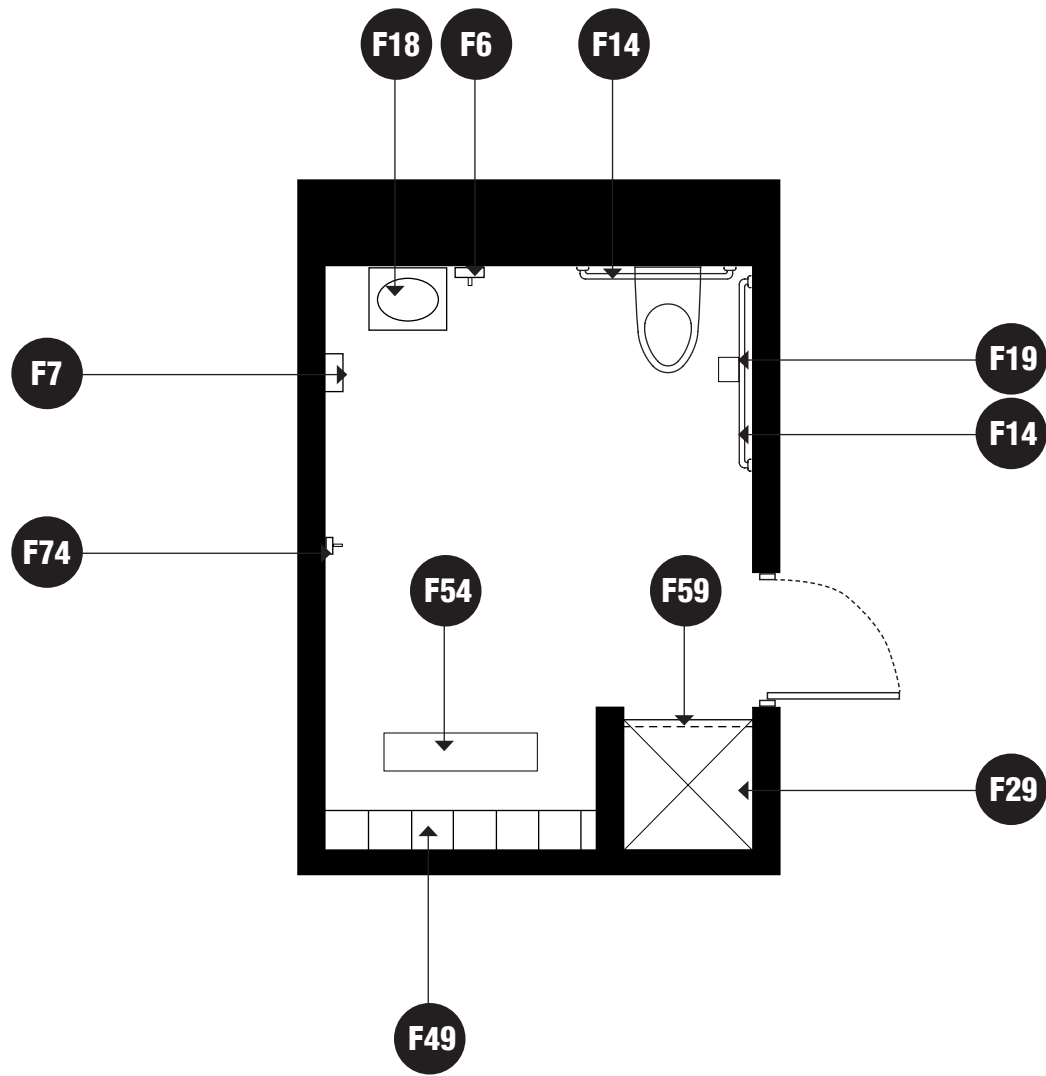
⬡ **loose furnishings**

L36 flammables storage container

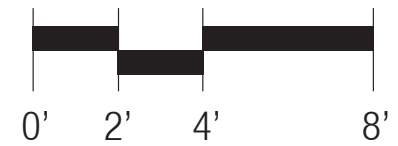
L41 dollies and lifts

L46 step ladder

▶ data drop



M-MC /// TOILET / SHOWER / LOCKERS



size

100 SF

capacity

maintenance and custodial staff

spatial relationships

adjacent and access to supply storage/
receiving

program activities

showering
changing clothes

plumbing

wall-mounted water closet
wall-mounted lavatory
ADA shower controls and head
floor drains - in restroom and shower
plumbing connections

LEGEND ///

● **fixed equipment**

F6 soap dispenser

F7 towel dispenser

F54 locker bench

F14 (36" and 42") grab bars

F18 (24" x 60") mirror

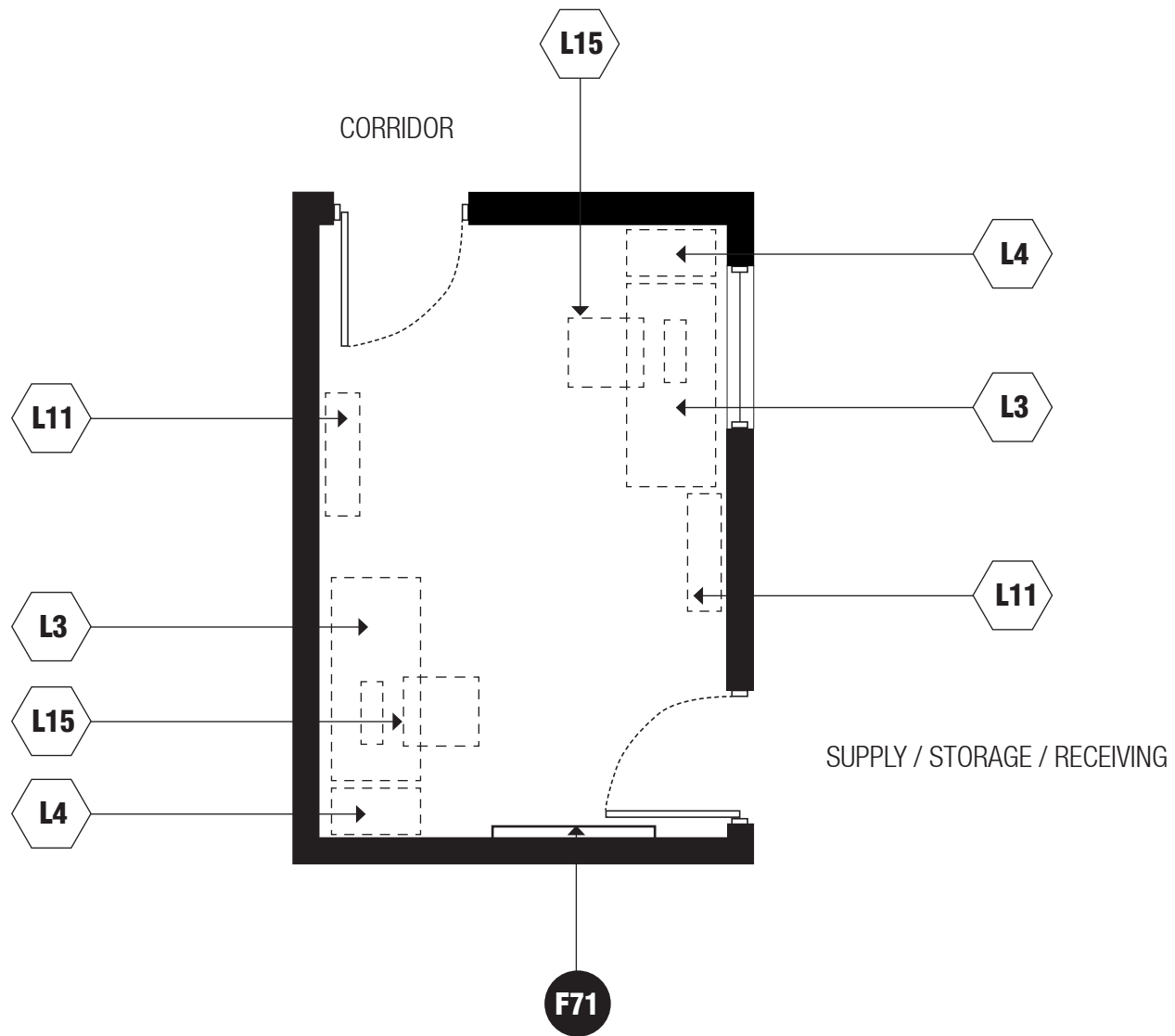
F19 toilet tissue holder

F29 ADA shower accessories

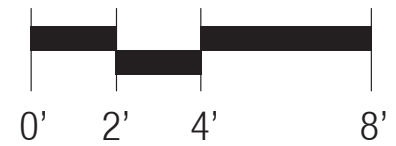
F49 lockers

F59 shower curtain and rod

F74 coat hook



M-MC /// CUSTODIAL OFFICE



size

150 SF

capacity

maintainence and custodial staff
building engineer

spatial relationships

adjacent and access to supply storage/
receiving
access to corridor

program activities

conferences with staff and other visitors
telephone calls
paperwork

LEGEND ///

● **fixed equipment**

F71 tack board (4 LF)

⬡ **loose furnishings**

L3 desk

L4 four drawer file cabinet

L11 adjustable height bookshelves (12 LF)

L15 errgonomic task chair





M-BS /// **BUILDING SUPPORT**

LARGE GROUP RESTROOMS
CUSTODIAL CLOSET
ELECTRICAL CLOSET
TECHNOLOGY CLOSET
CORRIDORS
MECHANICAL / ELECTRICAL SPACE DECK
STORAGE AREA
CENTRAL STORAGE AREA
LOADING / RECEIVING AREA
STAFF RESTROOM
FAMILY RESTROOM
COMPUTER STORAGE

| SPACE | QUANTITY | SF | TOTAL | NOTES |
|------------------------------------|-----------------|-----------|---------------|--|
| BUILDING SUPPORT | | | | |
| Large Group Restrooms | | 4,225 | 4,225 | 3.5% of program area excluding building services |
| Custodial Closet | 8 | 30 | 240 | |
| Electrical Closet | 8 | 30 | 240 | |
| Technology closet | 8 | 50 | 400 | |
| Corridors | | 33,798 | 33,798 | 28% of program area excluding building services |
| Mechanical / Electrical Space Deck | | 8,329 | 8,329 | 6.9% of program area excluding building services |
| Outdoor Storage Area | 1 | 250 | 250 | |
| Central Storage Area | 1 | 500 | 500 | |
| Loading/receiving area | 1 | 120 | 120 | |
| Staff Restroom | 5 | 50 | 250 | |
| Family Restroom | 1 | 75 | 75 | |
| Computer Storage | 1 | 400 | 400 | |
| Total | | | 48,827 | |

Comments //

KEY ///

- direct access 
- linked space 
- enclosed space 
- open space 

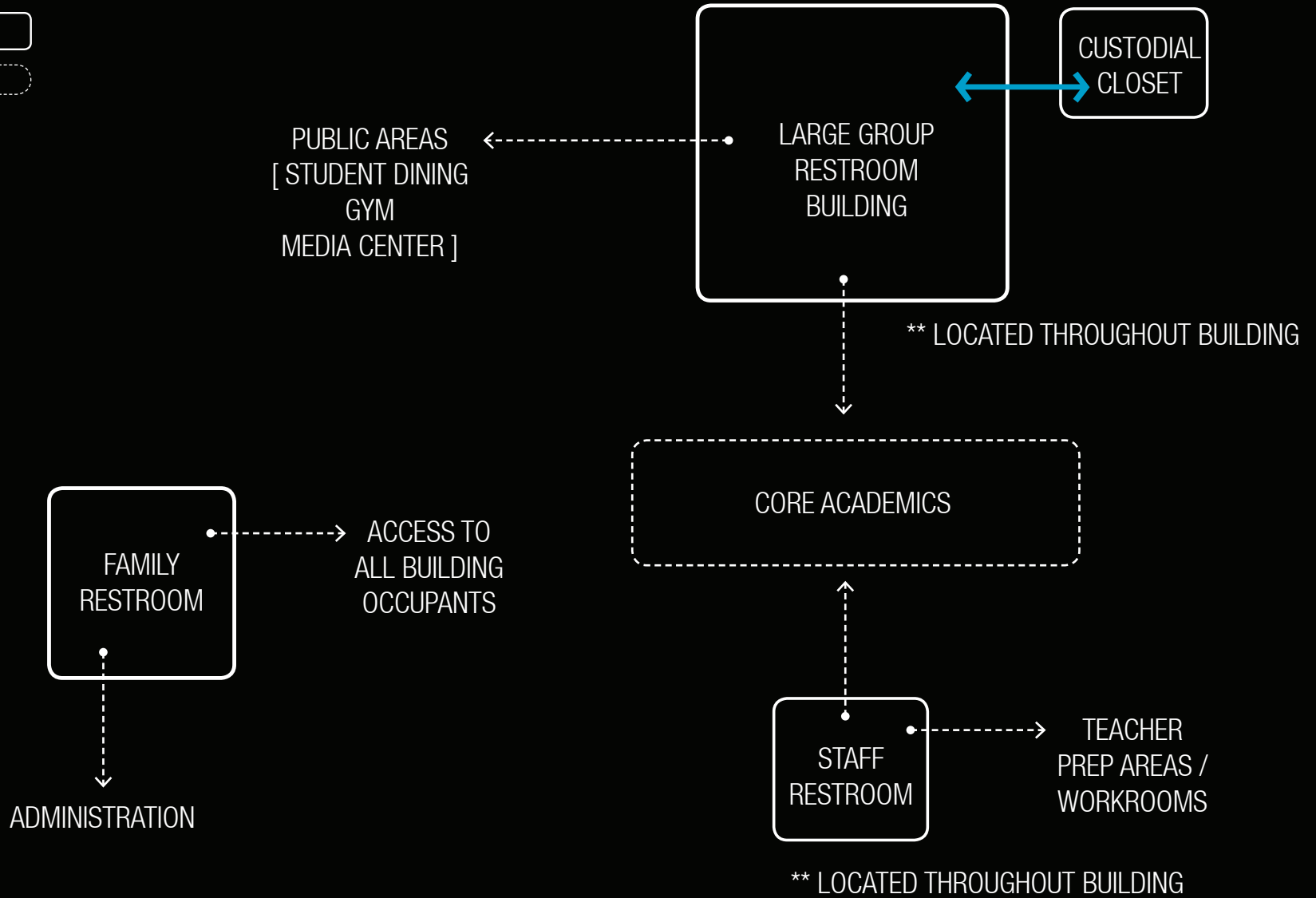
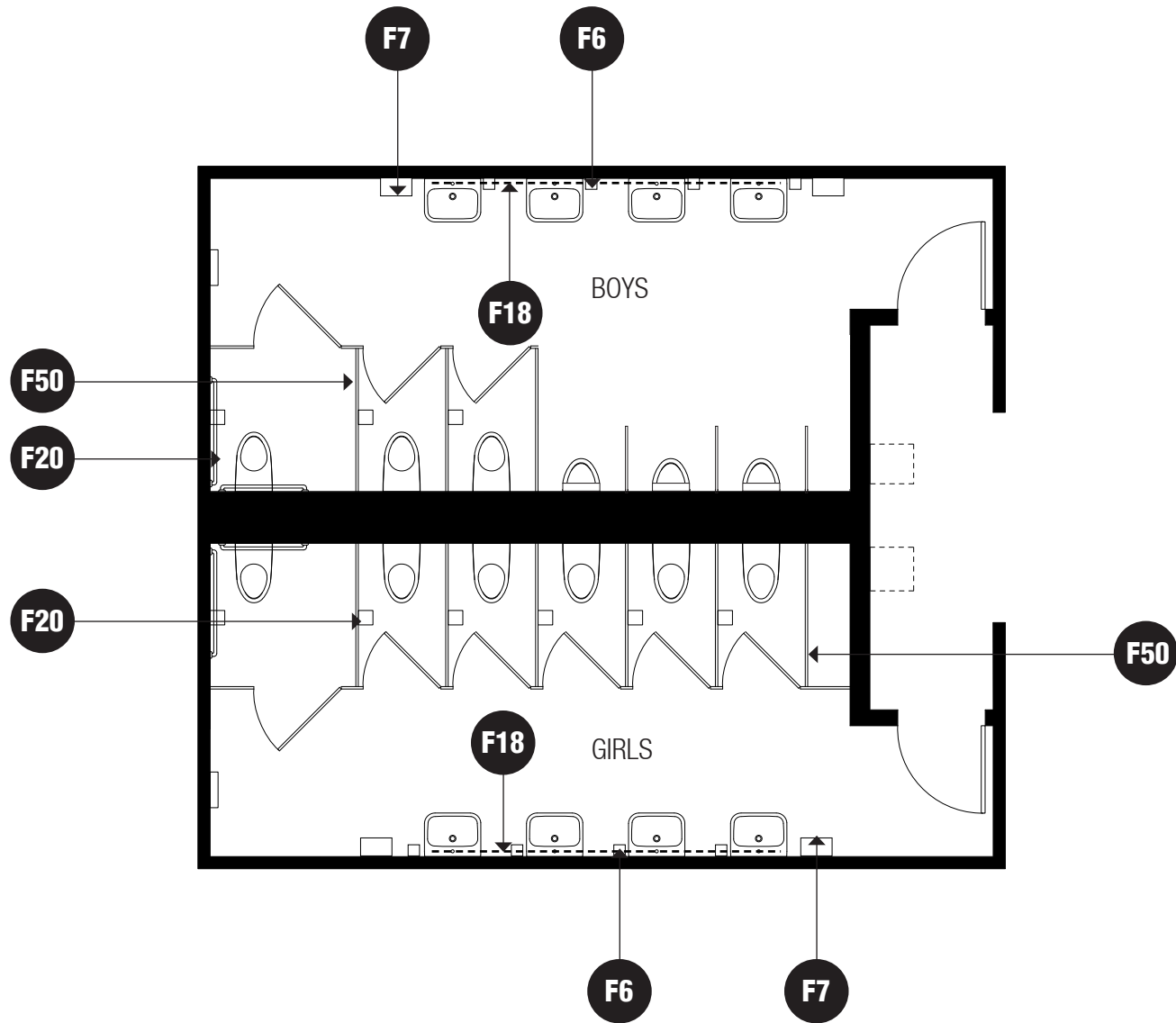
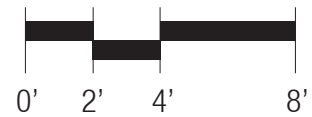


FIG. 15.0 // BUILDING SUPPORT ADJACENCY DIAGRAM



M-BS /// LARGE GROUP RESTROOM



Spaces to be determined by design professional based on the number of fixtures required.

size

based on the sum of the program areas excluding building services, multiplied by 3.5%

capacity

based on size of program area

spatial relationships

near student dining area
near public use areas, such as media center and gymnasium
near academic core area
restrooms located in several areas throughout building

program activities

personal and health needs for the students

plumbing

wall mounted water closets
wall mounted lavatories
or wash fountains
appropriate height fixtures by age
plumbing connections

LEGEND ///

● **fixed equipment**

F6 soap dispenser

F7 towel dispenser

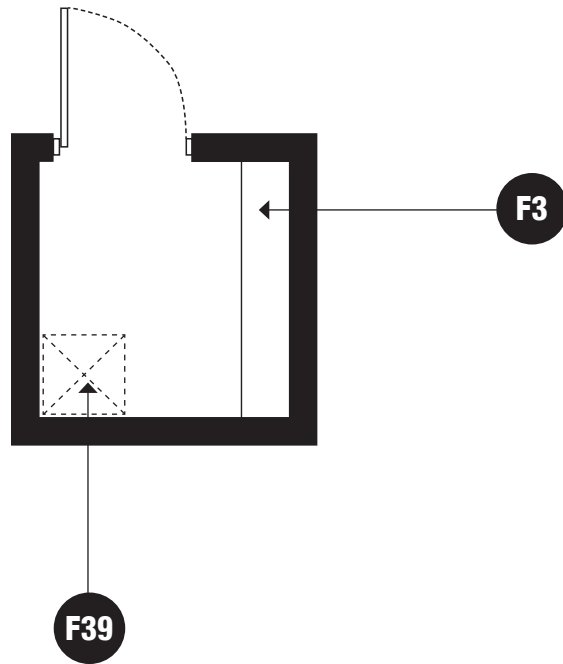
F18 mirror (24" x 60")

F20 bathroom accessories

F50 toilet partitions

NOTES //

Where individual restrooms are provided in lieu of large group restrooms, refer to staff restroom.



size

30 SF

capacity

n/a

spatial relationships

near large group restrooms

program activities

space for storage of custodial supplies
throughout the building

plumbing

service sink or floor drain sink
plumbing connections

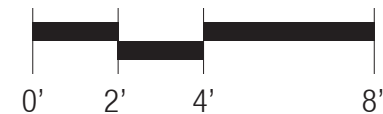
LEGEND ///

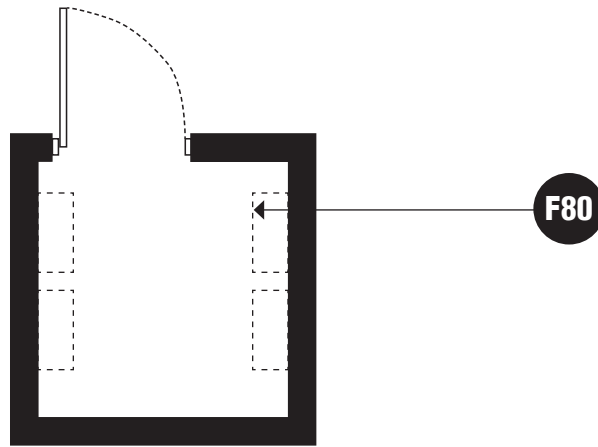
● **fixed equipment**

F39 mop sink

F3 wall shelving

M-BS /// CUSTODIAL CLOSET





Spaces to be determined by design professional.

size

30 SF

capacity

n/a

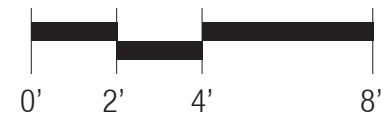
program activities

space for electrical wiring and panels

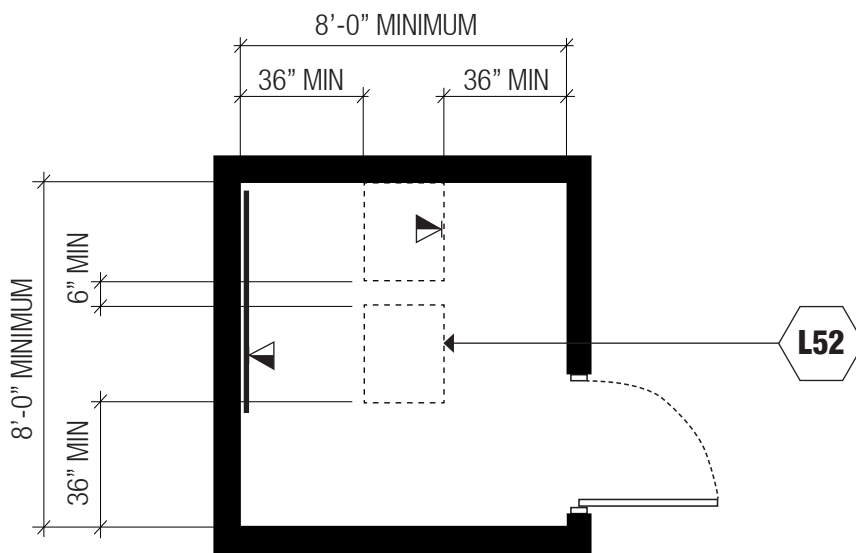
LEGEND ///

● **fixed equipment**

F80 electrical panel



M-BS /// ELECTRICAL CLOSET



size

0-75,000 SF = 8' x 8' minimum

75,00-150,000 SF = (1) 8' x 10' and 8' x 8'

150,000 SF plus = (2) 8' x 10' and 8' x 8'

capacity

n/a

program activities

space for technology needs

LEGEND ///



loose furnishings

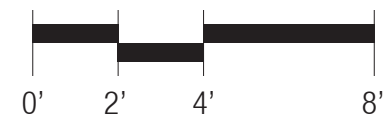
L52 telecommunications rack (6" organizers between all racks)



data drop

NOTES //

This is an example of a telecommunications room. The equipment and layout will vary from school district to school district.



M-BS /// TECHNOLOGY CLOSET

- corridors shall be a minimum of 8 feet wide; some areas of natural light is desirable; the designer should minimize long corridors lined with classroom doors
- extended learning areas are in addition to the minimum above and must not intrude into the egress pathway. Seating areas in extended learning areas must meet fire code.
- lobbies are in addition to the circulation requirement.
- instructional and activity areas shall be accessible by corridors without passing through another instructional or activity area.
- the corridors are to meet the egress requirements of applicable codes.
- stairs, ramps, and elevators are included under the corridor category.
- it is recommended that stairs in multi-story buildings not be enclosed unless required by code. However, such a design should not allow students to lean over railings or put arms/legs through posts.

program activities

circulation space

vestibules

area of vestibules to be included within area allotted for corridors

width of vestibules can be no less than minimum width of adjacent corridor.

provide recessed vinyl floor mats (recommend 15 LF of surface mats in addition to vinyl mats)

provide automatic door operator on one leaf of main entrance/exit door and related vestibule door

plumbing

drinking water coolers with gooseneck faucet for water bottles

fixed equipment

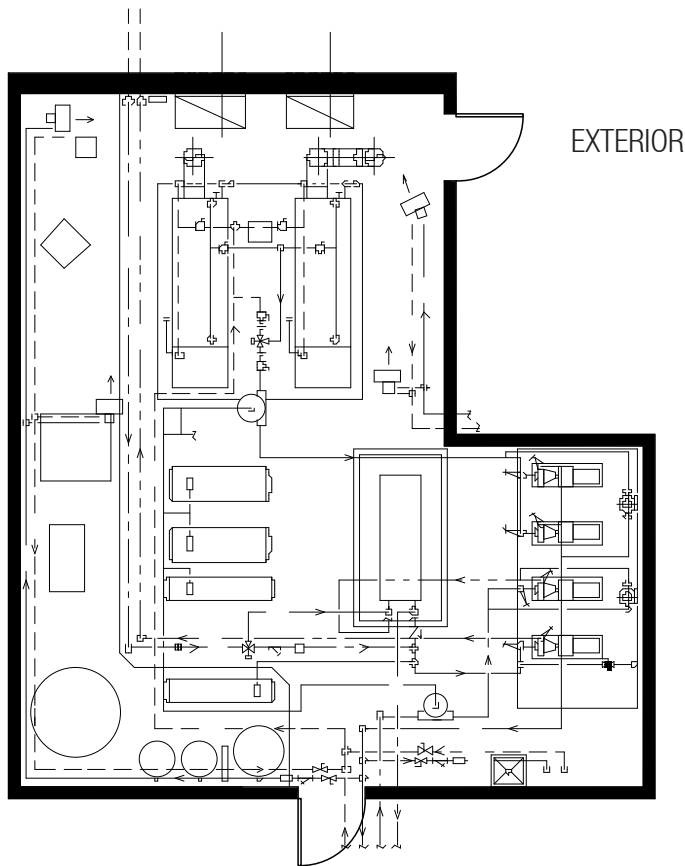
F51 fire extinguisher

F52 recessed floor mats

F53 digital boards

F71 tack board

F72 3D displays



Spaces to be determined by design professional.

size

based on the sum of the program areas, excluding building services, multiplied by 6.9%

capacity

based on size of program area

program activities

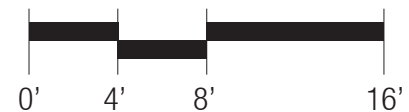
space for mechanical and electrical equipment

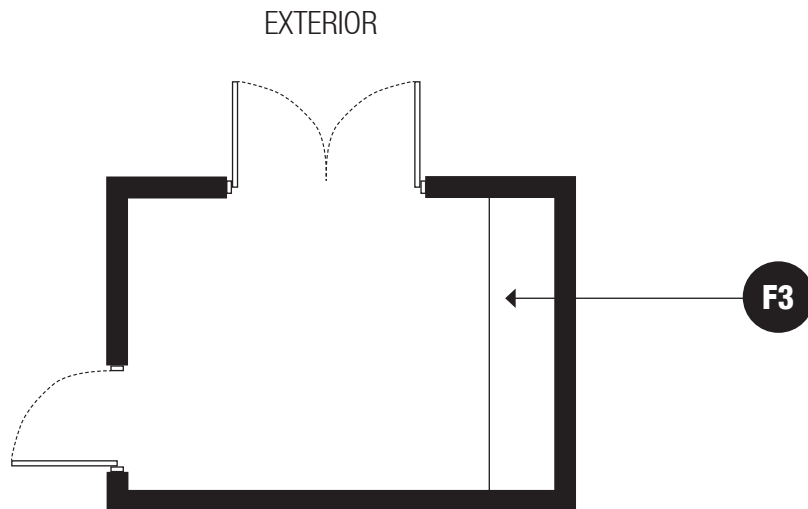
spatial relationships

- accessible for maintenance and repair
- access to outside
- isolate from main area of building
- near loading/receiving area
- near custodial area

NOTES //

1. This is an example of a mechanical room. The equipment and layout will vary depending upon the heating, ventilating, and air conditioning system used.
2. A penthouse is considered a mechanical room.





Spaces to be determined by design professional.

size

250 SF

capacity

n/a

program activities

space for storage of outdoor custodial equipment

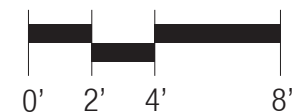
spatial relationships

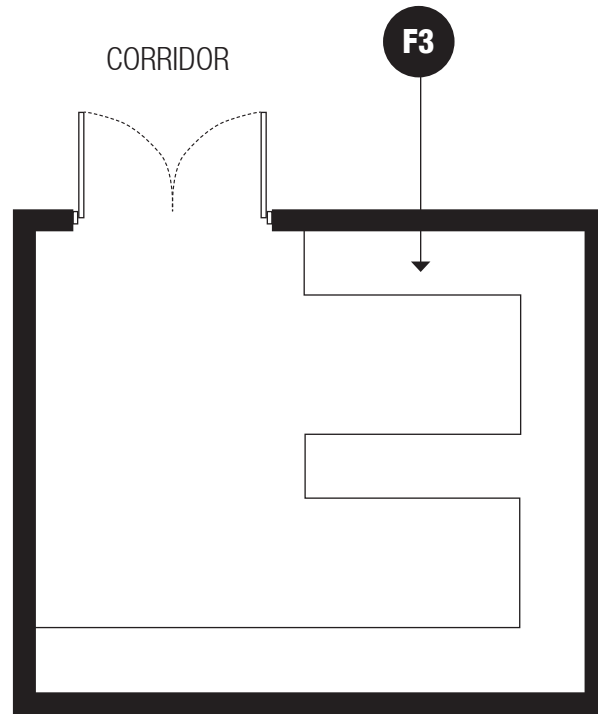
near custodial office
near custodial workroom
direct access to outdoors

LEGEND ///

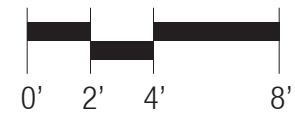
● **fixed equipment**

F3 wall shelving (10'-16', depth may vary)





M-BS /// CENTRAL STORAGE AREA



Space to be determined by design professional.

size

500 SF

capacity

n/a

spatial relationships

near loading/receiving area

direct access to building circulation

program activities

Storage for paper products, utensils, supplies, etc., to be used throughout the entire building

environmental considerations

uniform lighting

finishes

flooring:

resilient tile flooring

base:

resilient base

ceiling:

exposed structure

walls:

painted concrete masonry units

fire suppression

fire suppression system

HVAC

exhaust air system

supplemental heat as required

electrical

single level switching

fluorescent lighting

duplex receptacles

electronic safety and security

life safety devices per code

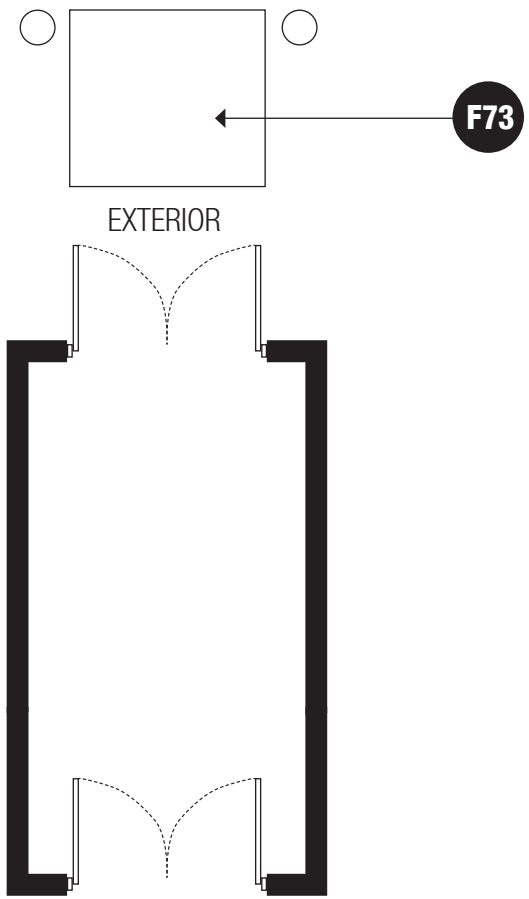
LEGEND ///

● **fixed equipment**

F3 wall shelving (26'-32', depth may vary)

NOTES //

1. Finishes/features: refer to _____ for specification references.
2. Ranges shown indicate quantities for the smallest and largest possible room size.



M-BS /// LOADING / RECEIVING AREA



Space to be determined by design professional.

size

120 SF

capacity

n/a

spatial relationships

- near food service spaces
- near central storage area
- near mechanical room
- adjacent to loading dock

program activities

delivery of materials and goods to be used throughout the building

finishes

flooring:

sealed concrete

base:

resilient base

ceiling:

exposed structure

walls:

painted concrete masonry units

fire suppression

fire suppression system

plumbing

drain at pit

HVAC

- exhaust air system
- supplemental heat as required

electrical

- single level switching
- fluorescent lighting
- duplex receptacles
- leveler

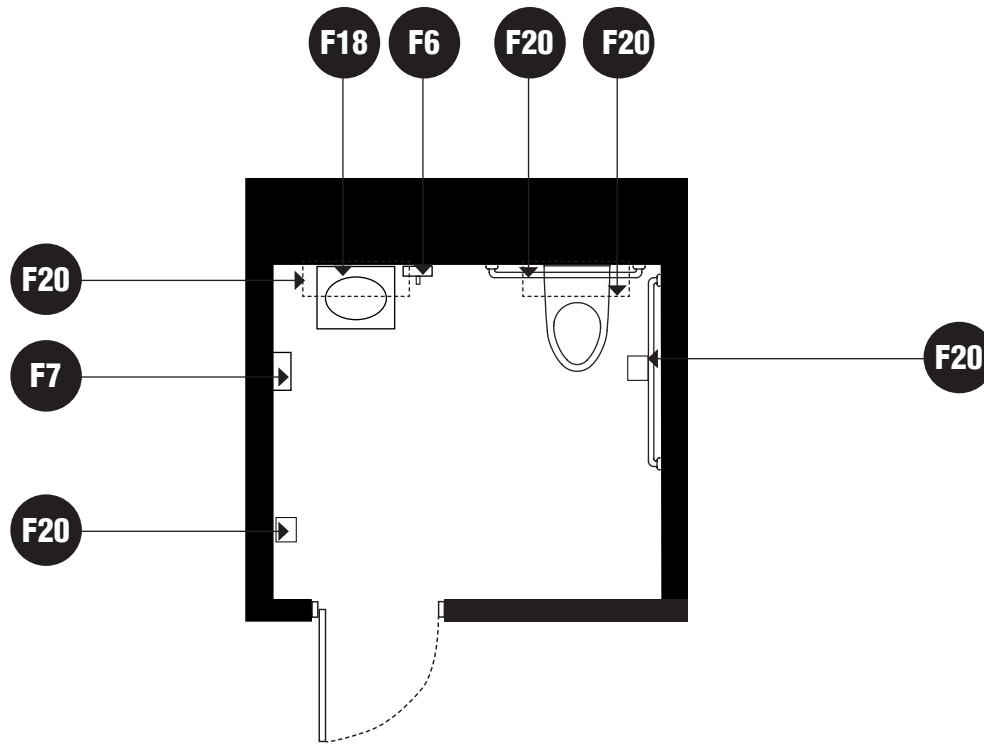
LEGEND ///

● **fixed equipment**

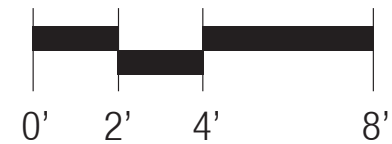
F73 loading dock levelers and dock bumpers

NOTES //

1. Finishes/features: refer to _____ for specification references.
2. Refer to Chapter 3, Section 3201 for site vehicular circulation requirements.



M-BS /// STAFF RESTROOM



size

50 SF

capacity

1 person

spatial relationships

near academic core classrooms

near teacher prep area/workroom

program activities

personal and health needs for teachers, staff, and other individuals

environmental considerations

uniform lighting

environmental sound control -

wall minimum STC 53

ceiling minimum CAC 35, NRC 0.40

moisture and stain resistant finishes

finishes

flooring:

ceramic tile

base:

resilient base

optional - ceramic mosaic tile or

porcelain tile

ceiling:

suspended, acoustical

walls:

painted concrete masonry units

fire suppression

fire suppression system

plumbing

wall-mounted water closet

wall-mounted lavatory

plumbing connections

floor drain

HVAC

exhaust air system

supplemental heat as required

electrical

single level switching

fluorescent lighting

duplex receptacles

leveler

communications

central sound system

electronic safety and security

life safety devices per code

LEGEND ///

● **fixed equipment**

F6 soap dispenser

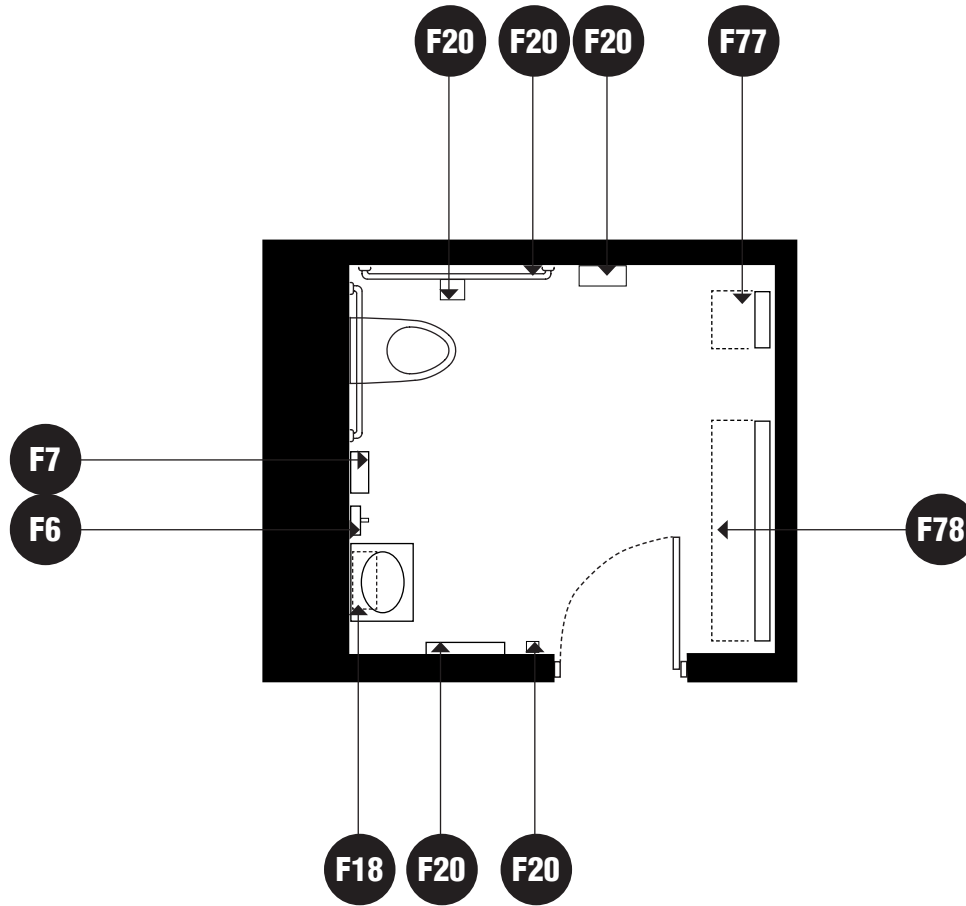
F7 towel dispenser

F18 mirror (24" x 60")

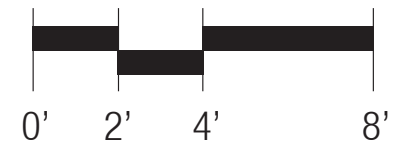
F20 bathroom accessories

NOTES //

1. Extend walls above ceiling to deck above for security and acoustical reasons.
2. Provide staff restrooms for both men and women.
3. Each pair of staff restrooms should be distributed throughout the building at appropriate locations.



M-BS /// FAMILY RESTROOM



size

75 SF

capacity

2 people

spatial relationships

located in the administrative area, but accessible to all building occupants

program activities

personal, health, and handicap needs for all building occupants

environmental considerations

uniform lighting
environmental sound control - wall minimum STC 53
ceiling minimum CAC 35, NRC 0.40
moisture and stain resistant finishes

finishes

flooring:

ceramic tile

base:

resilient base
optional - ceramic mosaic tile or porcelain tile or resinous flooring

ceiling:

suspended, acoustical

walls:

painted concrete masonry units

fire suppression

fire suppression system

plumbing

wall-mounted water closet

wall-mounted lavatory
plumbing connections
floor drain

HVAC

exhaust air system
supplemental heat as required

electrical

single level switching
fluorescent lighting
(1) duplex receptacle

communications

central sound system

electronic safety and security

life safety devices per code

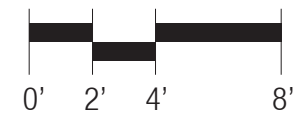
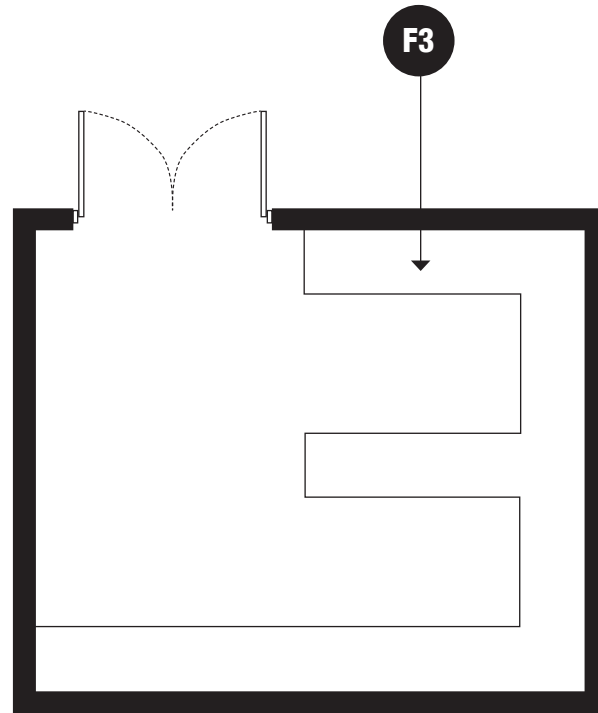
LEGEND ///

● **fixed equipment**

- F6 soap dispenser
- F7 towel dispenser
- F18 mirror (24" x 60")
- F20 bathroom accessories
- F77 mounted child seat
- F78 child changing station

NOTES //

1. Finishes/features: refer to _____ for specification references.



Space to be determined by design professional.

size

400 SF

capacity

n/a

ancillary spaces

technology storage

spatial relationships

near loading/receiving area

direct access to building circulation

adjacent to technology storage

program activities

storage for computers during breaks/summers

to secure hardware during cleaning, repairs, construction, etc.

environmental considerations

uniform lighting

finishes

flooring:

resilient tile flooring

base:

resilient base

ceiling:

exposed structure

walls:

painted concrete masonry units

fire suppression

fire suppression system

HVAC

exhaust air system

supplemental heat as required

electrical

single level switching

fluorescent lighting

duplex receptacles

electronic safety and security

life safety devices per code

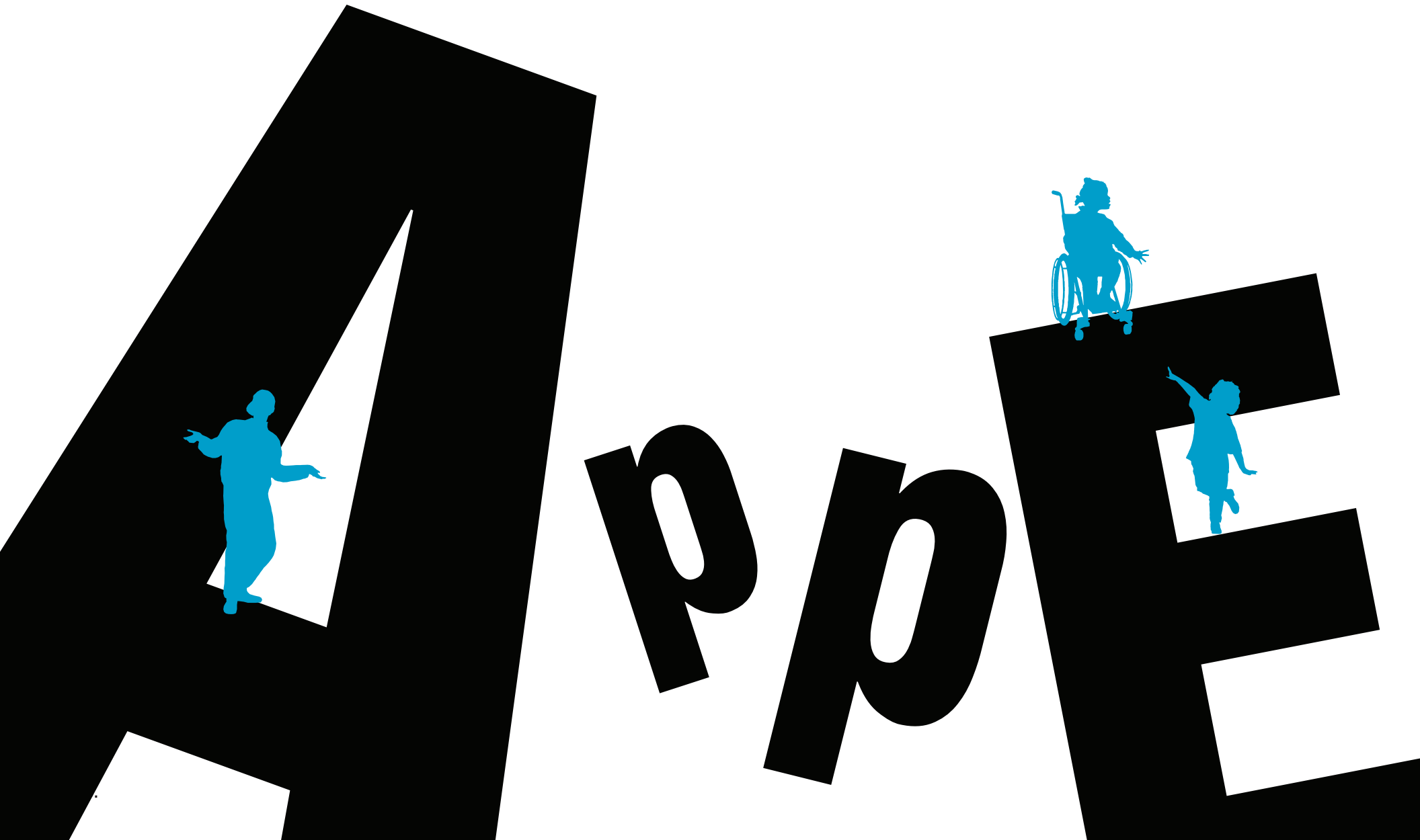
LEGEND ///

● **fixed equipment**

F3 wall shelving (26'-32', depths may vary)

NOTES //

1. Finishes/features: refer to _____ for specification references.
2. Ranges shown indicate quantities for the smallest and largest possible room size.
3. Confirm with the District of Columbia Public Schools' technology education specialist for requirements for each school.



N **d** **i** **K**



APPENDIX /// SPACE & TAG LIST



loose furnishings

- L1 stackable/nesting chairs
- L2 stackable/nesting tables
- L3 teacher work surface with mobile
- L4 storage and two chairs
- L5 four drawer lateral file cabinet
three bound rugs-group area, block area,
and reading area
- L6 mobile shelving
- L7 teacher's lockable wardrobe
- L8 tall cabinet with shelves
- L9 learning center sets - sand/water table,
kitchen, art cart, etc.
- L10 student desks
- L11 adjustable height bookshelves
- L12 admin workstation and chair
- L13 small table
- L14 computer station
- L15 task chair
- L16 bound group rug
- L17 printer station
- L18 lounge chairs
- L19 conference table
- L20 executive chairs
- L21 work table
- L22 safe
- L23 computer desk return
- L24 mobile exam table
- L25 nurse stool
- L26 refrigerator
- L27 health suite cot
- L28 folding chairs
- L29 choral risers
- L30 mobile a/v cabinet
- L31 posture chair
- L32 conductor's podium and stool
- L33 upright piano
- L34 tumbling mats
- L35 ball bins
- L36 flammables storage
- L37 dance barres
- L38 play equipment
- L39 cafeteria tables
- L40 point of sale station
- L41 chair dollies
- L42 drying rack
- L43 flat storage
- L44 kiln
- L45 greenware shelving
- L46 step ladder
- L47 music stand

L48 stainless steel mobile preparation tables
L49 wastebasket
L50 small conference table
L51 laptop charging cart
L52 physical therapy table
L53 computer-based modeling stations (2 students each)
L54 work benches approximately 4'x4'
L55 48" wide tote tray cabinets for project storage for 100 students
L56 trapezoid desks that fit 4-6
L57 fire blanket
L58 autoclave (one per school)
L59 distiller (one per school)
L60 dishwasher
L61 tv recording/ production equipment
L62 two person table on casters
L63 resource media cart
L64 first aid kit
L65 adjustable height stool for teacher
L66 range
L67 microwave
L68 refrigerator/commercial
L69 upright freezer
L70 ice maker
L71 two-person adjustable height tables

L72 goggle storage and sanitizer cabinet
L73 student tall stool
L74 two-person tall art table

● **fixed equipment**

- F1 base/wall cabinets and shelving (deleted “around classroom sink”)
- F1.1 casework
- F2 student cubbies
- F3 wall shelving
- F4 marker board
- F5 tackable/magnet wall surface
- F6 soap dispenser
- F7 towel dispenser
- F8 F8 wall mounted interactive electronic presentation device
- F9 classroom sink
- F9.2 rust-resistant shelving
- F10 demonstration kitchen
- F11 periphery science station
- F12 rust-resistant deep shelving and dunnage racks
- F13 sound system
- F14 36” and 42” grab bars
- F15 periphery kitchen station
- F16 washer/dryer
- F17 audio/video recording and playback equipment
- F18 mirror

- F19 toilet tissue holder
- F20 bathroom accessories
- F21 peg board
- F22 basketball goals
- F23 operable partition- motorized
- F24 climbing wall
- F25 treatment cubicle curtain
- F27 amphitheater
- F29 ADA shower accessories
- F31 stage curtains
- F32 stage lighting
- F33 pot washing sinks
- F34 food preparation sinks
- F35 hand sinks
- F36 work tables
- F37 warming/holding cabinets
- F38 refrigeration- reach in
- F39 mop sink
- F40 chemical storage
- F41 exhaust hood systems
- F42 food wells and full service sneeze
- F43 guard
- F44 self-contained refrigerated cold pan
- F45 library case work
- F46 motorized projection screen

- F50 lockers
- F51 toilet partitions
- F52 fire extinguisher
- F53 recessed floor mats
- F54 digital boards
- F55 locker bench
- F56 folding utility shelf
- F57 30” itinerant/aid station
- F58 kitchenette
- F59 changing table
- F60 shower curtain/rod
- F62 sound enhancement system
- F63 towel hook
- F64 filtered water fountain with bubbler and gooseneck bottle filler
- F65 recycling center

F66 oven
F67 convection steamer
F68 range
F69 ware washing machine
F70 mop rack
F71 tack board
F72 3D displays
F73 loading dock levelers and dock
bumpers
F74 coat hook - bathroom accessory
F75 sanitary napkin dispenser
F76 sanitary napkin disposal
F77 mounted child seat
F78 child changing station
F79 tackable surface
F80 electrical panel
F81 double hung track and black curtain
F82 drinking fountain
F83 goggle storage and sterilization with
adequate ventilation
F84 two sinks (6ft apart) with clay traps;
cabinetry below
F85 casework for dining equipment
(dishes, table cloths, etc)
F86 double bowl stainless steel kitchen
sink
F87 full-sized convection oven

F88 gym bleachers

■ **miscellaneous**

M1 high speed and/or large format
printers
M2 color printers
M3 barcode reader
M4 photocop machine
M5 digital scanner
M6 laminator
M7 desktop computer

energy / environmental criteria

Scientists who study the “neuroscience of learning” are finding that certain lighting, acoustics, and spatial relationships support or hinder the learning process. The following criteria should be used when creating optimal learning and teaching environments.

| | DESIGN PARAMETERS | PARAMETER NOTES |
|---|---------------------------------|--------------------------------|
| LIGHTING QUALITY // improving natural and artificial lighting in classrooms | | |
| 1 Controlled Natural Lighting (Glazing) | 10-12% of floor SF | LEED and Green Globe |
| 2 Artificial Light | 35-50 foot candles | IES |
| ENVIRONMENTAL AIR QUALITY // addressing temperature control, ventilation, air filtration, carbon dioxide levels, and HVAC background noise to ensure comfortable rooms | | |
| 1 Winter Temperature | 68.5 - 75.5 degrees | EPA 2000 and ASHRAE 55-04 |
| Summer Temperature | 74 - 80 degrees | |
| 2 Humidity | 30 - 60% relative humidity | EPA 2000 and ASHRAE 55-04 |
| 3 Air Changes | 6 - 10 per hour | ASHRAE |
| 4 Outdoor Air Ventilation | 10 CFM per person | Plus 0.12 per SF |
| 5 Air Filtration | MERV 13 | LEED |
| | MERV 6 - 8 | ASHRAE 52.2-2007 and 62.1-2007 |
| 6 Carbon Dioxide Levels | below 700 PPM above outdoor air | ASHRAE 62.1-2007 |
| 7 HVAC Background Noise Levels | RC(N) Mark II level of 37 | ASHRAE Handbook Chapter 47 |

| | DESIGN PARAMETERS | PARAMETER NOTES |
|---|--|------------------|
| ACOUSTICS // limiting reverberation and background noise and improving sound isolation | | |
| 1 Reverberation | 0.6 per second | ANSI S12.60-2002 |
| 2 Background Noise | 45 dBA | LEED |
| 3 Sound Isolation | STC 45 between classrooms | |
| TECHNOLOGY // providing data connections for online learning resources, AV equipment, closed-circuit televisions, and a sound system with emergency capabilities | | |
| 1 Data / Computer Drops | at teacher workstations and wireless access points | |
| 2 Audio / Video Equipment | | |
| Interactive Whiteboard | | |
| Document Cameras | | |
| Sound Reinforcement | amplifier, microphone, speakers | |
| 3 Clock | synchronized with bell system | |
| 4 Sound System and Emergency Call Box | | |
| Ceiling or Wall Speaker | class change bells, emergency announcements | |
| 5 CCTV Camera | | |
| Security | | |
| WebX Conferencing | | |
| Distance Learning | | |

energy / environmental design

There is a high interest in using school buildings as teaching tools to teach environmental stewardship and awareness, while simultaneously providing engaging environments for students, staff, and community who use the facilities. The organization, understanding, and use of school buildings will have a major impact on student and staff conservation behavior.

The sustainable design and green features of any building can be addressed in an active or a passive manner: active interaction is based on digital displays, educational features and curriculum integrated learning about environmental issues; passive interaction is based on the program design, building configuration, green building features, and energy efficient building automation.

Passive Concepts //

1. Building Layout

- Concentrate daylight and views to the outside to areas of frequent human interaction (e.g. classrooms, cafeterias, media center, art rooms, music rooms) with passive solar design
- Avoid excessive window areas in corridors, lobbies, hallways with no gathering opportunities (design for less than 45% of wall area)
- Avoid skylights and use roof monitors with vertical glazing instead

2. Types of Building Materials

- Use durable wall surfaces that are easy to clean
- Design for cleanability with easy and safe access
- Incorporate light colored pitched roofs to prevent heat

gain and leakage

- Install high performance walk-off mats at all points of entry
- Design with noise minimization in mind

3. Uses of Technology

- For instructional and administrative purposes, the new school should have extensive technology systems. These same infrastructures and technology components can be used to enhance the perception of the buildings environmental components. Digital display of buildings energy and water use at entrance and in cafetorium.
- Website with environmental features of the school
- Use only vacancy sensors for classrooms, cafetorium etc. to turn off (not on) lighting
- Daylight sensors and dimming in larger areas (cafetorium, multi-purpose etc.)

4. Vehicular and Pedestrian Traffic

- Provide sufficient, covered and secures bicycle storage
- Provide bicycle lanes to building from all major access directions

5. Landscaping, Play/Practice Fields, Site, and Lighting

- Use native high trees and low bushes and ground covers and locate to provide shade to the building
- Non-intrusive lighting of all areas (not correctional-type lighting) according to the Light Pollution Credit in LEED-S with no lighting to leave property line

6. Green Curriculum

- Provide outdoor classroom
- Design interior with sense of buildings orientation to North – East – South - West

Active Concepts //

1. Building Layout

- Provide signage to educate users about interior and exterior green building features throughout
- Provide signage for user behavior modification, e.g. ACPS policy for thermostat settings, reminders to turn equipment off when not in use
- Provide visitor map with floor plan for location and explanation of green building features

2. Types of Building Materials

- Provide view window to inside of wall constructions and mechanical room
- Provide materials with environmental message in selective areas, e.g. 100% recycled post consumer plastic toilet compartments, wheatboard cabinets, or furniture made of wood harvested from school site, and explain with signage.

3. Uses of Technology

- For instructional and administrative purposes, the new school should have extensive technology systems. These same infrastructures and technology components can be used to enhance the perception of the buildings environmental components.
- Green morning announcement with update on energy and water use
- Student conducted energy audits
- School based resource conservation program with frequent feedback to users

4. Vehicular and Pedestrian Traffic

- Provide preferred parking for ACPS Green Fleet (for carpooling and fuel efficient vehicles)

5. Landscaping, Play/Practice Fields, Site, and Lighting

- Design for no-mow areas
- Design for student garden
- Provide solar or wind powered, off the grid site lighting as demonstration model for select areas

6. Green Curriculum

- LEED credit Schools as a Teaching Tool requires 10 hours of instruction per student, grade and school year on environmental issues related to the school building. The school buildings design should support this requirement wherever possible.

technology

Information Technology provides technical services to all schools in the division and is operated from a remote location. ACPS IT does not mandate adherence to BICSI (Building Industry Consulting Services International) or RCDD (Registered Communications Distribution Designer) standards – particularly with regard to quantities and location of data drops. All electrical and data layouts are location dependent and Architects should consult IT with all design decision related to services operated by IT. Provide blocking systems in all walls for future acceptance of equipment and teaching devices.

Provide a maximum of four hard data ports per classroom; two data ports each at opposite facing walls to accommodate mobile teaching stations. Provide electricity in multiple locations along all walls and wireless internet capacity to host 30 computing devices at one time per classroom. Provide appropriate wireless data coverage through each school to facilitate a one-to-one teaching device ratio. ACPS' fiber optic systems support security, IP cameras, clocks, and PA systems.

safety / security

ACPS wants to maintain an inviting and de-institutionalized environment, while simultaneously providing a safe environment for students, staff, and community who use the facility and adjacent support services. The organization of a building will have a major impact on student behavior and safety concerns.

Building security can be addressed in an active or a passive manner: active security is based on security systems; passive security is based on program design, building configuration, and community participation. Schools should be based on passive concepts with applied active concepts where necessary.

The principles of the *Crime Prevention Through Environmental Design* (“CPTED”) approach should be followed to incorporate passive safety and security measures. CPTED is the broader approach to safety and security that seeks building designs that encourage desirable behavior, heighten functionality, and decrease social behavior.¹

There are three main considerations in CPTED:

1. **Natural Surveillance:** the capacity to see what is occurring without having to take special steps to do so
2. **Natural Access Control:** the capacity to limit who and how someone can enter a facility
3. **Territoriality:** the capacity to establish an authority over an environment in who is in charge, who is allowed and who is not welcome.

1. Schneider, Tod (September 2002). *Guide 4: Ensuring Quality School Facilities and Security Technologies: Safe and Secure: Guides to Creating Safer Schools*. Northwest Regional Educational Laboratory,

1. Building Layout

- Avoid blind spots, corners, and cubby holes
- Maintainable lines of sight and use of opening to create transparency
- Locate administrative and teacher preparation with good visual contact of major circulation areas (i.e., corridors, cafetorium, bus drop-off, parking)
- Develop spatial relationships that naturally transition from one location to another
- Locate toilets in close proximity to classrooms
- Design toilets to balance the need for privacy with the ability to supervise
- Locate areas likely to have significant community (after school) use close to parking and where these areas can be closed off from the rest of the building

2. Types of Building Materials

- Use durable wall surfaces and maintainable flooring material that are easy to clean so graffiti and dirt can be removed
- Incorporate pitched roofs which inhibit roof entry and are aesthetically pleasing
- Operational part of windows on the ground floor should be in the upper portion to prevent access
- Install non-slip floors and walk-off mats at point of entry
- Use of interior glass to create a transparent environment within the school, and Colors, artificial lighting, and natural day lighting should be managed artfully to create an

environment that is aesthetically pleasing in order to support student and faculty pride in the building.

3. Uses of Technology

- Phones in every instructional and support area
Building-wide all-call designed to be heard throughout the school and on the play fields when needed
- Motion or infra-red detectors, which can also conserve lighting costs
- Video cameras that are used for instructional purposes could also be used for security purposes during non-school hours
- Smoke and heat detectors located throughout the building
- Emergency call buttons in large parking areas, and
- Magnetic locking systems and carefully selected door hardware to facilitate lock downs in needed.
- Considerations should be given to zoning the building for non-school day uses in terms of both energy efficiency as well as security: Lighting zones, Securable zones, and Mechanical zones

4. Visitor Management

- The front entry lobby should be welcoming and inviting for students, staff, and visitors with a central visitor registration area should be prominent upon entry,
- Clear way finding signage should be included that directs visitors upon campus arrival to visitor registration and as well as throughout the building to provide overall building guidance,
- A secured double vestibule or a video enabled front entry intercom buzzer system should be provide to

manage visitor entry, and

- Front lobby & exterior displays should be provided for communicating school messages.

5. Vehicular and Pedestrian Traffic

- Separate bus drop-off area from other vehicular traffic
- Separate staff and community parking area
- Separate student (pedestrian) traffic flow

6. Landscaping, Play/Practice Fields, Site, and Lighting

- Use native high trees and low bushes (less than three feet high) to deter hiding
- Use aesthetically pleasing fencing around perimeter of the building
- Non-intrusive lighting of all areas (not correctional-type lighting) according to the Light Pollution Credit in LEED-Ss with no lighting to leave property line
- Reference the Alexandria City Landscaping Guidelines when providing landscaping.

PROTOTYPE TABLE

| | 6TH | 7TH | 8TH | SCIENCE | FOREIGN LANGUAGE | TECHNOLOGY LAB | SPECIAL PROGRAM | VISUAL ARTS | MUSIC | GYM | HEALTH | TOTAL |
|-----------------------|-----|-----|-----|---------|------------------|----------------|-----------------|-------------|-------|-----|--------|-------|
| 460 Students | | | | | | | | | | | | |
| Number of Classrooms | 3 | 3 | 3 | 3 | 3 | 1 | 2 | 2 | 2 | 2 | 1 | 24 |
| Capacity | 25 | 25 | 25 | 25 | 25 | 25 | 10 | 25 | 25 | 30 | 25 | |
| Total | 75 | 75 | 75 | 75 | 75 | 25 | 20 | 25 | 50 | 60 | 25 | 580 |
| CAPACITY @ 80 % = 464 | | | | | | | | | | | | |
| 850 Students | | | | | | | | | | | | |
| Number of Classrooms | 6 | 6 | 6 | 6 | 6 | 2 | 3 | 2 | 2 | 4 | 1 | 44 |
| Capacity | 25 | 25 | 25 | 25 | 25 | 25 | 10 | 25 | 25 | 30 | 25 | |
| Total | 150 | 150 | 150 | 150 | 150 | 50 | 30 | 50 | 50 | 120 | 25 | 1075 |
| CAPACITY @ 80 % = 860 | | | | | | | | | | | | |

High School Educational Specifications for

**Alexandria City Public Schools
1600 Student Capacity Prototype**

FINAL | Jan. 2017

FORWARD

The City of Alexandria (the City) and the Alexandria City Public School Division (ACPS) joined together in the fall of 2012 to develop a Long Range Educational Facilities Plan (LREFP) to improve facilities planning, accommodate the growing student population, and enhance educational programs and services. In the spring of 2016, as part of a Phase Two LREFP update, ACPS engaged Brailsford & Dunlavey and Studio27 Architecture (“the Planning Team”) to develop high school educational specifications. An educational specification (“Ed Spec”) is the guiding document used for capital improvement planning that describes the proposed outcomes of a school modernization or new construction project.

The document presented here is a result of the application of professional technical expertise and the collaboration of invested and knowledgeable stakeholders. It is outlined in the following table of contents.

The recommended program and concepts presented herein constitute the professional opinions of the Planning Team based on the assumptions and conditions detailed throughout; however, the board of education will make the final recommendation. It is recommended this document be comprehensively updated every 10 years and be a living document updated by the ACPS Facilities Planning Department.

This document is not intended to serve as a design for any specific proposed high school construction project. Rather, this document serves to guide future planning efforts for high school development as well as assess current conditions of ACPS high school(s). This document is not intended to limit future high school designs but provides a base set of space requirements to initiate the design process. Each high school construction project will require a separate, site-specific Ed. Spec. and thorough community and staff engagement process.

The Planning Team was comprised of the following individuals:

Ty Specht, Accredited Learning Environment Planner
Beth Penfield, Accredited Learning Environment Planner
Kate Dydak, Project Analyst
John Burke, Architect
Niki Livingston

The Planning Team wishes to acknowledge the support, cooperation, and effort of all the ACPS and city staff who contributed to the planning effort, in particular:

Dr. Alvin Crawley
Dr. Terri Mozingo
Clarence Stukes
Elijah Gross

Erika Gulick and

All the faculty, staff, and committee members who joined the effort throughout.

TABLE OF CONTENTS

FORWARD.....2

TABLE OF CONTENTS.....4

INTRODUCTION.....8

PURPOSE.....8

 PROJECT PLANNING:.....8

 PROJECT IMPLEMENTATION:.....9

 PROJECT TURNOVER AND OCCUPANCY:9

PROCESS.....9

NATIONAL TRENDS IN EDUCATIONAL FACILITY PLANNING.....12

21ST CENTURY LEARNERS12

 CLASSROOMS AND TECHNOLOGY12

 LIBRARIES AND STUDENT COMMONS13

 EVIDENCE-BASED ENVIRONMENTAL ELEMENTS.....15

Lighting Quality.....15

Environmental / Air Quality.....15

Acoustics16

Ergonomics.....16

 CITY OF ALEXANDRIA: DEMOGRAPHIC, AND ECONOMIC CONTEXT16

 ACPS LEARNING AND TEACHING MODEL.....19

 INSTRUCTIONAL METHODS19

STRATEGIC VISIONING21

PROGRAMMATIC STRUCTURE, SCALE, AND PROPORTIONALITY.....21

COMMUNITY CONTEXT.....22

ORGANIZATIONAL AND OPERATIONAL PARADIGM.....22

ARCHITECTURAL AND CONSTRUCTION QUALITY.....23

ACPS 2020.....23

PLANNING CONCEPTS.....24

| | |
|--|-----------|
| CAPACITY | 24 |
| PROGRAM AREA SUMMARIES | 27 |
| MAIN OFFICE-RECEPTION / ADMINISTRATION / STUDENT SERVICES..... | 27 |
| HEALTH SERVICES..... | 29 |
| CORE INSTRUCTION | 29 |
| Classrooms..... | 30 |
| Extended learning areas (ELA) | 30 |
| Science..... | 31 |
| Science, Technology, Engineering, and Mathematics (STEM)..... | 31 |
| Career Technical Education (CTE) | 32 |
| Special Education..... | 35 |
| English Language Learning (ELL)..... | 36 |
| Talented and Gifted (TAG)..... | 36 |
| Advancement Via Individual Determination (AVID)..... | 37 |
| Visual and Performing Arts..... | 37 |
| Library..... | 38 |
| Physical Education | 39 |
| Pool 39 | |
| Student Support, Testing, and Community Gathering Spaces | 40 |
| DINING AND FOODSERVICE | 41 |
| SITE..... | 42 |
| Site Management | 42 |
| Parking and Transportation | 42 |
| BUILDING ORGANIZATION | 44 |
| CONCEPT | 44 |
| DESIGN PRINCIPLES | 47 |
| OVERVIEW | 47 |
| UNIVERSAL DESIGN | 47 |
| FURNITURE & EQUIPMENT..... | 47 |
| TECHNOLOGY..... | 47 |
| SAFETY AND SECURITY | 48 |
| ENERGY AND ENVIRONMENTAL PERFORMANCE | 48 |
| MATERIALS AND FINISHES | 48 |
| OPERATIONS AND MECHANICAL..... | 49 |

| | |
|--|-----------|
| COMMUNITY USE AND PARTNERSHIPS | 49 |
| FAMILY AND COMMUNITY ENGAGEMENT CENTERS..... | 50 |
| PARENT TEACHER ASSOCIATIONS | 50 |
| 1600 STUDENT PROTOTYPE | 51 |
| BUILDING SPACE SUMMARY | 52 |
| APPENDIX | 61 |
| APPENDIX 1: | 61 |
| EVIDENCE-BASED DESIGN PERFORMANCE CRITERIA..... | 61 |
| <i>Lighting Quality:</i> | 61 |
| <i>Environmental and Air Quality:</i> | 61 |
| <i>Acoustics:</i> | 62 |
| <i>Technology:</i> | 62 |
| APPENDIX 2: | 63 |
| SAFETY AND SECURITY | 63 |
| <i>Building Layout</i> | 64 |
| <i>Types of Building Materials</i> | 64 |
| <i>Uses of Technology</i> | 64 |
| <i>Visitor Management</i> | 65 |
| <i>Vehicular and Pedestrian Traffic</i> | 65 |
| <i>Landscaping, Play / Practice Fields, Site, and Lighting</i> | 65 |
| APPENDIX 3: | 66 |
| COMMUNITY USE OF SCHOOL | 66 |
| APPENDIX 4: | 68 |
| ENERGY AND ENVIRONMENTAL DESIGN | 68 |
| PASSIVE CONCEPTS | 68 |
| <i>Building Layout</i> | 68 |
| <i>Types of Building Materials</i> | 68 |
| <i>Uses of Technology</i> | 68 |
| <i>Vehicular and Pedestrian Traffic</i> | 68 |
| <i>Landscaping, Play / Practice Fields, Site, and Lighting</i> | 69 |
| <i>Green Curriculum</i> | 69 |
| ACTIVE CONCEPTS | 69 |
| <i>Building Layout</i> | 69 |

Types of Building Materials 69

Uses of Technology..... 69

Vehicular and Pedestrian Traffic 69

Landscaping, Play / Practice Fields, Site, and Lighting 69

Green Curriculum 70

INTRODUCTION

PURPOSE

The purpose of these educational specifications (“Ed Specs”) is to serve as the guiding recipe and benchmark for future school renovations and new construction projects for Alexandria City Public Schools. The Ed Specs should encourage a school facility design that lends itself to a culturally competent student workplace for a broad range of diverse learners in our high schools.

Per the National School Boards Association:

The purpose of educational specifications (“Ed Specs”) is to define the programmatic, functional, spatial, and environmental requirements of the educational facility, whether new or remodeled, in written and graphic form for review, clarification, and agreement as to scope of work and design requirements by the architect, engineer, and other professionals working on the building design.ⁱ

The Ed Specs tell the story of the school facility and how the built learning environment will support the academic programs and vision of the school’s leadership. This generic high school Ed Spec is primarily intended for use as a planning guide by architects and project planners, but it is also intended to serve as a communication and benchmarking tool for all project stakeholders: students, parents, and families; faculty and administrators; civic leaders and community members; and project design and construction partners.

The general concept embodied in the specifications is to provide adequate details for proposed spaces while leaving ample flexibility for creativity and options in design by the architects. They define expectations among project stakeholders but do not limit creativity. The Ed Specs are also a living document; amendments can be discussed, developed, and issued over time.

PROJECT PLANNING:

During the planning phase of a project, the Ed Specs should be utilized to understand and develop future project scopes of work and budgets. They should be included in project procurements to ensure that interested vendors are clearly and uniformly communicated the intent of a project and, therefore, provide well informed responses to meet actual project needs. While the unique site locations of new schools may necessitate floor plan modifications, the program and space requirements should be modified only as allowed within the parameters of this document.

PROJECT IMPLEMENTATION:

During the implementation phase, the Ed Specs should be used for quality control, allowing ACPS to measure project deliverables against the stated benchmarks and standards. Design deliverables and construction should be reviewed for compliance with the standards and goals stated herein noting, however, that flexibility of +/- 10% is allowed when applying square footage requirements (particularly in the case of renovating an existing structure). Additionally, the Ed Specs will help provide the foundational support for project decisions during implementation, as responses can be measured against their compliance with the Ed Specs.

PROJECT TURNOVER AND OCCUPANCY:

Ed Specs serve as a valuable aid in the turnover of the facility to staff and administrators and other occupants. They comprise a user-friendly document that allows people outside of the design and construction professions to understand the building and the intent of its spaces.

PROCESS

Planning a state-of-the-art school requires the consideration of several influencing factors:

- ◆ Historical and forthcoming context of the community
- ◆ Current and future learning pedagogy and curricular goals
- ◆ Technical expertise of the faculty and administrators
- ◆ National and regional trends and benchmarks, and
- ◆ Strategic visioning goals and objectives of the Division

Developing the plan requires the cooperative efforts of facility specialists, administrators, faculty, and instructional consultants, in addition to the careful involvement of outside partners and community stakeholders. In order to create the best possible learning environment for children, an effort has been made to incorporate the best ideas from existing plans and facilities and to anticipate future needs for educating Alexandria's children.

As mentioned, ACPS and the City are working together to develop a long range educational facilities plan in order to develop a thoroughly coordinated plan that responds to projected enrollment growth and considers city-wide needs in a comprehensive manner. The LREFP process, shown in Figure 1.0, focuses on updating the LREFP based on technical details from the ACPS School Board approved Educational Specifications, Enrollment Forecasts, and Current Facility Conditions and Capacities. The joint work group will update the LREFP, progress community involvement, and report recommendations to the full work group.

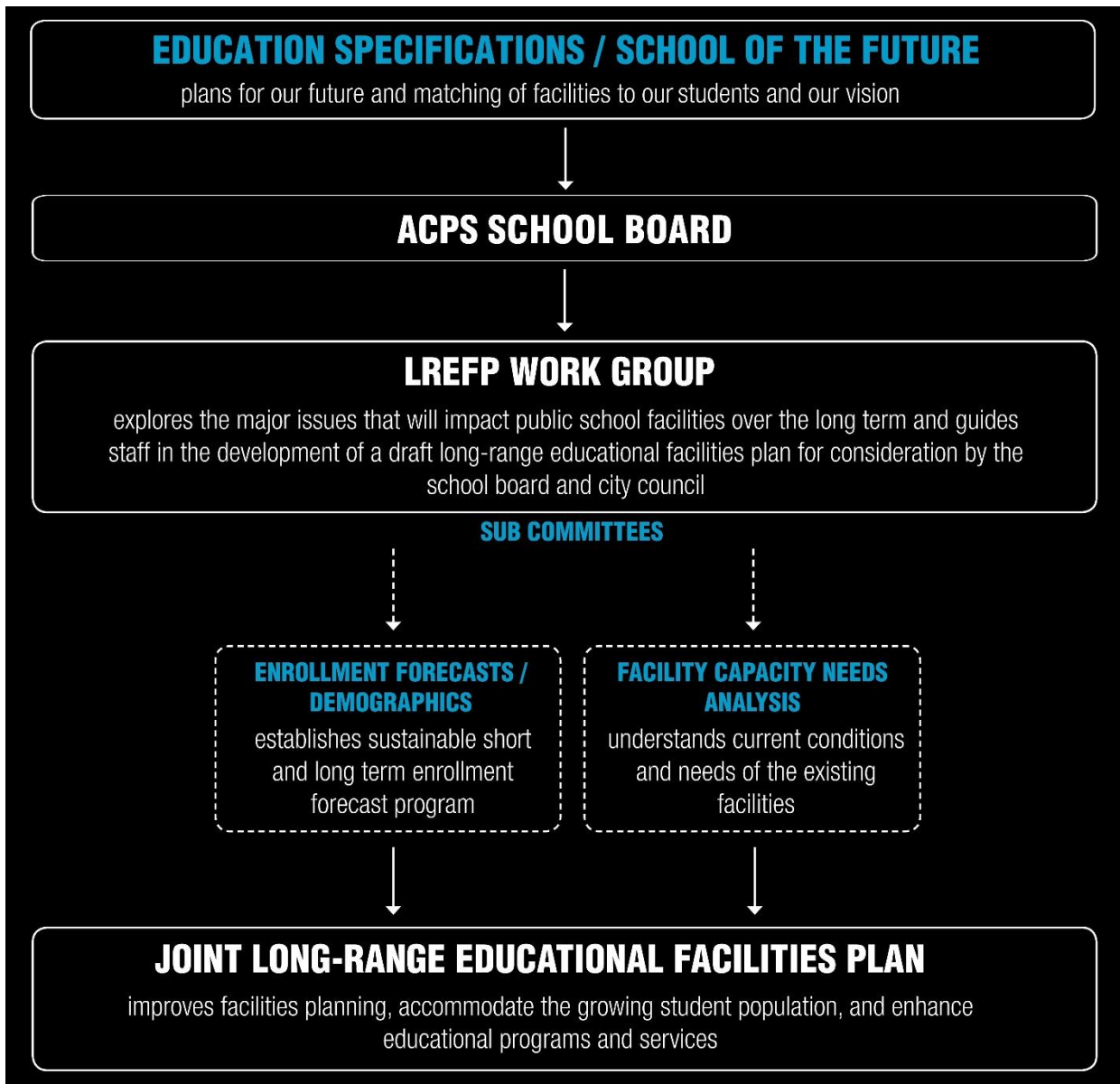


FIGURE 1: Process Diagram

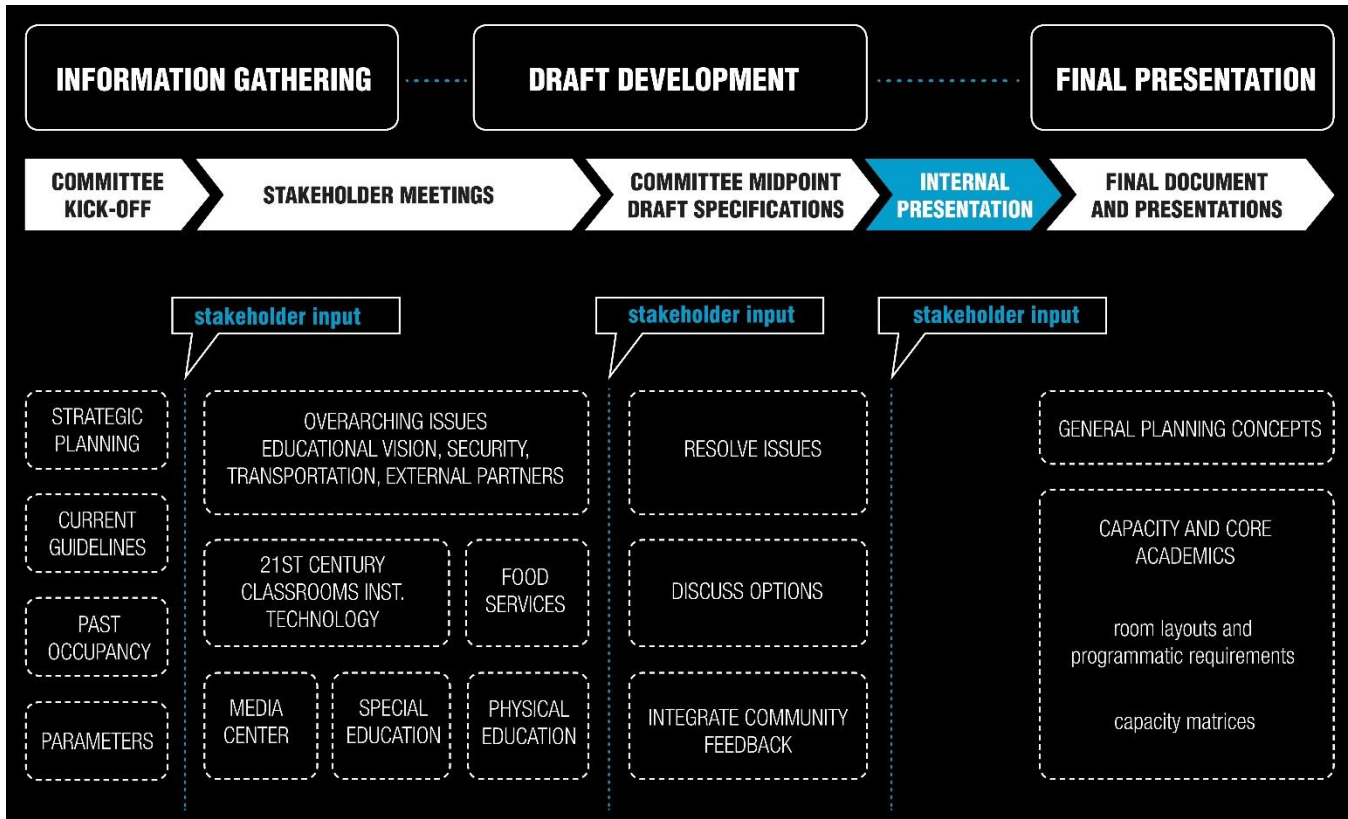


FIGURE 2: Workflow Diagram

NATIONAL TRENDS IN EDUCATIONAL FACILITY PLANNING

Each school system is unique from an educational and building program perspective. When balancing national, state, and local regulations, it is important to understand that one size does not fit all. The trends and planning principles presented here are to provide context to the formulation and development of this document.

21ST CENTURY LEARNERS

Learning environments should be planned and designed to support all learners: auditory, tactual, kinesthetic, and visual. Individual learning styles affect the way in which individual students:

- Concentrate in their immediate surroundings
- Process information
- Make decisions and solve problems
- Complete tasks and assignments
- Behave and interact with others, and
- Retain new information

Educational facility planning and design can help maximize learning by considering differentiated instruction and recognizing that one size does not fit all when it comes to learning environments.

Today's learners were born in a digital era and are used to having the world of information at their fingertips and in their pockets.

“Today, learning can occur ‘anytime, anyplace, on any path, and at any pace.’ Classrooms are transitioning from environments focused on teacher-directed whole-group instruction to learner-centered workplaces that support a collaborative culture for project-based student work.”

Schools and homes continue to be important places for learning, but not exclusively. Understanding the importance of the “third learning space”—the many places where students learn in ways not bounded by the schedule of the school day, the limitations of the four classroom walls, or the location of one's home—is a critical component in planning and designing innovative, inspirational, and thriving educational environments.

CLASSROOMS AND TECHNOLOGY

The ‘classroom of the future’ should be more personalized, student-directed, collaborative, interdisciplinary and hands-on than those of even 10 years ago. As the focus of education moves away from just the transmitting of information to developing creative problem solving and communication skills, the classroom setting is morphing into a beehive of activity—a learning studio.

At different times, students may be working alone, in pairs, or in groups:

- Working alone: reading, writing, interacting with the computer, or just thinking
- Working together in pairs or groups: dissecting a problem or reading and reacting to one another's written work, role-playing, or sharing ideas, opinions, and experiences
- Interacting with the teacher and the whole class: listening, making presentations, asking questions or brainstorming ideas

Teaching methods should address a variety of learning styles and children with disabilities are educated alongside their non-disabled peers.

The classroom of the future should no longer be just one-directional with rows of desks facing the 'front' of the room. It should have a variety of focal points with mobile resources to support learning, flexible furniture, and robust technology. Rooms should also range in size and purpose, from small incubator and assessment spaces to large seminar and presentation areas. Corridors and informal learning spaces should create a seamless and extended learning environment.

Technology is infused seamlessly into the education program and physical building and wireless connectivity allow for learning to occur whenever and wherever. Classrooms are versatile, flexible, and adaptable to support different mediums.

LIBRARIES AND STUDENT COMMONS

21st Century school libraries are no longer quiet book-lined storage spaces for reading. Today, the library has a dual purpose in which it provides an interactive studio for social collaboration and a research center for both teachers and students. They are the learning 'commons'—an extension of the classroom and the social heart of the school. As such, they should incorporate spaces for quiet, solitary reading and spaces for group presentations, collaboration, and socialization. As described by Margaret Sullivan in *Divine Design: How to create the 21st-century school library of your dreams* (2011):

“Learning models are changing, and school libraries need to take the lead. In many schools, collaborative and project-based learning are popular, as are peer-to-peer tutoring and one-on-one learning. Classrooms are moving away from a ‘front-of-the room’ mentality and adapting to students’ learning styles. Libraries need to embrace the same logic and change to reflect the way students prefer to learn. Flexibility is vital;

traditional library furniture can be cumbersome and make multiple seating configurations impossible.

“In the home, when people want to study or create something or chat, they head for the kitchen. People use the kitchen table to spread out their work, to be close to others, to watch TV, or to see what their siblings are doing. In the kitchen, you can drink a beverage without fear of spilling it on a thousand-dollar chair. The same applies to a school library. It’s a working environment; it should have a lot of ‘appliances’ and space to do research, make stuff, and consume a ‘big information meal.’ Now, that’s not to say your library can’t be one of the most attractive spaces in the school.

“Color and texture are another way to add sensory excitement to your library. The walls, floors, and ceilings all offer surfaces for bright colors, murals, and artwork. Besides adding some pizzazz, these elements can visually unite different areas in your library or highlight a particular area. Beige, white, and nondescript carpeting have had a monopoly in school libraries for far too long.” Excerpts from Divine Design: How to create the 21st-century school library of your dreams, by Margaret Sullivan 2011.

New libraries are more than 50% digital and offer learning, gathering, and production areas. The ideal learning commons is spatially planned to move from noisy group spaces for collaboration to quiet individual study spaces. This is envisioned as a space that converts from a ‘café’ and mobile computing environment to small, AV-enhanced, group study conference areas, and small pleasure-reading libraries where students can select voluntary independent reading materials, to individual study carrels or a media production room. It is important that the space be a comfortable and inviting space for young learners. The room should not feel cavernous. Rather, libraries should be outfitted with furniture that is comfortable and creates a home-like atmosphere, similar to that of a Barnes and Nobel or a university union.

The technology that this generation of students understands and uses is multi-media. They communicate and learn through online devices, but they also create, publish, and perform. The library may include computer stations for student and faculty research, a publications room for the school newspaper and yearbook, a video production and editing lab for film, a distance learning / videoconferencing lab, a multi-disciplinary makerspace, and a variety of display venues. Interactive electronic presentation devices will help introduce students to workplace technology while meeting the needs of a generation that is growing up with technology as a constant presence.

Furniture, seating, and shelving should be flexible and arranged to create multiple natural focal points. These areas should be sized for large-group story times and presentations, small-group resource pockets, and individual

reading nooks. Small-group rooms, located off the library space, can accommodate student needs and add important flexibility to the space.

Building and Grounds

The school building itself is a learning tool and community asset. It creates a sense of identity, and the quality of architecture instills a sense of place and pride. The architecture considers learning opportunities over the entire campus, including school grounds and landscaping.

Transparency of spaces helps foster an internal sense of community and excitement about the learning activities that are occurring within. The use of glass allows for visual connections externally and internally. Front entrances are inviting and welcoming for all community members – parents, families, neighbors. The school is a hub of activity before and after school.

Outdoor spaces are extremely important to the learning experience. They provide students with the opportunity to learn about textures, water, plants, animals, and the natural world. Courtyards and other outdoor spaces should be deliberately planned to complement the indoor learning environment and expand the school pedagogy.

EVIDENCE-BASED ENVIRONMENTAL ELEMENTS

Evidenced-based design is the consideration of credible research findings in the planning and design process with a goal of achieving positive outcomes. Researchers have presented findings that link measurable outcomes such as student attendance, academic performance, faculty retention, and disciplinary actions. More specifically, several design elements have been connected to these outcomes: lighting quality, indoor air quality, acoustics, and furniture design.

Lighting Quality

In 1999, the Hescong Mahone Group found statistical correlations between the amount of daylight in an elementary school classroom and the performance of students on standardized math and reading tests. Since then, case studies and further research have supported this finding and the educational facility planning community has generally accepted the following classroom design parameters.

Goal: Improve natural and artificial lighting in classrooms.

Environmental / Air Quality

According to the US Center for Disease Control and Prevention, American children miss approximately 14 million school days each year due to asthma. Controlling environmental factors such as dust, pollen, and carbon monoxide could help prevent more than 65% of asthma cases in elementary-school-age students, according to the American Journal of Respiratory and Critical Care Medicine. The following classroom design parameters should be considered when modernizing a school facility.

Goal: To ensure comfortable rooms, address temperature control, ventilation, air filtration, carbon dioxide levels, and HVAC background noise.

Acoustics

Research links the importance of maintaining appropriate acoustic conditions for student learning. This relates to noise from external sources and reverberation in the classroom and is linked to academic achievement, behavior, attention, and concentration. Acoustics are also important for teacher wellness and for avoiding straining vocal chords by attempting to speak over noise. Classroom design parameters are generally accepted as outlined.

Goal: Limiting reverberation and background noise and improving sound isolation.

Ergonomics

A 2007 study compared adjustable furniture in schools to traditional fixed furniture. Students using adjustable furniture were found to have higher grades than those in the control group using traditional school furniture. Characteristics of furniture that promote good posture should be considered as well as adjustable tables and chairs to allow students of varying sizes and body types to improve their comfort levels when sitting for long periods of time. Research studies continue to explore this issue.

In summary, these national trends provide an important context for many of the ideas that ACPS is working to implement and how those concepts are articulated within this document.

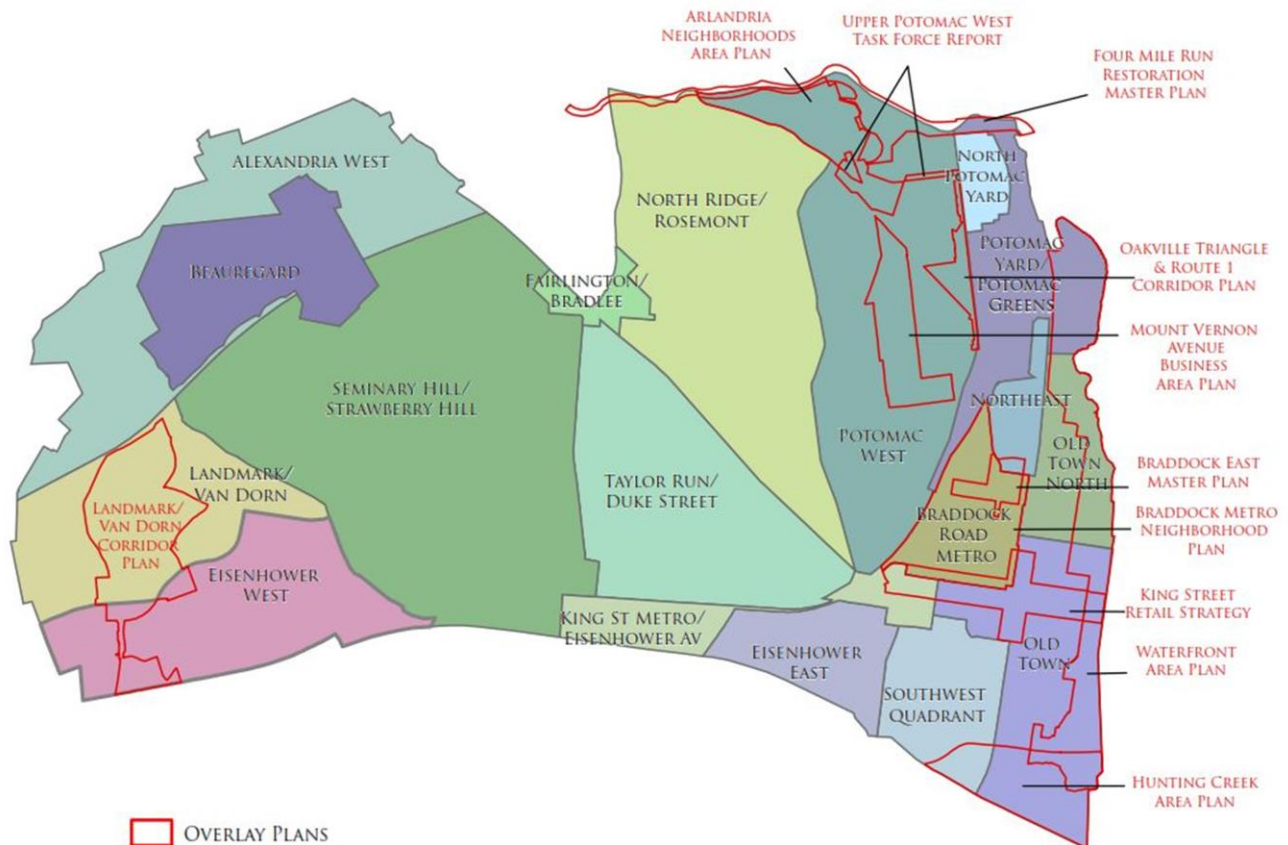
CITY OF ALEXANDRIA: DEMOGRAPHIC, AND ECONOMIC CONTEXT

The City of Alexandria is divided into 18 planning neighborhoods, each with its own unique history and atmosphere, ranging from the urban historic neighborhoods close to the District of Columbia to the suburban western communities. In general, most neighborhoods consist of higher-income professionals seeking a safe, walkable community close to DC. Typical of the DC metro area, people come from all over the world—ACPS records 127 countries of birth and 115 native languages.

According to the most recent census data released in February 2011, Alexandria is 60% white, 22% black and African-American, 16% Hispanic, and approximately 2% other. Approximately 24% of the population is foreign born, and just over 10% of the population is school-aged children. However, ACPS is more diverse:

- ◆ Asian: 4.68%
- ◆ Black: 30.13%
- ◆ Hispanic: 35.59%
- ◆ White: 26.76%
- ◆ Native Hawaiian/Pacific Islander: .22%
- ◆ Multi-racial: 2.37%

CITY OF ALEXANDRIA, VIRGINIA MASTER PLAN



Plans identified with red boundaries signify overlay plans. Overlay plans are supplemental plans and amendments to existing Small Area Plans. Properties located within the boundaries are subject to the requirements and regulations per the overlay plan. If the overlay plan is silent to or does not address a specific issue or topic, the underlying Small Area Plan applies.

FIGURE 3: Regional Boundaries

HIGH SCHOOL CAMPUS

| School | Enrollment by Grade | | | | | | | | Enrollment by Subgroup | | | | | | |
|--------------------|---------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------------------|-------------|-------------|------------|-------------|-------------|-------------|
| | PK | KG | 1st | 2nd | 3rd | 4th | 5th | Total | FARM | SWD | ELL | Asian | Black | Hispanic | White |
| Barrett | 19 | 88 | 81 | 80 | 85 | 63 | 61 | 477 | 144 | 73 | 86 | 12 | 80 | 116 | 246 |
| Cora Kelly | 2 | 58 | 62 | 70 | 53 | 60 | 52 | 357 | 285 | 58 | 195 | 4 | 80 | 248 | 26 |
| MacArthur | | 130 | 129 | 118 | 114 | 112 | 109 | 712 | 222 | 66 | 110 | 21 | 146 | 138 | 372 |
| Polk | | 126 | 125 | 118 | 145 | 117 | 112 | 743 | 469 | 68 | 284 | 36 | 272 | 237 | 170 |
| Jeff-Houston | 53 | 70 | 56 | 47 | 64 | 47 | 38 | 375 | 270 | 68 | 60 | 5 | 231 | 80 | 51 |
| Adams | 127 | 174 | 159 | 165 | 145 | 130 | 117 | 1017 | 642 | 150 | 459 | 93 | 354 | 367 | 184 |
| Mason | | 103 | 106 | 103 | 103 | 69 | 74 | 558 | 154 | 44 | 133 | 5 | 29 | 180 | 320 |
| Lyles-Crouch | | 75 | 70 | 80 | 71 | 65 | 50 | 411 | 111 | 35 | 37 | 7 | 132 | 33 | 222 |
| Maury | | 78 | 82 | 59 | 84 | 74 | 65 | 442 | 139 | 35 | 26 | 6 | 131 | 40 | 252 |
| Mt. Vernon | | 154 | 142 | 147 | 152 | 136 | 122 | 853 | 443 | 71 | 380 | 12 | 57 | 484 | 282 |
| P. Henry | 95 | 109 | 95 | 108 | 94 | 71 | 71 | 643 | 481 | 61 | 214 | 39 | 327 | 192 | 68 |
| Tucker | | 151 | 135 | 131 | 117 | 113 | 102 | 749 | 407 | 62 | 249 | 56 | 304 | 199 | 164 |
| Ramsay | 32 | 151 | 160 | 139 | 150 | 142 | 128 | 902 | 735 | 42 | 586 | 69 | 221 | 506 | 86 |
| TOTAL | 328 | 1467 | 1402 | 1365 | 1377 | 1199 | 1101 | 8239 | 4502 | 833 | 2819 | 365 | 2364 | 2820 | 2443 |
| School | 6th | 7th | 8th | 9th | 10th | 11th | 12th PG | Total | FARM | SWD | ELL | Asian | Black | Hispanic | White |
| Jeff-Houston | 69 | 53 | 29 | | | | | 151 | 106 | 34 | 12 | 5 | 95 | 31 | 19 |
| GW | 462 | 405 | 420 | | | | | 1287 | 538 | 153 | 153 | 28 | 268 | 415 | 536 |
| Hammond | 428 | 498 | 473 | | | | | 1399 | 1046 | 158 | 361 | 97 | 546 | 566 | 174 |
| M. Howard | | | | 854 | | | | 854 | 465 | 94 | 187 | 44 | 267 | 304 | 209 |
| TC Williams | | | | 121 | 1069 | 814 | 736 | 2740 | 1598 | 264 | 657 | 153 | 885 | 1073 | 544 |
| CFC | | 2 | 1 | 4 | 10 | 4 | 2 | 23 | 18 | 4 | 8 | 0 | 12 | 11 | 0 |
| NELL | | | | 14 | 3 | 0 | 0 | 17 | 5 | 0 | 3 | 0 | 0 | 17 | 0 |
| TOTAL | 959 | 958 | 923 | 993 | 1082 | 818 | 738 | 6471 | 3776 | 707 | 1381 | 327 | 2073 | 2417 | 1482 |
| GRAND TOTAL | 14710 | | | | | | | | 8278 | 1540 | 4200 | 692 | 4437 | 5237 | 3925 |

*Provided by ACPS

FIGURE 4: ENROLLMENT STUDENT DATA

As a percentage of total population, the school-age population in Alexandria is lower than the United States as a whole. This is due primarily to the fact that much of the City’s historic growth in the last 60 years has been from young adults moving to the Washington, DC metropolitan area for jobs. As a result, the city has become more urbanized with over 60% of the housing stock multifamily and an average household size of just over two persons.

The school-age population in Alexandria had been steadily declining since 1970, but the decline tapered off in 2007. Based on recent trends and recent work with the city’s planning department, Alexandria has a projected total growth of 8% by 2020 at a rate of approximately 1.2% from 2010-2020. ACPS believes that enrollment growth over the next five years will be 19%. This projected growth outpaces the citywide growth.

To underscore the diversity of the student population in Alexandria and based on Census data, it is important to note that of the 22 MWCOG's jurisdictions, Alexandria has the 12th highest median income. However, per ACPS records, approximately 60% of ACPS students are eligible for free- or reduced-meals programs. Further, the Division has a strong international presence with English Language Learner (ELL) students accounting for nearly 29% of the school population which is similar to the Census data that suggests 27.5% of Alexandria's population is foreign-born and 32.2% of households speak a language other than English at home.

ACPS LEARNING AND TEACHING MODEL

Learning and teaching in ACPS is a well-executed balance between a rigorous curriculum, proven instructional strategies (pedagogy), and relationships with students that communicate high expectations and commitment to student success.

ACPS has developed and uses a 21st century curriculum that is focused on helping students become critical thinkers and problem solvers. In addition to helping students acquire declarative and procedural knowledge, each academic unit has a focus on higher-order thinking skills that ensure students are developing critical ability needed for post-secondary success: reading complex text, writing at a post-secondary level, analyzing and interpreting data, and participating in discourse across the disciplines.



ACPS is implementing a standardized curriculum across the Division with the intention of providing purposeful and consistent education throughout the system. The standardized curriculum will include interdisciplinary integration and cross-collaboration of content for both students and staff. A standardized approach will maintain the integrity of the curriculum across the system, which will allow the Division to track student progress and development. Individual schools will maintain control of the delivery method and instruction and the early childhood curriculum will align with the upper grades.

INSTRUCTIONAL METHODS

Instructional methods vary with grade level but maintain continuity from early childhood education through the primary, intermediate, and secondary grades. Predominant elements include:

- Sensory experiences
- Integrated cross-content learning
- Flexible groupings

- Extended-day learning opportunities
- Parent involvement and volunteer activities

The Division is committed to using purposeful differentiation for all students to meet each student's individual learning needs. This differentiation includes students with disabilities as well as students who are advanced learners, all of whom require specialized curriculum.

STRATEGIC VISIONING

In 2014, ACPS leadership was guided through a series of visioning sessions with educators and administrators that challenged them to clarify their expectations related to facility operations, sustainability, architectural quality, space priorities, and the community context. The visioning sessions focused on identifying gaps between ACPS' future goals and its current realities. An update to this visioning was performed in 2016. The following narrative summarizes the areas of greatest dissonance and formulates the concept for the construction and operation of a school of the future in Alexandria.

PROGRAMMATIC STRUCTURE, SCALE, AND PROPORTIONALITY

ACPS desires to offer comprehensive primary and secondary education facilities that provide students with access to educational and extracurricular learning opportunities in local neighborhood communities. The Division also desires to provide citywide early childhood education by providing regionally-located centers that increase the amount of early childhood education available. A center will also centralize early childhood expertise for stronger collaboration and professional development.

Future high schools will be comprehensive schools distributed throughout the city that offer students access to a broad range of educational and extracurricular learning opportunities. All schools will be sized to offer students a strong sense of culture while also ensuring they have access to teachers and administrators as needed by emphasizing the implementation of smaller learning communities throughout the buildings. The Division's desire for students to learn whenever and wherever drives the need for future facilities to implement a spatial organization that provides both formal and informal learning areas and maximizes collaboration and interaction between students and faculty.

School designs should focus on creating collaborative, interdisciplinary, and adaptable learning spaces supported by a robust and seamless integration of technology, and flexible and ergonomic furniture. Incorporating an overall organization of small learning communities with breakout spaces in hallways known as extended learning areas (ELAs), collaborative spaces in classrooms, and spaces that facilitate chance interactions throughout the school should allow teachers to collaborate across disciplines and tailor learning objectives and lessons to students' individual needs.

Providing multifunctional spaces for third-party partner and community programs that extend educational and extra-curricular services to students, families and the community is a priority. The facility should operate as one organism that can be segmented into different functions and zones, depending on the time of day and use.

COMMUNITY CONTEXT

ACPS school facilities and grounds should serve as neighborhood assets and centers for parent, family and community interaction and engagement. Parental and family support play a critical role in the success of students. ACPS students and families come from diverse backgrounds and schools should be welcoming and inviting places that include dedicated space for parent and family engagement and for community and partnership use.

Each school community is unique, and designers should consider what spaces best support the community's needs; however, all schools should be planned and designed to support community use during non-school hours. Implementing a secure separation between the academic core and the shared-use spaces along with the careful application of active and passive design strategies should create safe and secure learning environments.

As previously defined, Pre-Kindergarten Education Campuses (PRKCs) will be regional facilities that offer early childhood education across the Division. Elementary schools are essential components of a walkable neighborhood community. Therefore, new elementary schools should be located within neighborhood communities so that, when it is safe, students can walk to school.

Future high school facilities will be the anchor of their communities. They will offer both choice and specialty programming to all students. High school facilities will respond to the needs and demands of the local community and will serve students from across the city.

ORGANIZATIONAL AND OPERATIONAL PARADIGM

ACPS believes an integrated, interdisciplinary teaming approach will increase student achievement and faculty collaboration. The priority of the Division is to advance student performance and success by enhancing the overall learning experience for students through a collaborative team approach. This is best facilitated with small learning communities, extended learning environments, and a departmental organization of spaces. Libraries should be seen as the 'learning commons' and be used regularly as an extension of a teacher's classroom and workspace.

ACPS desires to increase inter-student collaboration and group learning activities. To support this, flexible and adaptable, informal and formal teaching spaces are required. Emphasis should be on spaces and configurations that support critical thinking and project-based learning—ideally within groups of four students—and the ability to break out of formal learning environments. Using a push-in and team-teaching approach, special education students should learn in the same collaborative learning environment as their peers to the maximum extent possible.

ARCHITECTURAL AND CONSTRUCTION QUALITY

ACPS has a strong belief that high-quality architecture has a positive influence on student success and faculty retention and it is committed to delivering high-quality, state-of-the-art, and sustainable facilities to students, faculty, and the community. This belief applies to the external and internal qualities of the facility. The school facility and grounds are considered to be a learning tool, and creativity in design and architecture is a priority.

Quality of design and engineering should focus attention on areas that most impact the learning environment with a particular emphasis on incorporating research-based facility elements, such as enhanced natural lighting, acoustics, air quality, climate control, and technology that directly impact student achievement and educator effectiveness. Externally, the architecture must be respectful of the historical and cultural context of the community while simultaneously inspiring students and the public.

Materials and system selections should consider extended life cycles. Building systems, materials, and finishes must be resilient, easy to maintain, and create a positive, aesthetically-pleasing learning environment. The life cycle of materials should balance quality and potential for future costs in an effort to ensure appropriate use of public funds is achieved.

ACPS 2020

In June 2015, ACPS formally adopted a strategic plan to act as a foundation for all the actions of the school Division. It directs the actions that the ACPS Division takes in meeting the goals and aspirations of the Alexandria community and guides the activities of employees and leaders as well as the expenditure of all funds entrusted to the school board. The plan reaches far beyond school buildings into all aspects of student life with its six specific goals:

- ◆ **Academic Excellence and Educational Equity:** Every student will be academically successful and prepared for life, work, and college.
- ◆ **Family and Community Engagement:** ACPS will partner with families and the community in the education of Alexandria's youth.
- ◆ **An Exemplary Staff:** ACPS will recruit, develop, support, and retain a staff that meets the needs of every student.

- ◆ **Facilities and the Learning Environment:** ACPS will provide optimal and equitable learning environments.
- ◆ **Health and Wellness:** ACPS will promote efforts to enable students to be healthy and ready to learn.
- ◆ **Effective and Efficient Operations:** ACPS will be efficient, effective, and transparent in its business operations.

PLANNING CONCEPTS

The following sections elaborate on the planning and design concepts for a prototypical High School with an enrollment of approximately 1,600 students. While there is no current capital improvement plan (“CIP”) commitment for a comprehensive high school, ACPS is developing the high school prototypical Ed Spec to help the Division plan for future enrollment needs. High school enrollment in the city is expected to increase by nearly 1,000 students in the next 10 years. The prototypical high school Ed Spec is a benchmark against which to measure an existing facility and establish gaps and deficiencies. The analysis of these gaps and deficiencies will inform future CIPs and the updated LREFP. A combination of renovations and new facilities can be expected based on the enrollment growth ACPS is experiencing. Architects and designers should be mindful that the following sections are a guideline and a tool to advance the design of a high school. These rules should be vetted throughout the schematic design phase by coordinating with the professional planning staff of ACPS and its stakeholders.

CAPACITY

Every school project begins with establishing the number of students who will be served when the project is complete, or the ‘capacity’. Capacity is the primary driver in determining the number, type, and size of the spaces in any new or modernized building.

To establish the ideal high school capacity for ACPS, the Planning Team reviewed local and national data about high school enrollment. As summarized in figure five on page 25, the average high school enrollment in the United States is approximately 854 students. High schools in the region range in size from 100¹ students to nearly 2,900 students, with an average high school enrollment being 1,614 students.

¹ Schools with capacities under 500 are outliers and are typically academies or schools within a school.

| AREA | Quantity of High Schools | Largest | Smallest | Average | Ideal |
|-----------------------------------|--------------------------|---------|----------|---------|--------|
| Arlington County ¹ | 4 | 2,193 | 108 | 1,445 | 2,200* |
| Fairfax County ² | 25 | 2,782 | 1,755 | 2,190 | 2,500 |
| Loudoun County ³ | 9 | 2,157 | 960 | 1,531 | 1,800 |
| Prince William ⁴ | 11 | 2,897 | 941 | 2,305 | 2,800 |
| Prince George's ⁵ | 22 | 2,573 | 775 | 1,543 | 1,700 |
| Montgomery ⁶ | 15 | 2,790 | 1,202 | 1,790 | 1,500 |
| District of Columbia ⁷ | 28 | 1,696 | 146 | 496 | NP |
| Average | 16 | 2,441 | 841 | 1,614 | 2,083 |
| USA | 26,407 | 9,010 | NP | 854 | - |
| Alexandria | 1 | | | | 1,600 |

Notes:

np = not provided

High Schools include comprehensive public schools serving grades 9-12

**In Arlington, 2,200 students is the maximum high school facility size*

Sources:

High school enrollment information is from National Center for Education Statistics Common Core Data.

¹*Arlington Facilities and Student Accommodation Plan, FY 2016-25*

²*Fairfax County Public Schools Strategic Facilities Plan, 2012*

³*Loudoun County Public Schools FY 2016 - FY 2020 Capital Improvement Plan*

⁴*Prince William County Public Schools - Regulations*

⁵*Prince George's County Public Schools Educational Specification Prototypes, 2015*

⁶*Montgomery County Public Schools Educational Facilities Master Plan and FY 2015-2020 Capital Improvement Program*

FIGURE 5: Regional Benchmarks

In alignment with other school systems in the region, high schools in the ACPS system will have a student capacity no smaller than 1,400 and no larger than 1,800. For the purposes of planning, this educational specification is illustrative of a 1,600-student school and intended to be a planning tool. The ACPS Division has an active, editable spreadsheet that will allow planners and architects to develop facility needs for a range of schools based on the capacity and program desires at the time of planning a new high school facility.

Simply defined, high school capacity is a product of the number of classrooms at a school and the student stations assigned to each room type. Only classrooms that are 600 square feet or more with a teacher and students regularly assigned to the space count toward full-time capacity. Capacity-driving classrooms generally include spaces such as core instruction, art classrooms, music classrooms, science and lab classrooms, gymnasiums, performing art spaces, CTE spaces, and resource rooms. Due to year-over-year changes in classroom use, it is possible for a school's capacity to change in minor ways each year. Other factors such as the ACPS Division-defined planning caps (determined by the budget) also impact the overall capacity of the facility.

By applying actual school staffing to the current enrollment it can be determined that for the ACPS high school, class sizes range from 25 to 30 students in all core classes, with a range of 30 to 35 in the encore and physical education classes. This is in alignment with the Virginia Board of Education Standards of Quality guidelines:² However, class size caps are often used to further advance educational outcomes, and ACPS desires to maintain average class sizes near 25 students per class in core academics.

The current high school operates on a block schedule with alternating classes every other day. This unique block schedule allows students to take 3.5 classes a day, where the first class of the day is half the length of a regular class and repeats each day of the week. Teachers usually teach six out of seven periods of the day, giving the building a utilization of approximately 86%. For this educational specification, the maximum capacity will be factored at 86% utilization and at this rate, the facility will have space to accept for future growth without being too large to support the current population.

For the purposes of planning, the following class sizes should be used to calculate a planning capacity. It is important to size all classrooms to accommodate the maximum number of students indicated rather than the target that is used for capacity planning. This allows for program flexibility and interchangeable uses year to year.

Once a capacity is proposed, many other areas of the building are sized to support the enrollment based on ratios and national benchmarking best practices. The number of small group rooms, art rooms, music labs, and support staff offices is based on student-to-teacher ratios. The size of the core areas such as library, dining and food services, physical education facilities, and site amenities is based on local and national benchmarks as they relate to size. The balance of this document outlines the functionality and program of spaces for this sample prototype.

Per the Guidelines for School Facilities in Virginia's Public Schools, the goal of the optional guidelines developed by the Virginia Department of Education is:

"...to provide recommendations that will help local school Divisions ensure that their school sites and facilities support the principles of good teaching and learning and promote sound educational programs."

The guidelines developed here by the project team respond to, or exceed, the Virginia State guidelines and recommendations. It is the responsibility of the architect to ensure the plans meet or exceed the current state

² <http://www.doe.virginia.gov/boe/quality/>

guidelines at the time of actual project design in the event the state guidelines have changed and this document has not yet been updated to reflect those changes.

| Core Academic Spaces | Number of Classrooms | Capacity | Total |
|--|----------------------|-------------------|-------|
| English | 11 | 25 | 275 |
| Math | 11 | 25 | 275 |
| Science Labs | 11 | 25 | 275 |
| Social Sciences | 11 | 25 | 275 |
| Economics | 3 | 25 | 75 |
| World Language | 6 | 25 | 150 |
| PE (Full Court Gym, Aux. Gym, & Fitness) | 3 | 30 | 90 |
| Health | 3 | 30 | 90 |
| Human Growth & Development | 3 | 30 | 90 |
| Fine Arts (3D, 2D) | 3 | 25 | 75 |
| CTE | 4 | 30 | 120 |
| Other CTE Rooms | 4 | 30 | 120 |
| Electives | 0 | 30 | 0 |
| | 73 | Building Capacity | 1910 |
| | | *Student Capacity | 1662 |

*Student Capacity assumes an efficiency rate of 87% or one planning period out of seven periods, per classroom

| Room Type | Class Size Range | Target for Planning |
|--------------------|------------------|---------------------|
| Core Capacity | 25 - 30 | 25 |
| Electives/CTE | 25 - 35 | 30 |
| Specialized Instr. | 6 - 12 | 10 |

FIGURE 6: Class Size and Classroom Capacity

PROGRAM AREA SUMMARIES

The following section provides executive level narrative summaries of the core program space areas.

MAIN OFFICE-RECEPTION / ADMINISTRATION / STUDENT SERVICES

As students, families, and other visitors enter an ACPS building, it is important that they are greeted with an inviting and well-organized front office suite. The primary administrative offices, guidance services, and adult restrooms should be located in this centralized area at the main entrance to the school.

All school locations should include a well-defined main entry that incorporates a double-perimeter secure entry. This approach guides every visitor through a secure exterior door into a secure holding vestibule prior to being able to gain access to the main office. Within the secure vestibule, visitors will verify their identity and transition into the main office before gaining access to student areas of the school.

The main office must be designed to provide direct visual access to the entrance doors. Limiting the number of entry points into the high school is important for student safety and security. Visual access from the main office to the exterior vestibule is mandatory and every entrance to the school should have a CCTV IP camera. Architects and designers should coordinate passive and active security systems with the school during design development.

Appropriately sized office spaces should be provided with an adjoining shared conference room and adjacent staff restroom within the main office. Within or near the main office, there should be an appropriately-sized space that includes itinerant work stations and storage for traveling staff like occupational and physical therapists. Near or adjoining the main office, space should be provided for the Family and Community Engagement center, as defined later in this document.

Apart from the central office of the school, each grade-level academic cluster should include an administrative cluster. This cluster should consist of offices and meeting spaces to support the assistant principal, administrative assistant, and counselors. Additionally, offices for the dean of students, the school resource officer, and other administrative personnel can be dispersed around the school to encourage maximum collaboration and connection.

Consider providing student restrooms in high traffic areas that are easily accessible during student transition periods. Professional designers and school administrators should work with students to determine the appropriate and logical location for restrooms. Do not place restrooms in dead-end or bully zones that have little to no lines of sight for supervision by school staff.

Visitor parking should be located near the main entry. Wayfinding and building design should clearly indicate the school entrance and immediately upon entry, visitors should be directed to the welcome center / main office. For security reasons, no visitor should be able to enter the classroom areas without being checked through the reception area. See the Security section for additional suggestions.

A digital information kiosk in the lobby may provide real-time data on building operations (including information on energy use, water use, and the latest recycling rates) or be used to announce upcoming events and other announcements, such as the location of community events or classes.

HEALTH SERVICES

Health Services should be located near the high school's main entrance. Health services is responsible for providing health-related amenities to all students and staff. The space should be organized to provide appropriate space for:

- ◆ Health screenings
- ◆ Illness or injury treatments
- ◆ Meetings and trainings
- ◆ Prescription medication storage and distribution
- ◆ Secure records keeping
- ◆ Private consultations
- ◆ Rest and recovery units, and
- ◆ A waiting area

In addition, it is possible that a facility in the future will provide (location-dependent) partnership-operated wellness centers. The centers may offer amenities such as full medical evaluations, full laboratory services, dental services, radiology services, and pharmaceutical services. Cooperative and collaborative wellness centers are desired (location-dependent) and operated through community partnerships.

If the school Division elects to provide a school-based health center (SBHC), the architect should work with the ACPS Division's officials to ensure full space-programming requirements are met according to federal regulatory standards. This center should be adjacent to the high school clinic with clear separation between students and community members. Implementation of a full SBHC will require significant advanced coordination by ACPS.

CORE INSTRUCTION

To provide a 21st century educational experience, future high schools in the ACPS system should include the spaces described in the following section. The executive level summary of space descriptions is provided to enhance the design professional's understanding of the general spatial intent of each learning environment. A detailed description of the building organization is provided later in this document.

Classrooms

Student arrangements should reflect small collaborative groupings over individual desk arrangements. Classrooms are designed around project-based learning centers. Students will interact in groupings that are representative of workplace operations where collaboration and communication are essential. Classrooms will provide ‘teaching and learning’ surfaces on multiple walls to include touch-screen interactive boards, magnetic erasable white boards, and tackable surfaces. Voice enhancement systems will ensure that teachers, students, video-conferences, and the audio portion of audio-visual content can be clearly heard. Flexible and easy-to-arrange furniture that is easy to relocate is preferred. Flexible walls that are desired to expand classrooms into multi-class group learning settings should be the same size to promote programming flexibility.

When providing flexible walls, sound separation must be considered to ensure the learning environment is not impacted by sound from adjacent spaces.

Additionally, the provision of an itinerant or hoteling space for drop-in, special-needs instructors, or related service providers should be included in each classroom. As schools embrace technology, electrical outlets are becoming critical to the delivery of education. Classrooms must have enough outlets to support one-to-one teaching devices and other electrical equipment. This includes in-classroom charging locations or customized charging storage for laptops or other student computing devices.

All classrooms will meet these minimum requirements allowing for interchangeability of programs and maximum flexibility in use. New schools and renovations should be constructed to allow for future changes in programs without requiring significant renovations.

Extended learning areas (ELA)

ELAs should be incorporated into designs as additional teaching spaces that occur as part of each learning community. ELAs in classroom extensions are typically open spaces off the corridor that are meant to facilitate break-out instruction, small group, and project-based work, in addition to multi-class collaboration and joint teaching initiatives. These areas are typically large enough for a few small groupings of students. Twenty-first century education encourages students to teach each other, and providing ELAs is a prime opportunity to dedicate space for students to engage in their own learning.

In the anchor, ELAs may vary in size based on the individual needs of the school and the nearest academic clusters. ELAs in the anchor should be designed to accommodate one or two full classrooms at any time and be equipped to accommodate a variety of furniture arrangements. They can be stocked with library books and other

materials that encourage students to pursue independent enquiries. ELAs can be defined spaces or can be spaces that capture otherwise unusable space.

Science

High school science classrooms should be designed to support science orations and lab activities within a single classroom space. The space should be designed as one cohesive classroom with two distinctive uses—lecture and lab-based instruction. The labs should support all subjects of science and not be specialized to one specific subject. ACPS desires to focus on lab-based instruction that is collaborative and hands-on but it is necessary to provide space within each classroom for typical oration and learning. Designers will need to integrate technology to support wireless one-to-one device connectivity as well as Bluetooth precision measurement devices in all science classrooms. Modern high school labs will use gas, electric, and water to properly educate students. It is important that all science spaces are outfitted with the same technology and equipment.

Due to the specialized equipment needed, science classrooms should be situated together in a specialized wing of the building, as opposed to distributing labs throughout the school or locating individual labs within classroom clusters. Specialized sciences, CTE, and STEM facilities should be co-located near other science lab areas. These spaces require dedicated storage space for books and equipment that are not required year-round. This storage space can be shared by multiple classrooms and should be located near a preparation facility. The science classrooms require a dedicated preparation room, storage room, and chemical storage room. Within the preparation room designers should provide ample space for an ice machine, a de-ionized water system, a fume hood, a fridge, a freezer, and a dishwasher.

Science, Technology, Engineering, and Mathematics (STEM)

The STEM Academy was formed in 2013 to provide a collaborative, caring atmosphere in which all participants use problem-solving and inquiry in a project-based environment. STEM students participate in an engineering explorations course, which immerses them in the investigation of real-world engineering, technology, and the exploration of issues that affect their local, state, national, and global environments and how they relate to human sustainability. This course prepares them for a range of CTE pathways, illustrated in the following figure.

| Pathway Options | Year I (9th Grade) | Year II (10th Grade) | Year III (11th Grade) | Year IV (12th Grade) |
|-----------------------------------|--------------------------|--|--------------------------|-------------------------|
| Engineering and Technology | Engineering Explorations | Engineering Analysis & Applications-Robotics | Aerospace Technology | DE Engineering Statics |
| Electronic Systems | | | Electronics Systems I | Electronics Systems II |

| | | | | |
|---|--|---------------------|---|--|
| Computer Systems Networking | | | Computer & Cyber Security Solutions | CISCO Academy: Computer Networking Hardware Applications |
| Sustainability/ Biotechnology/ Forensics | | | Sustainability & Renewable Technologies | Biotechnology & Forensics |
| Architectural/ Engineering Design | | Technical Drawing I | Advanced Architectural Drawing II | Advanced Engineering Drawing II |

FIGURE 7: CTE & STEM Courses

Career Technical Education (CTE)

T.C. Williams is the only comprehensive high school in Northern Virginia offering a full range of on-site career and technical education courses. The CTE program is divided into six areas of concentration:

- ◆ Business and information technology
- ◆ Includes the Academy of finance and consumer sciences
- ◆ Family and consumer sciences (FACS)
- ◆ Health and medical sciences
- ◆ Junior Reserve Officer’s Training Corps
- ◆ Marketing
- ◆ Technology educations
- ◆ Trade and industrial education

Some course offerings include accounting, fashion or sports marketing, nurse’s aide, early childhood education, criminal justice, cosmetology, sustainability and renewable technologies, robotics, and culinary arts. All CTE programs have related industry certifications. A variety of specialized classrooms is required to support the Division’s CTE programs. CTE spaces should be integrated and co-located into students’ daily experiences rather than providing isolated classrooms to house these programs. Co-location will encourage cross-collaboration and full integration of general academics and CTE course curriculum.

Business and Information Technology

The Business & Information Technology program is an intensive preparation for business and information technology careers. Courses enable students to investigate opportunities in business, prepare for entry and advancement on the job, develop management skills, and identify further education and training necessary within a chosen career cluster. The Business and Information Technology program requires a lab that has the capacity to host approximately 26 students and computers, with enough electrical and data network available to effectively teach and learn. Student computers should be arranged in a horseshoe shape on three perimeter walls of the

classroom. Locate moveable student desks in the middle of the horseshoe, oriented towards a teaching wall at the front of the classroom. This arrangement allows students to engage in instruction that requires an oral lesson and then break apart to computer stations to complete their lesson. Consult with the CTE experts at the time of design for specific specialty equipment requirements that exceed the typical classroom design.

Academy of Finance (AOF)

T.C. Williams is the only high school in Virginia to offer an Academy of Finance program through the National Academy Foundation that teaches students money management skills, financial planning, and new business development. Students complete a three-year sequential program, work in an on-site credit union, and earn college credit. AOF is part of the Business & Information Technology program and is organized as a school within a school that prepares students for post-secondary education and careers through academic learning within a theme-based curriculum.

Family and Consumer Sciences (FACS)

Family & Consumer Sciences prepares students to manage and balance the adult demands of personal, home, and work life in the 21st century. Content focuses on careers in an academic discipline, cultural and environmental issues, health and safety, individual and family relations, leadership and workplace ethics, and the application of technology. Students will engage in both classroom and hands-on lab experiences that use today's technology and teach life skills. Classroom activities may include food nutrition, cooking, clothing and fashion design, sewing, childcare activities, and family budgeting. The department will require three classrooms to efficiently provide the educational programs offered. One space should be a typical classroom where students can receive instruction and prepare for hands-on activity in the lab. Two lab spaces will be required, one equipped with multiple kitchen stations and one equipped with tables—not desks—where students can spread out their work materials. Consult with the CTE experts during design development for additional equipment and design needs.

Health and Medical Sciences

The Health & Medical Sciences program prepares students for employment related to medicine, nursing, dentistry, and other medical-support services. Students in the Health and Medical Sciences course will learn the foundations of health care through this basic course and learn how to use equipment comparable to what is found in the health care industry today. The space should include a small health care laboratory for skills practice, as well as student work stations for group and independent course work. Specialty equipment included in this space may include hospital beds, demonstration patients, small medical equipment, and a mock surgical technology

station. The space should provide network connectivity, water, gas, and electrical connections. Consult with the CTE experts during design development for additional equipment and design needs.

Junior Reserve Officer's Training Corps

The JROTC program prepares high school students for responsible leadership roles while making them aware of their rights, responsibilities, and privileges as American citizens. JROTC requires a typical classroom for core instruction as well as administrative support spaces for army instructors. An internal drill area, approximately 50' x 90', and an external paved drill area, approximately 100' x 300' are also required. The internal drill area should be dedicated to JROTC as it will support a rifle range. Secure storage for JROTC equipment is required adjacent to the indoor drill area and accessible only to the Army instructors. Consult with the JROTC experts during design development for additional equipment and design needs.

Marketing

Marketing prepares students for careers in the processes of buying and selling goods and services. Marketing courses prepare students for entry-level positions and/or continued education in a variety of careers that require knowledge of communications, economics, and psychology as well as techniques in sales, promotion, and management. The spatial requirements for the marketing program are similar to those of the business lab. However, the marketing program requires fewer computers and more student work surfaces. Flexible furniture with an arrangement similar to the business lab is preferred. Marketing education will introduce students to Internet marketing, travel and tourism marketing, hospitality marketing, and entrepreneurialism. The marketing program may share space with the school store. Consult with the CTE experts during design development for additional equipment and design needs.

Technology Education

The technology education program provides experiences that lead to the development of technologically-literate people. Students will learn to understand the dynamics of technology, employ the technological processes, analyze the behavior of technological systems, apply scientific principles in the processes of technology, and discover personal interests and abilities related to a wide variety of technology-oriented careers. Technology education require computers with significant processing power and specialized software. Technology education may provide students the opportunity to engage in computer-aided design, drafting, electronics, engineering, and video and film production. Depending on the scheduling of the course, technology education may share a space with the business and information technology lab.

Trade and Industrial Education

Trade and industrial education programs prepare students with occupational skills, knowledge, attitudes, and work habits to become employed or continue their education in the skilled field. Trade and industrial education requires automotive repair facilities and spaces to teach cosmetology. If an auto body shop is included, the space must meet Occupational Safety and Health Administration (OSHA) standards. Classroom space should not be shared with other programs. Locker rooms or washing stations should be provided for students and faculty. Adequate tool and equipment storage must be provided. Specialty spaces may include a repair bay, a wash bay, and a paint booth / oven. Consult with the CTE experts during design development for additional equipment and design needs.

If a cosmetology program is offered, it will provide students the opportunity to develop work-centered competencies and skills that will prepare them for licensure by the Virginia Board of Cosmetology. A laboratory setting should provide approximately 20 student workstations that include hydraulic chairs and mirrors. Appropriate electrical connections must be provided for salon-type equipment. Specialty spaces include mixing rooms, washrooms, and student / teacher work areas for individualized instruction. A typical classroom should be provided for orated lessons. Consult with the CTE experts during design development for additional equipment and design needs.

Video and film production courses require specialty spaces such as a dark room, video production room, and electronics labs. Consult with the CTE experts during design development for additional equipment and design needs.

Other programs, such as the academy of finance and marketing courses, require standard flexible classrooms. Specific equipment needs exist for a range of programs, from robotics to automotive technology to surgical tech classes. An advanced architectural drawing class and AP computer science could share a computer lab, JROTC and physical education can share training facilities, and fashion merchandising and theatre students can both use a costume shop in a performing arts facility.

Care should be taken not to duplicate highly specialized, single-use spaces on multiple high-school campuses.

Special Education

Special education facilities should be integrated throughout the school to support the concepts of inclusion and to provide reasonably immediate access to students with special needs. Provide at least one special education room per grade. Currently, more than 70% of all ACPS students with disabilities are integrated with their peers in standard learning environments for at least 80% of each day. Resource and pull-out spaces are also required and should be distributed throughout the multiple learning communities to support individualized learning needs

(resources), and / or speech therapy, occupational therapy, and / or physical therapy. Typical occupancy of a pullout space is approximately 10 people. Within the classroom, small group breakout areas or spaces for one-on-one teaching are necessary to deliver differentiated teachings on an as-needed basis.

A dedicated, programmatically-sized classroom may be necessary on a location-by-location basis to support city-wide programs and would be identified at the time of individual site planning. Special education facilities should be integrated throughout the school to support the concepts of inclusion, and these specialized requirements should be considered for the identified student groups. Special attention should be given to accessibility of all facilities and an integrated learning program.

English Language Learning (ELL)

Students who are learning English have multiple ways to get the support they need at the high school level. The International Academy program, supported by Internationals Network for Public Schools, is a specialized program for immigrant-born students with emerging English proficiency scores. This academy is best described as a school within a school model designed to help ELL students learn English, achieve academically, and graduate from high school while preparing them for college and careers. Students take the majority of their courses in academy-specific classrooms, which operate in a similar fashion to a typical classrooms. Designers should be careful to inquire about site-specific requirements for this academy which co-exists with the traditional model of ELL services.

In the traditional model, ELL instruction is pushed-in to the general education classrooms with an itinerant instructor floating into classes as needed. ACPS also provides English for academic purposes (EAP), a break-out class to target academic language development. These break-out classes typically accommodate a larger capacity and may require a full-size classroom.

Talented and Gifted (TAG)

TAG at the high school level is fundamentally different from other age levels. TAG as a program will exist at every high school in the Division, although the teachings are provided through honors, Advance Placement, and Dual Enrollment courses which are taught by subject-specific teachers as part of the regular daily schedule. Therefore, separate TAG classrooms are not necessary. Enrollment in honors courses varies from 10 to 20% of the total high school student population. The TAG program does include a resource teacher who provides curriculum guidance and instructional support to individual subject area teachers. An office for the TAG resource teacher is required. Beyond the office, the TAG resource teacher may 'float' from class to class, occasionally requiring the use of itinerant desk space in the classroom. With an emphasis on project-based learning, the TAG resource

teacher may also work directly with a small group of students in an ELA space or a resource room, when appropriate.

Advancement Via Individual Determination (AVID)

AVID is a college readiness program that is provided as an elective course and targeted to students in the academic middle who have a desire to attend college. Enrollment in AVID, grades 6 to 12, varies from year to year and school to school, but approximately eight to 10% of students currently take the course. The AVID academic week includes two days of traditional classroom-based instruction, two days of small group tutoring, and one day of team-building activities or guest speakers.

Accommodating all these activities in one space requires a larger classroom that can be partitioned into two smaller rooms to minimize noise and maximize available whiteboard space during tutoring sessions. The average full class size runs between 17 and 27 students. On tutoring days, the class is divided into four smaller groups at a ratio of about seven students to one tutor. Several small tables should be used to maximize flexibility, and all furniture should be on casters due to daily re-arrangement. It is suggested that a small adjacent room be added to accommodate hoteling space for tutors and storage for student work files. The AVID room should be placed in a centralized location at an equitable distance to all grade levels, with a suggested adjacency to the library.

Visual and Performing Arts

ACPS has a strong arts focus at the high school level and well-designed spaces are needed to support a vigorous curriculum and creative presentations. Visual and performing arts spaces are shared by all grade levels for general class and small group instruction. Locating these learning environments in the central anchor will promote orderly transitions and equitable travel time for students of all ages. Often performing arts spaces are co-located due to their similar architectural requirements for limiting sound transmission.

It is important that dedicated art rooms be provided to support both 2-D and 3-D instruction. The optimal location for the art room is on the ground floor, with a northern daylighting orientation and access to the exterior. Access to an outside patio or seating area will offer additional work and display spaces where students can engage with the environment. Display areas in the school should be designed to accept both 2-D and 3-D projects.

All vocal, instrumental, and orchestral music rooms should be acoustically treated to reduce noise transmission to other areas of the school. Small group practice rooms are required near the performance art spaces for up to five people and the teacher. Provide adjacent to, if not immediately accessible from, access to a larger performance space outfitted with a stage, stage lighting, and sound equipment. The auditorium will showcase student

presentations of theatre, music, and dance. It will also serve as a community gathering space for full-school assemblies.

The auditorium should have a flat stage under a proscenium arch with raked seating facing the stage. Appropriate acoustics, sound and lighting systems are critical to the space's flexibility and functionality. Storage and support spaces should be appropriately sized with an understanding of necessary adjacencies. The designer is encouraged to consider flexible seating options that encourage other uses of the auditorium during the typical schedule.

If possible, the music suite should be located near the auditorium and dedicated small group practice rooms should be located within the music suite along with storage areas.

Library

The library serves a dual role—its traditional role as a gathering place for reading and learning and a new role as a technological information base and learning hub. In this new role, the library may house a wireless voice / video / data network that runs throughout the entire building. This network enables the transmission of media services to the desktops of teachers and students without physically entering the library. The new library will use digital technology to enhance voice, video, and data communications within the school, among ACPS Division facilities and with distant-learning resources.

The AVID learning classroom should be located adjacent to the media center to support the role of the media center as a research and learning hub. This space can serve as an extension of the library to support research and learning by providing students and staff with typical classroom technology and additional working space. This flexible use space can be used for group work, individual work, or class teachings. Additionally, placing books in Extended Learning Areas will expand the reach of the library beyond the walls of the Learning Commons.

Departments will store textbooks and other reading materials for students in classroom storage areas separate from the Learning Commons space. For the English Department, this will include class sets of novels for student use. These reading materials will not be directly accessible to students, as they will be chosen and disseminated by faculty.

Attached to the library will be a makerspace that is shared by all departments. The makerspace is a utilitarian space built to host the latest technology such as a laser cutter, a 3D printer, or other similar items. The makerspace is a resilient space intended to be a hands on and creative environment for students to learn and generate new work. When connected to the exterior spaces, a makerspace can expand into a small mechanical shop where students study small engines and machinery. The space can also serve as a STEM lab where

students study physics, earth sciences, or chemistry. Makerspaces are intended to be multidisciplinary and centrally located for all departments to use. Finishes in a makerspace typically included polished concrete flooring and working benches with ample internet and electrical connections.

Physical Education

ACPS offers formal physical education to high school students daily on a rotating quarterly schedule. Physical education and health studies provide standards-based instruction on motor / movement knowledge and skills, physical activity and fitness knowledge, and personal fitness responsibility. To support the high school physical education program, a variety of indoor and outdoor areas are required.

Outdoor physical education areas should be located near the indoor gymnasium. Physical education facilities must be designed with a focus on community use during non-school hours, since there is a high demand for both indoor and outdoor facilities. Outdoor facilities may include track, courts, ball fields, and open physical fitness space. The size and quantity of these spaces is dependent on the available land in this urban environment. Co-location with recreation, parks, and cultural activities should be discussed during the development of site-specific educational specifications.

Indoor physical education requires a gymnasium large enough to support approximately 90 students at any one time. The gymnasiums should be easily divisible as needed into three sections with physical barriers that reduce sound between the three spaces. An auxiliary gymnasium, weight fitness room, and three health classrooms are required to support the curriculum. To support school-wide presentations, pep rallies, and events, enough fixed seating must be provided to support the entire school enrollment via bleachers. ACPS also provides intramural sport opportunities each season, which utilize both indoor and outdoor space throughout the year. Appropriate storage is required for these programs.

Technology is changing how physical education is taught in high schools. Physical educators want to incorporate motion tracking and biometric technology into their curricula, giving students information about how they move through space and how their body responds to exercise. Virtual reality spaces for physical activity are anticipated in the near future. These spaces, such as cycling rooms, make physical activity more fun and more personalized to the student.

Parking should be located near the gymnasium and a separate entrance should be provided for after-school activities.

Pool

It is optimal for high school facilities in Alexandria to provide regulation sized competition pool facilities. Per the Virginia High School League standards, competition swimming pools should include at least 8-lanes in width and 25-yards in length. Additionally, competitive diving requires a diving well with two 1-meter diving boards. It is optimal to separate the diving well from the lap pool to prevent accidental injury and allow both sports maximum water time for training. All required support facilities should be included adjacent to pool facilities as needed. These facilities include, but are not limited to locker rooms, restrooms, spectator seating, chemical delivery, chemical storage, pump / filtration rooms, custodial facilities, scoring areas, sound system, first aid facilities, storage, offices, ticketing booth, dry-land exercise space, and lobby areas. It is important to provide diffused light, so as not to create glare that can distract spectators, pool users, and lifeguards. Natural light is desired in pool spaces when accompanied with shading devices. Direct sunlight into the water should be avoided to best control the temperature of the water and prevent glare for the athletes. Finishes should be impervious and non-corrosive. Pool facility design should incorporate materials that can reduce acoustic reverberation and appropriate ventilation / dehumidification. Supervision is key to ensuring that all users can enjoy the pool safely.

When the need is identified, ACPS school facilities have the opportunity to provide community pools for non-competitive practice, swimming lessons, and group rental. The size and style of this pool or water zone may range from a splash pad to a competition 50 meter pool. Demand for pool spaces within the city will determine the need and size of such water areas.

A pool consultant, designer, and space programmer should be engaged when designing a pool for high school or community use.

Student Support, Testing, and Community Gathering Spaces

ACPS has the need to provide a communal space in a high traffic area of the school for students to access student run support services and a centralized testing area. The type and size of space envisioned is large enough to also supply significant community space for before or after school use. The following section describes what the student support, testing, and community space could be in an ACPS high school. At the time of site specific planning, designers and ACPS administrators should discuss the current need to appropriately size the space.

The 21st century high school ACPS envisions is preparing Alexandria students for advanced education beyond high school. Colleges and universities provide students an opportunity to service each other through activities offices, student stores, and information technology help centers. ACPS values providing students with the additional academic and wellness support needed to succeed. Spaces such as the writing center, math center, tech support, help desk, teen wellness and college and career center should be located in a designated and accessible space. ACPS should consider locating these services in a location accessible to the cafeteria so that students may use these services during their lunch time.

It is also the desire of ACPS to provide their students with the best, disruption free testing space possible. During the most intensive testing of the school year, nearly half of a grade can be testing at the same time. To provide for this need, ACPS desires to establish a testing center in each high school that can be one large space or multiple classroom size spaces. The flexibility of the space can be determined at the time of site specific planning.

The combination of a testing center and student support services amounts to a space that is approximately 4,500 square feet for up to 200 students. The space is similar in size to a conference center lecture space with movable walls and zoned lighting. The space will provide the same classroom conditions and equipment to ensure the space is conducive to student comfort and learning. By locating this space near the public zone of the school, ACPS can provide meaningful public use of the space and fully program the space with before and after school programs.

DINING AND FOODSERVICE

The dining and foodservices space should accommodate one-third of the projected student capacity each lunch period. The dining experience for students will begin with food selection via a food court layout where students may select from a variety of food options. The food court layout requires specific space planning and coordination between administration and foodservices to ensure an efficient and smooth lunch experience for students.

The dining area should be a warm and inviting space with plenty of natural light, pleasant acoustics, and multiple varieties of age-appropriate seating choices. . Booths, high tops and tables of varying size should be used for larger and smaller groups. Multiple dining spaces may be considered for students who would prefer a quieter dining experience. Outdoor seating or seating of some other type may be offered for seniors if it is able to be adequately enforced and monitored. ACPS should consider the length of time and capacity of the cafeteria space when determining the amount of serving lines necessary. It is proposed, through creative design, that the dining area should effectively house multiple functions including assemblies, community meetings, and potentially learning and teaching.

The dining and foodservices area of the school should not be located at the main entry to the school. However, the dining area should be located in the central anchor to benefit all students and to reduce the amount of noise impacting classrooms. This area must also be available after school hours. Architects should consider the room volume, configuration, technology requirements, acoustics, and general layout as they relate to the kitchen and cafeteria. The architects should consider serving and dining areas that incorporate composting and recycling facilities, similar to designs students encounter in the public. The space should be homelike with design qualities that support visual and verbal communication between students and faculty.

Foodservices is responsible for food preparation Division wide. Foodservices facilities should incorporate space for speed scratch and / or speed cooking and warming kitchens with the appropriate equipment. Facilities must include space for frozen storage, cold storage, dry storage, manager and assistant manager offices, a dedicated loading dock, and pot washing equipment. The architect should coordinate with the director of foodservices during the design development phase to ensure current needs are met.

SITE

Site circulation should be organized for safety and efficiency. This should be accomplished through careful separation of vehicular traffic, including the separation of school buses, parents, and staff. Sufficient stacking space should be provided to prevent congestion of busy streets. It is most important that parking be proximate to athletic facilities, then performing arts facilities, and then community-partnership areas, such as health centers. Particular consideration should be given to providing safe passage to pedestrian and bicycle traffic. The space should be arranged to encourage active, multi-modal commuting.

All outdoor areas should be protected from vehicular traffic, so students can be assured of a safe and secure environment on the entire school site. Shading elements should be considered along with an outdoor learning area and garden. Outdoor storage field equipment is also needed.

Alexandria school sites are urban in nature and most current and future sites cannot accommodate the recommendations outlined in the *Guidelines for School Facilities in Virginia's Public Schools*. It is recommended that architects work with ACPS and RPCA to prioritize types of outdoor space developments on a site-specific basis. Architects should endeavor to design new schools or future renovation in a way that will maximize available program space.

Site Management

Recreation, parks, and cultural activities (RPCA) is a partnership program that uses shared ACPS facilities for after-school programming. RPCA operates the majority of playing fields, courts, parks, and playgrounds adjacent to Alexandria schools. When funds are available to enhance the campus or grounds of the school, architects should coordinate and consider RPCA's requirements toward playgrounds, courts, fields, and gymnasium spaces, per the joint ACPS/RPCA Facility and Outdoor Maintenance and Use Agreement.

Parking and Transportation

ACPS transportation provides services to 5,800 students daily and approximately 2,200 of those students attend T.C. Williams and Minnie Howard schools. At school facilities where space can be provided for school bus parking, it is desirable to orient the buses in such a way that prevents them from ever reversing out of a parking space – in a manner similar to that seen in a bus depot. If a bus loop must be used, avoid parallel, double-wide parking during loading and unloading, as this increases danger to the students.

It is important to note that most ACPS schools are located in densely-populated neighborhoods and many students either walk to school or receive rides from parents. Currently, ACPS’ policy is to provide transportation only for students living more than 1.5 miles from their designated school site. If ACPS expands to multiple high school campuses, the Division will offer transportation to all students. Due to the high percentage of students arriving by alternate means, designers should be careful to separate parking lots and school bus loading areas from each other and from student drop-off areas and pedestrian walkways. Furthermore, the use of bicycles should be encouraged by providing bike racks in quantities at a minimum consistent with LEED guidelines.

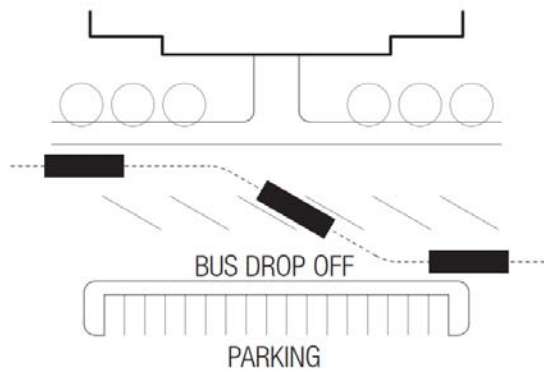


FIGURE 8: Bus Diagram

The minimum parking requirements should be recommended by the architect and are to be based upon the proposed capacity prototype. Actual parking requirements may be impacted by factors such as zoning, site constraints, absence or presence of other modes of transportation, etc. The architect must coordinate at time of design and it should be noted that ACPS offers incentives to encourage carpooling and the use of mass transit by staff.

BUILDING ORGANIZATION

CONCEPT

The careful and thoughtful consideration of building organization during design is critical to the success of a future school program. This conceptual building organization diagram () illustrates relevant adjacencies for the typical high school model.

ACPS currently operates its high school education from two campuses—a ninth grade center and a grade 10 through 12 campus a few blocks away. ACPS desires to provide high schools that serve students in grades nine through 12 at a comprehensive campus with a junior college atmosphere. The basic organizational structure of the school should reflect a learning community concept consisting of an anchoring commons facility and supplementary classroom extensions. These specialized extensions, or wings, create learning communities that each serve a specific academic purpose. These extensions will be organized around a shared common area or anchor building.

The anchors are areas where students will attend whole-school events, specialty classes, and lunch. The anchor will provide space for cross-collaboration as well as individualized learning spaces; however, the majority of learning will occur in the classroom extensions, or wings, that house approximately one-quarter of the school population. The anchor will have public and private zoning to support security separation that allows for afterschool activities.

The classroom extensions will foster learning communities that enhance interdisciplinary collaboration and a modern work culture feeling. Each classroom extension will be dedicated to a specific subject area and students will rotate between extensions, using the anchor as circulation and an extended learning area. Each extension should feel like a small learning community and consist of general purpose classrooms, space for informal instruction, small group rooms, two- and three-dimensional display areas, group breakout areas, and a teacher collaboration suites. The extensions will incorporate smaller personalized spaces within the larger whole that allow students to personalize their individual learning environment. The integration of technology throughout all spaces is required to enhance the core curriculum.

Students from all grades should mix and be inspired by what their upper classmates are creating as they pass through the classroom extensions. Each classroom extension will have theme-based academies and flexible use of the overall space to accommodate and adapt to the needs of different programs.

The school will remain flexible enough to incorporate new academies and programs with time. The learning community concept best meets the needs of the educational programs, students, and staff as it facilitates a variety of instructional strategies and provides a learning environment which is characterized by having a sense of community for the students and teachers, and a safe, well-supervised environment.

It is desirable that grade levels have separation at core academics to build individual community and focus. Currently, students in the ninth grade campus have a full year to build community, culture, and relationships before they transition into the larger high school. The ability to create these connections is an important quality that any new high school should provide and ACPS wants to maintain.

Administrators will continue to be dispersed among the learning communities to support student supervision and facilitate teacher / student collaboration. Most teachers will not own classrooms, rather teacher collaboration suites and combined offices spaces will be provided to encourage cross-disciplinary collaboration.

Teacher collaboration suites are shared, medium-sized office spaces that provide teachers with a location to store their personal items and teaching materials in a personal wardrobe and/or a personal file cabinet. Teacher collaboration suites are assigned based on staff alignment in either subject matter. Teacher collaboration suites are designed to provide enough hoteling space for teachers to use during their planning period(s).

The environment of the suite is intended to provide shared and professional working space for grading papers and preparing lesson plans while also allowing teachers to cross-collaborate on project based work. It is important to note that the teacher collaboration suite is not a replacement for a standard workroom or faculty lounge. Other department related administration may be collocated near or adjacent to the teacher collaboration suite. Each teacher collaboration suite provides up to six hoteling spaces per room. In a school of 1,600 students, approximately 14 to 17 teachers will have a planning period at the same time. By providing six teacher collaboration suites with up to six hoteling spaces in each room, each teacher will have a desk to work from during their planning period. Each hoteling space will be fully outfitted with electrical, data ports and other tools necessary for teachers to make home calls and continue their day to day responsibilities.

Immediately adjacent and connected to the teacher collaboration suite will be one breakout space for one-on-one instruction. Students who visit teachers during the teacher's planning period will have a separate space of approximately 80 square feet to meet that will not be disruptive to the other staff but is adjacent to the teachers planning area.

Teacher collaboration suites are not intended to limit the ownership and customization of the individual classrooms. Teachers of the same subject will be scheduled to use the same classroom a majority of the time. Teacher collaboration suites are intended to increase teacher collaboration and improve the utilization of each classroom. Provide one teacher collaboration suite for approximately every 10 classrooms.

The number of small group rooms, art and music labs, science labs, and support staff offices is based on staffing formulas. The size of the core areas such as library, dining and foodservices, physical education facilities, and site amenities is based on local and national benchmarks related to size.

DESIGN PRINCIPLES

OVERVIEW

The following section provides executive summaries of the guiding design principles that should be applied to each space within an ACPS school facility. The appendix of this document includes expanded detailed guidance for some of the categories discussed here.

UNIVERSAL DESIGN

The entire facility should be accessible for students, staff, and visitors. This should be accomplished through judicious use of ramping and elevators with sufficient internal clearances for circulation, convenient bus / van loading and unloading, and nearby handicapped parking spaces. All elements of the Americans with Disabilities Act must be complied with, including way-finding and signage, appropriate use of textures, and universal accessibility of all indoor and outdoor school facilities.

FURNITURE & EQUIPMENT

Classrooms vary in shape and size; therefore, the furniture should be flexible to accommodate a variety of classroom formats for both individual and group activities. Teachers and students should have storage space for personal belongings, papers, books, supplies, and teaching materials. Teachers should also have access to a community storage room to exchange and share materials.

To the extent possible, movable furnishings should be used, rather than fixed casework, to provide flexibility for future reconfiguration. Furniture should be selected for its ergonomic traits, with consideration for variability and adjustability to support diverse learning styles. Architects should consider full-height private lockers in hallways for every student.

TECHNOLOGY

The facility should contain the latest in technology, and infrastructure should be provided to support wireless access to data and video throughout the building. It is intended that access to technology will be seamless and pervasive throughout the building with only the minimal number of hard drops needed to support voice, teaching stations, and wall-mounted devices. Technology infrastructure should support the concept that learning can happen anywhere by enabling a one-to-one student to device ratio. The specific tools and design guidance will be determined based on the best practices at the time of construction.

Every learning area should be wired for teacher audio enhancement. Research into this cutting-edge technology suggests that student learning can improve in classrooms where the teacher's voice is amplified and the classroom acoustics are designed to support voice clarity. Please reference Appendix 2 for additional guidance regarding technology infrastructure requirements.

SAFETY AND SECURITY

ACPS wants to maintain a warm and inviting environment, while simultaneously ensuring the safety of students, staff, and community. Security officers will patrol school hallways and screen visitors, but the school system will not integrate metal detectors or physical screenings of students as they enter the school. The organization of a building will have a major impact on student behavior and safety concerns. Architects should refer to Crime Prevention through Environmental Design (CPTED).

All school locations should include a double perimeter approach where every visitor is guided through a secure exterior door into a secure holding vestibule prior to gaining access to the main office. Visual access from the main office to the exterior vestibule is mandatory and every entrance to the school should have a CCTV IP camera. School security is moving away from metal keys and locks to electronic access cards with NFC tracking chips worn by students, faculty, staff, and visitors. Consult with ACPS on the most current keying policy. Please reference Appendix 3 for additional guidance regarding technology infrastructure requirements.

The building will need to include dedicated space for personnel offices and camera monitoring rooms.

ENERGY AND ENVIRONMENTAL PERFORMANCE

ACPS is dedicated to renovating existing, or building new, facilities that meet or exceed Eco-City standards and City of Alexandria environmental performance standards. ACPS desires to offer schools that teach faculty, staff, students, and the community the importance of environmental stewardship. ACPS believes quality architecture and high energy performance facilities positively impact the education of students and increase retention of staff and students. At this time, city development standards require compliance with LEED Silver certification standards for major construction projects. ACPS seeks to exceed these minimum standards.

MATERIALS AND FINISHES

ACPS believes high-quality architectural materials and finishes create an atmosphere that supports and inspires learning. All spaces should be conducive to teaching, provide a warm and welcoming feeling, and meet the principles of Evidence-Based Design (lighting, environmental / air quality, and acoustics). All materials must be highly durable and resilient yet support a creative learning environment. ACPS is cognizant that materials should

be reasonable in cost and not exuberant when considering budget and life-cycle costs to maintain and upkeep. A sensible balance is necessary to maintaining budget and achieve ACPS' facility standards.

OPERATIONS AND MECHANICAL

Mechanical systems that are climate appropriate and responsive to the life cycle, maintenance and efficiency expectations of ACPS should be provided, along with passive systems that pair with active systems and coordinate to achieve maximum efficiencies while coordinating with the users to determine the location of universal and dedicated systems. ACPS requires individual facilities to operate under 20 kw/hr per square foot by the year 2026.

COMMUNITY USE AND PARTNERSHIPS

ACPS is pleased to have community and non-profit partners in its buildings offering valuable services and programs for students and families. Partnership programs and other regular community activities require shared, co-located and sometimes dedicated space that is internal to the school yet has the ability to operate beyond ACPS school hours. Extended hours of operation require the partnership programs and community activity area to have an entrance that can be separated from the main school. This secondary building entrance for after-school program use should be visible to all spaces co-located in the community use and partnership area, specifically the gym and multipurpose rooms. This space will be used by after-school programs for record keeping, registration transactions, secure money storage, and child pickup. This allows partnership programs to operate independently of the school's staffing requirements and provides the necessary security to protect the main school. During general school hours, partnership programs should function under ACPS' security policies and use of secondary entrances should be restricted.

Program offerings are location-dependent and include, but are not limited to:

- ◆ Tutoring
- ◆ Family and community education centers (FACE)
- ◆ Recreation, parks and cultural activities (RPCA)
- ◆ Medicaid therapy, and
- ◆ Campagna Center.

Functions of these programs should be co-located with the ability to use standard classrooms, the gymnasium, the multipurpose room, and the media center.

ACPS has a standing partnership with the Alexandria Department of Recreation, Parks, and Cultural Activities (RPCA) for the maintenance and after-school programming of fields. At several schools, RPCA operates after-

school and community programs in the gymnasium or multipurpose room, per the joint ACPS / RPCA Facility and Outdoor Maintenance and Use Agreement.

FAMILY AND COMMUNITY ENGAGEMENT CENTERS

ACPS serves a diverse community of families who have immigrated to the DC Metropolitan area from all over the world. It is understandable that for cultural reasons or due to language barriers that newcomers to the school may be hesitant to engage staff and need additional support. The Division wants to establish Family and Community Education Centers (FACE) at each school to welcome families and provide the additional resources to help them succeed.

A typical FACE center would ideally be located near the main office and include:

- ◆ A reception area with both comfortable seating for individual conversations and table seating for meetings and classes,
- ◆ A private office, and
- ◆ Storage

PARENT TEACHER ASSOCIATIONS

Flexible use space should be provided to accommodate the mission and program offerings of the PTA group. PTAs meet on a monthly schedule, typically during the evening, and have 30 to 35 participants in attendance. PTA meetings include school board members, parents, and on occasion the superintendent. PTAs offer volunteer afterschool programs that require access to standard, flexible classrooms, the gymnasium, the library, and the cafeteria. Consideration should be given to co-locating the PTA with other partnership functions like the FACE center. PTA functions require dedicated storage space and direct interaction with the school's main office suite and staff.

1600 STUDENT PROTOTYPE

The following section provides a summary of all spaces required within the facility. Data is provided to serve as an overall guideline and architects should strive to accommodate the stated square footage recommendations; however, latitude of +/- 10% should be provided – particularly when renovating an existing facility.

| Building Total | SQFT |
|--------------------|----------------|
| ADMIN | 4,250 |
| Student Services | 4,975 |
| Core Academics | 42,460 |
| Special Education | 3,640 |
| Sciences | 17,550 |
| Aquatics | 15,285 |
| Fine Arts | 27,225 |
| Specials | 5,500 |
| CTE | 15,675 |
| Physical Education | 32,525 |
| Library | 12,625 |
| FoodServices | 13,495 |
| Building Services | 2,890 |
| Community Space | 5,665 |
| Grossing 40% | 81,504 |
| Total | 285,264 |

FIGURE 9: 1600 Student Total Size

BUILDING SPACE SUMMARY

| ADMIN | | QTY | SQFT | TOTAL |
|-----------------------------------|--------------------------|-----|------|--------------|
| Main Office | | | | |
| | Reception | 1 | 1125 | 1,125 |
| | Conference | 1 | 250 | 250 |
| | Workroom | 1 | 400 | 400 |
| | Storage | 1 | 250 | 250 |
| | Secure Storage | 1 | 75 | 75 |
| | Principal | 1 | 150 | 150 |
| | Administrative Assistant | 1 | 100 | 100 |
| | Flex Office | 1 | 100 | 100 |
| | Coat Closet | 1 | 25 | 25 |
| | Attendance Office | 1 | 100 | 100 |
| | Financial secretary | 1 | 100 | 100 |
| <i>Sub-Total</i> | | | | 2,675 |
| Distributed Administration | | | | |
| | Vice Principal | 4 | 150 | 600 |
| | Conference | 1 | 150 | 150 |
| | Storage | 1 | 50 | 50 |
| <i>Sub-Total</i> | | | | 800 |
| Faculty Support | | | | |
| | Faculty Lounge | 1 | 775 | 775 |
| <i>Sub-Total</i> | | | | 775 |
| TOTAL | | | | 4,250 |

| Student Services | | QTY | SQFT | TOTAL |
|-------------------------|-------------------|-----|------|--------------|
| Guidance | | | | |
| | Office | 6 | 100 | 600 |
| | Waiting | 1 | 400 | 400 |
| | conference | 1 | 350 | 350 |
| | Career Center | 1 | 500 | 500 |
| | Storage | 1 | 100 | 100 |
| | Testing | 1 | 75 | 75 |
| <i>Sub-Total</i> | | | | 2,025 |
| Health Suite | | | | |
| | Waiting Area | 1 | 300 | 300 |
| | Exam Room | 2 | 100 | 200 |
| | Student Rest Area | 1 | 575 | 575 |
| | Office | 1 | 100 | 100 |
| | Storage | 1 | 100 | 100 |
| | Student Toilet | 1 | 100 | 100 |
| <i>Sub-Total</i> | | | | 1,375 |
| Support Services | | | | |
| | Psychologist | 2 | 100 | 200 |
| | Social Worker | 3 | 100 | 300 |
| | Flex Office | 4 | 100 | 400 |
| | Records Storage | 1 | 75 | 75 |
| | SGA Office | 1 | 275 | 275 |
| | School Store | 1 | 325 | 325 |
| <i>Sub-Total</i> | | | | 1,575 |
| Total | | | | 4,975 |

HIGH SCHOOL CAMPUS

| Core Academics | | QTY | SQFT | TOTAL |
|------------------------------|--|-----|------|---------------|
| Classrooms | | | | |
| Economics | | 3 | 850 | 2,550 |
| English | | 11 | 850 | 9,350 |
| Math | | 11 | 850 | 9,350 |
| Social Studies | | 11 | 850 | 9,350 |
| <i>Sub-Total</i> | | | | 30,600 |
| Shared Spaces | | | | |
| ELA | | 6 | 900 | 5,400 |
| Resource | | 6 | 250 | 1,500 |
| Teacher Collaboration Suites | | 6 | 560 | 3,360 |
| Project Storage | | 8 | 200 | 1,600 |
| <i>Sub-Total</i> | | | | 11,860 |
| Total | | | | 42,460 |

| Special Education | | QTY | SQFT | TOTAL |
|-------------------|--|-----|------|--------------|
| General | | | | |
| Classroom | | 4 | 850 | 3,400 |
| Office | | 1 | 120 | 120 |
| Records Storage | | 1 | 120 | 120 |
| Total | | | | 3,640 |

| Sciences | | QTY | SQFT | TOTAL |
|------------------------|--|-----|------|---------------|
| Science Labs | | | | |
| Biology | | 2 | 1400 | 2,800 |
| Chemistry | | 3 | 1400 | 4,200 |
| Physics | | 3 | 1400 | 4,200 |
| Environmental Sciences | | 3 | 1400 | 4,200 |
| <i>Sub-Total</i> | | | | 15,400 |
| Science Support | | | | |
| Prep | | 6 | 200 | 1,200 |
| Storage | | 5 | 100 | 500 |
| Chemical Storage | | 1 | 250 | 250 |
| Greenhouse | | 1 | 200 | 200 |
| <i>Sub-Total</i> | | | | 2,150 |
| Total | | | | 17,550 |

| Fine Arts | | QTY | SQFT | TOTAL |
|--------------------|---|-----|------|---------------|
| Visual Arts | | | | |
| | Art Studio | 2 | 1200 | 2,400 |
| | Art Studio - 3D | 1 | 1200 | 1,200 |
| | Graphics Media Studio <i>(Optional)</i> | - | 1000 | Optional |
| | Storage | 2 | 100 | 200 |
| | Kiln / Ceramic Storage | 1 | 100 | 100 |
| <i>Sub-Total</i> | | | | 3,900 |
| Music | | | | |
| | Instrumental Music | 1 | 3050 | 3,050 |
| | Vocal Music | 1 | 1675 | 1,675 |
| | Practice Room | 1 | 700 | 700 |
| | Instrument Storage | 1 | 600 | 600 |
| | Uniform Storage | 2 | 100 | 200 |
| | Office | 2 | 100 | 200 |
| | Library / Music Storage | 1 | 150 | 150 |
| <i>Sub-Total</i> | | | | 6,575 |
| Drama | | | | |
| | Classroom | 1 | 900 | 900 |
| | Black Box Theatre | 1 | 2000 | 2,000 |
| | Control Room | 1 | 100 | 100 |
| <i>Sub-Total</i> | | | | 3,000 |
| Auditorium | | | | |
| | Theatre / Auditorium | 1 | 8525 | 8,525 |
| | Stage w/ pit | 1 | 3125 | 3,125 |
| | Ticket Booth | 1 | 100 | 100 |
| | Control Room | 1 | 150 | 150 |
| | Costume / Prop Storage | 1 | 525 | 525 |
| | Dressing Rooms | 1 | 525 | 525 |
| | Student Toilet | 2 | 50 | 100 |
| | Set Construction | 1 | 700 | 700 |
| <i>Sub-Total</i> | | | | 13,750 |
| Total | | | | 27,225 |

HIGH SCHOOL CAMPUS

| Specials | QTY | SQFT | TOTAL |
|-------------------------|------------|-------------|--------------|
| Foreign Language | | | |
| Classroom | 6 | 900 | 5,400 |
| Storage | 1 | 100 | 100 |
| Total | | | 5,500 |

| Physical Education | QTY | SQFT | TOTAL |
|---|------------|-------------|---------------|
| Physical Education | | | |
| Gym | 1 | 10000 | 10,000 |
| Auxiliary Gym | 1 | 8475 | 8,475 |
| Wrestling | - | 2500 | Optional |
| Fitness / Weight Room | 1 | 1500 | 1,500 |
| Dance / Activity Room | - | 1500 | Optional |
| Health Classroom & Human Growth and Development | 6 | 850 | 5,100 |
| Sub-Total | | | 25,075 |
| Support | | | |
| Locker Rooms | 1 | 2775 | 2,775 |
| Showers / Toilets | 1 | 775 | 775 |
| Team Rooms | 4 | 300 | 1,200 |
| PE Teachers/Coach Office | 1 | 200 | 200 |
| Teacher/Coach Lockers & Toilets | 2 | 90 | 180 |
| Athletic Director Office | 1 | 120 | 120 |
| Training / Whirlpool | 1 | 120 | 120 |
| Laundry / Towels | 1 | 100 | 100 |
| Concession / Ticket | 1 | 100 | 100 |
| Outdoor Storage | 1 | 400 | 400 |
| Indoor Storage | 1 | 450 | 450 |
| Athletic Storage | 1 | 600 | 600 |
| Adaptice PE Storage | 1 | 250 | 250 |
| Officials Lockers | 2 | 90 | 180 |
| Sub-Total | | | 7,450 |
| Total | | | 32,525 |

| Aquatics | | QTY | SQFT | TOTAL |
|------------------------------|-------------------------------|-----|------|----------------------|
| <i>Pool</i> | | | | |
| | Competition Pool | 1 | 4505 | 4,505 |
| | Diving Well | 1 | 1150 | 1,150 |
| | Deck Area | 1 | 5400 | 5,400 |
| | Pool Equipment Storage | 1 | 150 | 150 |
| | Swim meet Storage | 1 | 150 | 150 |
| | Spectator Seating - 300 seats | 1 | 1200 | 1,200 |
| | Rest-Rooms | 2 | 800 | 1,600 |
| | Dry-land Exercise Space | 1 | 200 | 200 |
| <i>Support Spaces</i> | | | | |
| | Pump / Filtration Room | 1 | 300 | 300 |
| | Chemical Storage | 1 | 180 | 180 |
| | Custodial Room | 2 | 50 | 100 |
| | First Aid Storage | 1 | 50 | 50 |
| | Office | 1 | 100 | 100 |
| | Ticket Booth | 1 | 50 | 50 |
| | | | | |
| | | | | |
| <i>Sub-Total</i> | | | | <i>15,135</i> |
| <i>Total</i> | | | | <i>15,285</i> |

HIGH SCHOOL CAMPUS

| CTE | QTY | SQFT | TOTAL |
|----------------------------|-----|------|---------------|
| CTE 1 | | | |
| Lab | 1 | 2000 | 2,000 |
| Project / Material Storage | 1 | 100 | 100 |
| <i>Sub-Total</i> | | | <i>2,100</i> |
| CTE 2 | | | |
| Computer Tech. Lab | 1 | 2000 | 2,000 |
| Student Storage | 1 | 100 | 100 |
| Computer Service Lab | 1 | 1050 | 1,050 |
| Storage | 1 | 100 | 100 |
| <i>Sub-Total</i> | | | <i>3,250</i> |
| JROTC | | | |
| Classroom | 1 | 850 | 850 |
| Changing Room | 2 | 150 | 300 |
| Uniform Storage | 1 | 250 | 250 |
| Supplies | 1 | 200 | 200 |
| Armory | 1 | 100 | 100 |
| Office | 1 | 200 | 200 |
| Book Storage | 1 | 25 | 25 |
| Cadet Operations | 1 | 150 | 150 |
| Indoor Practice | 1 | 4500 | 4,500 |
| Outdoor Practice | TBD | 0 | 0 |
| <i>Sub-Total</i> | | | <i>6,575</i> |
| CTE 3 | | | |
| Engineering Lab | 1 | 1400 | 1,400 |
| Project / Material Storage | 1 | 100 | 100 |
| Project / Material Storage | 1 | 200 | 200 |
| <i>Sub-Total</i> | | | <i>1,700</i> |
| CTE 4 | | | |
| Classroom | 2 | 425 | 850 |
| Production Lab | 1 | 1000 | 1,000 |
| Project / Material Storage | 1 | 200 | 200 |
| <i>Sub-Total</i> | | | <i>2,050</i> |
| Total | | | 15,675 |

| Library | QTY | SQFT | TOTAL |
|--------------------------|-----|------|---------------|
| Library | | | |
| Main Library | 1 | 7800 | 7,800 |
| Office / Workroom | 1 | 450 | 450 |
| A/V and Magazine Storage | 1 | 100 | 100 |
| Head End Room | 1 | 275 | 275 |
| Historic Collecitons | 1 | 100 | 100 |
| General Storage | 1 | 100 | 100 |
| Makerspace | 1 | 525 | 525 |
| <i>Sub-Total</i> | | | 9,350 |
| Communications | | | |
| TV / Video Studio | 1 | 1600 | 1,600 |
| Control / Editing lab | 1 | 150 | 150 |
| Publication Lab | 1 | 450 | 450 |
| Storage | 1 | 100 | 100 |
| Graphics Lab | 1 | 975 | 975 |
| <i>Sub-Total</i> | | | 3,275 |
| Total | | | 12,625 |

| Foodservices | QTY | SQFT | TOTAL |
|---------------------|-----|------|---------------|
| Dining | | | |
| Cafeteria | 1 | 7700 | 7,700 |
| Furniture Storage | 1 | 400 | 400 |
| <i>Sub-Total</i> | | | 8,100 |
| Foodservices | | | |
| Kitchen | 1 | 1600 | 1,600 |
| Serving | 1 | 1450 | 1,450 |
| Office | 1 | 100 | 100 |
| Walk-in Freezer | 1 | 350 | 350 |
| Walk-in Chiller | 1 | 350 | 350 |
| Dry Storage | 1 | 500 | 500 |
| Dish Room | 1 | 600 | 600 |
| Soap Storage | 1 | 50 | 50 |
| Pan Wash | 1 | 50 | 50 |
| Locker / Toilet | 1 | 120 | 120 |
| Receiving | 1 | 225 | 225 |
| <i>Sub-Total</i> | | | 5,395 |
| Total | | | 13,495 |

| Building Services | | QTY | SQFT | TOTAL |
|-------------------------------|--|-----|------|--------------|
| Maintenance/Operations | | | | |
| Receiving | | 1 | 400 | 400 |
| Central Storage | | 1 | 450 | 450 |
| Operations Office | | 1 | 250 | 250 |
| Locker / Showers / Toilets | | 1 | 120 | 120 |
| Security Office | | 1 | 150 | 150 |
| Custodial Closet | | 7 | 60 | 420 |
| Recycling | | 1 | 400 | 400 |
| Outdoor Storage | | 1 | 200 | 200 |
| <i>Sub-Total</i> | | | | 2,390 |
| Toilet | | | | |
| Staff Toilet | | 10 | 50 | 500 |
| <i>Sub-Total</i> | | | | 500 |
| Total | | | | 2,890 |

| Community Space | | QTY | SQFT | TOTAL |
|---|--|-----|-------|--------------|
| Family Resource Suite | | | | |
| Family Resource Room | | 1 | 150 | 150 |
| Office | | 1 | 80 | 80 |
| Toilet | | 1 | 50 | 50 |
| <i>Sub-Total</i> | | | | 280 |
| After School Support | | | | |
| Storage | | 1 | 100 | 100 |
| Pantry | | 1 | 50 | 50 |
| Office | | 1 | 80 | 80 |
| <i>Sub-Total</i> | | | | 230 |
| Services | | | | |
| Pantry | | 1 | 80 | 80 |
| Personal Care | | 1 | 100 | 100 |
| Laundry | | 1 | 100 | 100 |
| Storage | | 1 | 25 | 25 |
| <i>Sub-Total</i> | | | | 305 |
| Community Gathering / Testing Hall | | | | |
| Dividable Testing Hall | | 1 | 4,500 | 4,500 |
| Chair Storage | | 1 | 350 | 350 |
| <i>Sub-Total</i> | | | | 4,850 |
| Total | | | | 5,665 |

APPENDIX

APPENDIX 1:

EVIDENCE-BASED DESIGN PERFORMANCE CRITERIA

Scientists who study the "neuroscience of learning" are finding that certain lighting, acoustics, and spatial relationships support or hinder the learning process. The following criteria should be used when creating optimal learning and teaching environments.

Lighting Quality:

Improving natural and artificial lighting in classrooms

| | DESIGN PARAMETERS | PARAMETER NOTES |
|--|----------------------|----------------------|
| 1) Controlled natural lighting (glazing) | 10 – 12% of floor SF | LEED and Green Globe |
| 2) Artificial light | 35-50 foot-candles | IES |

Environmental and Air Quality:

Addressing temperature control, ventilation, air filtration, carbon dioxide levels, and HVAC background noise to ensure comfortable rooms.

| | DESIGN PARAMETERS | PARAMETER NOTES |
|----------------------------|-----------------------------|---------------------------|
| 1) Winter temperature | 68.5 to 75.5 degrees | EPA 2000 and ASHRAE 55-04 |
| Summer temperature | 74 to 80 degrees | |
| 2) Humidity | 30 to 60% relative humidity | EPA 2000 and ASHRAE 55-04 |
| 3) Air changes | 6-10 per hour | ASHRAE |
| 4) Outdoor air ventilation | 10CFM per person | Plus 0.12 per SF of area |

| | | |
|--------------------------------|------------------------------------|-----------------------------------|
| 5) Air filtration | MERV 13 | LEED |
| | MERV 6 to 8 | ASHRAE 52.2-2007 and 62.1-2007 |
| 6) Carbon dioxide levels | Below 700 PPM above outdoor air | ASHRAE 62.1-2007 |
| | | |
| 7) HVAC background noise level | RC(N) Mark II level of 37 | ASHRAE Handbook Chapter 47 |
| | | |

Acoustics:

Limiting reverberation and background noise and improving sound isolation.

| | DESIGN PARAMETERS | PARAMETER NOTES |
|-----------------------------|---------------------------|--------------------|
| 1) Reverberation | .6 per second | (ANSI S12.60-2002) |
| 2) Background noise | 45 dBA | (LEED) |
| 3) Sound isolation (varies) | STC 45 between classrooms | |

Technology:

Providing data connections for online learning resources, AV equipment, closed-circuit televisions, and a sound system with emergency capabilities.

| DESIGN PARAMETERS | PARAMETER NOTES |
|---|---|
| 1) Data / computer drops | At teacher workstation |
| | At wireless access points |
| 2) Audio / video equipment | |
| Interactive whiteboard | |
| Document cameras | |
| Sound reinforcement | Amplifier, microphone, speakers |
| 3) Clock | Synchronized with bell system |
| 4) Sound system and emergency call-box | |
| ceiling or wall speaker | Class change bells, emergency announcements |
| 5) CCTV camera | |
| Security, WebEx conferencing, distance learning | |

APPENDIX 2:

SAFETY AND SECURITY

ACPS wants to maintain an inviting environment, while simultaneously providing a safe environment for students, staff, and community members who use the facility and adjacent support services. The organization of a building will have a major impact on student behavior and safety concerns.

Building security can be addressed in an active or passive manner: active security is based on security systems; passive security is based on program design, building configuration, and community participation. Schools should be based on passive concepts with applied active concepts where necessary.

The principles of the *Crime Prevention through Environmental Design* (“CPTED”) approach should be followed to incorporate passive safety and security measures. CPTED is the broader approach to safety and security that seeks building designs that encourage desirable behavior, heighten functionality, and decrease antisocial behavior.

There are three main considerations in CPTED:

- Natural surveillance: the capacity to see what is occurring without having to take special steps to do so
- Natural access control: the capacity to limit who and how someone can enter a facility
- Territoriality: the capacity to establish an authority over an environment in who is in charge, who is allowed and who is not welcome.

Building Layout

- ◆ Avoid blind spots, corners, and cubby holes
- ◆ Maintain lines of sight and use openings to create transparency
- ◆ Locate administrative and teacher preparation with good visual contact of major circulation areas (i.e., corridors, cafeteria, bus drop-off, parking)
- ◆ Develop spatial relationships that naturally transition from one location to another
- ◆ Locate toilets in close proximity to classrooms
- ◆ Design toilets to balance the need for privacy with the ability to supervise
- ◆ Locate areas likely to have significant community (after-school) use close to parking and where these areas can be closed off from the rest of the building

Types of Building Materials

- ◆ Use durable wall surfaces and maintainable flooring materials that are easy to clean so graffiti and dirt can be removed
- ◆ Incorporate pitched roofs which inhibit roof entry and are aesthetically pleasing
- ◆ Ensure that operational part of windows on the ground floor are in the upper portion to prevent access
- ◆ Install non-slip floors and walk-off mats at points of entry
- ◆ Use interior glass to create a transparent environment within the school
- ◆ Manage colors, artificial lighting, and natural day lighting artfully to create an environment that is aesthetically pleasing in order to support student and faculty pride in the building.

Uses of Technology

- ◆ Install phones in every instructional and support area
- ◆ Ensure the building-wide all-call is designed to be heard throughout the school and on the play fields when needed
- ◆ Install motion or infra-red detectors, which can also conserve lighting costs
- ◆ Provide video cameras that are used for instructional purposes and can also be used for security purposes during non-school hours
- ◆ Provide smoke and heat detectors throughout the building
- ◆ Install emergency call buttons in large parking areas,
- ◆ Provide magnetic locking systems and carefully selected door hardware to facilitate lock downs as needed
- ◆ Give consideration to zoning the building for non-school-day uses in terms of both energy efficiency and security: lighting zones, securable zones, and mechanical zones

Visitor Management

- ◆ The front entry lobby should be welcoming and inviting for students, staff, and visitors with a central visitor registration area prominent upon entry
- ◆ Clear way-finding signage should be included that directs visitors upon campus arrival to visitor registration and directs them throughout the building to provide overall guidance,
- ◆ A secured double vestibule or a video-enabled front entry intercom buzzer system should be provide to manage visitor entry
- ◆ Front lobby and exterior displays should be provided for communicating school messages

Vehicular and Pedestrian Traffic

- ◆ Separate bus drop-off area from other vehicular traffic
- ◆ Separate staff and community parking area
- ◆ Separate student (pedestrian) traffic flow

Landscaping, Play / Practice Fields, Site, and Lighting

- ◆ Use native high trees and low bushes (less than three feet high) to deter hiding
- ◆ Use aesthetically pleasing fencing around building perimeter
- ◆ Provide non-intrusive lighting in all areas (not correctional-type lighting) according to the Light Pollution Credit in LEED-Ss with no lighting to leave property line
- ◆ Provide security lighting around building and parking lots with photocell timer, motion sensor, and on / off capacity

APPENDIX 3:**COMMUNITY USE OF SCHOOL**

Community involvement in education and educational involvement in the community can take a variety of forms before, during, and after the school day. Following is a partial list of potential community uses:

- ◆ Touring groups
- ◆ Speech / debate clubs
- ◆ After-school youth enrichment
- ◆ Adult education
- ◆ Community meetings
- ◆ Mentoring programs
- ◆ Parent involvement
- ◆ School / business partnerships
- ◆ Alternative education programs
- ◆ Dance studios
- ◆ Community athletics
- ◆ Recreation programs
- ◆ Health screenings
- ◆ Senior citizen programs
- ◆ Intramural sports programs
- ◆ Child care (staff, student, community)
- ◆ Voting
- ◆ Emergency shelter

Based on limitations established for the size of the facility and budget constraints, most of the community uses will likely need to focus on shared space that is used primarily for school programs during the school day and community uses during non-school hours. Priorities need to be established at the local site level to determine future community activities that may be added in order to be incorporated in the overall master plan.

Even within these constraints, opportunities exist. The areas that have the greatest possibility for community usage include:

- ◆ Performance / meeting area
- ◆ Library / media center
- ◆ Play fields
- ◆ Computer labs
- ◆ Conference rooms
- ◆ Multipurpose room/gym,
- ◆ Cafeteria

Consideration should be given to furniture and equipment selection for shared uses by students, very young children, and adults. The facility and site should be configured and zoned to enhance parking and circulation, security, and energy conservation. Adequate signage to assist community members should be provided and auxiliary storage needs to be made available for community programs

Collaboration and partnership require greater cooperation in the planning of schools and community facilities. It is important for the school ACPS Division, governmental agencies, and corporate partnerships to participate collaboratively in the planning of schools.

Planning for future schools should include joint-use considerations at the beginning of the process. School Divisions and governmental agencies are beginning to realize that cooperation is needed, especially considering the ever-shrinking budgets and the desire to meet the community's diverse needs. There are potential opportunities in jointly developing parks, libraries, and one-stop shopping centers for human services. Partnerships and joint ventures should be considered and are encouraged by the board of education.

APPENDIX 4:

ENERGY AND ENVIRONMENTAL DESIGN

There is a high interest in using school buildings as teaching tools to teach environmental stewardship and awareness, while simultaneously providing engaging environments for students, staff, and community who use the facilities. The organization, understanding, and use of school buildings will have a major impact on student and staff conservation behavior.

The sustainable design and green features of any building can be addressed in an active or a passive manner: active interaction is based on digital displays, educational features and curriculum-integrated learning about environmental issues; passive interaction is based on the program design, building configuration, green building features, and energy efficient building automation.

Passive Concepts

Building Layout

- ◆ Concentrate daylight and views to the outside on areas of frequent human interaction (e.g., classrooms, cafeterias, media center, art rooms, music rooms) with passive solar design
- ◆ Avoid excessive window areas in corridors, lobbies, and hallways with no gathering opportunities (design for less than 45% of wall area)
- ◆ Avoid skylights and use roof monitors with vertical glazing instead

Types of Building Materials

- ◆ Use durable wall surfaces that are easy to clean
- ◆ Design for cleanability with easy and safe access
- ◆ Incorporate light-colored pitched roofs to prevent heat gain and leakage
- ◆ Install high performance walk-off mats at all points of entry
- ◆ Design with noise abatement in mind

Uses of Technology

- ◆ For instructional and administrative purposes, the new school should have extensive technology systems. These same infrastructures and technology components can be used to enhance the perception of the building's environmental components. A digital display of the building's energy and water use can be displayed at the entrance and in the cafeteria
- ◆ Website with environmental features of the school should be made available
- ◆ Use only vacancy sensors for classrooms, cafeteria, etc. to turn off (not on) lighting
- ◆ Provide daylight sensors and dimming in larger areas (cafeteria, multi-purpose rooms, etc.)

Vehicular and Pedestrian Traffic

- ◆ Provide sufficient, covered, and secured bicycle storage
- ◆ Provide bicycle lanes to the building from all major access directions

Landscaping, Play / Practice Fields, Site, and Lighting

- ◆ Use native high trees and low bushes and ground covers and locate to provide shade to the building
- ◆ Use on-intrusive lighting of all areas (not correctional-type lighting) according to the Light Pollution Credit in LEED-S with no lighting to leave property line

Green Curriculum

- ◆ Provide outdoor classroom area
- ◆ Design interior with sense of building's orientation to north – east – south – west

Active Concepts

Building Layout

- ◆ Provide signage to educate users about interior and exterior green building features throughout
- ◆ Provide signage for user behavior modification, e.g., ACPS policy for thermostat settings, reminders to turn equipment off when not in use
- ◆ Provide visitor map with floor plan for location and explanation of green building features

Types of Building Materials

- ◆ Provide view window to inside of wall constructions and mechanical room
- ◆ Provide materials with environmental message in selective areas, e.g. 100% recycled post-consumer plastic toilet compartments, wheat board cabinets, or furniture made of wood harvested from school site, and explain with signage.

Uses of Technology

- ◆ For instructional and administrative purposes, the new school should have extensive technology systems. These same infrastructures and technology components can be used to enhance the perception of the building's environmental components.
- ◆ Provide green morning announcement with update on energy and water use
- ◆ Encourage student-conducted energy audits
- ◆ Provide school-based resource conservation program with frequent feedback to users

Vehicular and Pedestrian Traffic

- ◆ Provide preferred parking for ACPS Green Fleet (for carpooling and fuel-efficient vehicles)

Landscaping, Play / Practice Fields, Site, and Lighting

- ◆ Use native high trees and low bushes (less than three feet high) to deter hiding
- ◆ Use aesthetically pleasing fencing around perimeter of the building

- ◆ Provide non-intrusive lighting in all areas (not correctional-type lighting) according to the Light Pollution Credit in LEED-S with no lighting to leave property line
- ◆ Reference the Alexandria City Landscaping Guidelines when providing landscaping.

Green Curriculum

- ◆ LEED-credit Schools as a Teaching Tool requires 10 hours of instruction per student, grade, and school year on environmental issues related to the school building. The school building's design should support this requirement wherever possible.



Long Range Educational Facilities Plan – Second Phase Work Group Kick-Off Meeting

LOCATION: ACPS Central Office – School Board Meeting Room

DATE: January 30, 2017

TIME: 6:00pm – 7:30 pm

AGENDA

1. Welcome / Introduction of Members
2. Presentation of LREFP Phase II & Next Steps
3. Discussion Questions
 - Are there additional members or certain organizations you feel should be included on the Work Group who are not already?
 - For those involved in the initial process, what are some lessons learned or successes of the first phase?
 - What are some specific outcomes you are hoping to accomplish with the second phase of the LREFP?
 - How can we keep the community engaged throughout the process?

DOCUMENTS

- Pre-K Center Educational Specifications (June 2016)
- High School Educational Specifications (January 2017)
- Long Range Educational Facilities Plan (June 2015)

Every Student Succeeds



Long Range Educational Facilities Plan – Second Phase Work Group Kick-Off Meeting Notes

LOCATION: ACPS Central Office – School Board Meeting Room

DATE: January 30, 2017

TIME: 6:00pm – 7:30 pm

Work Group Members Present: Board Chair Ramee Gentry, Board Member Karen Graf, Vice-Mayor Justin Wilson, Dr. Tammy Mann, John Lennon, Joy Cameron, Judy Noritake, Chris Hartman, Kathy Stenzel, Mark Eisenhour

Staff/Consultant Presenters: Erika Gulick (ACPS), Katherine Carraway (CoA)

Staff presented on background information and the process going forward. The Work Group recommended adding the following stakeholders to the group:

- Involved teacher or parent engaged in the long range planning process
- Representative from alternative education programs
- Representative from NOVA Community College
- Representative from the Early Care and Education Work Group
- Representative from diverse population

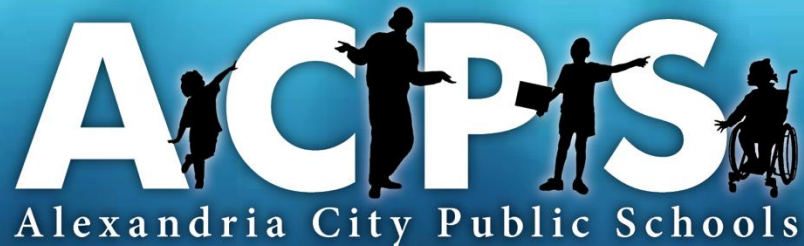
The Work Group reviewed the schedule and requested that the next meeting focus on enrollment projections and capacity. The Work Group also recommended that meetings be added to the schedule to allow adequate time to be devoted to the process and that a formal schedule be produced. It was recommended that meetings be held on both sides of the City to allow for a wider community to be engaged. Going forward, the Work Group recommended that creative solutions to school capacity issues continue to be explored throughout the process.

Every Student Succeeds

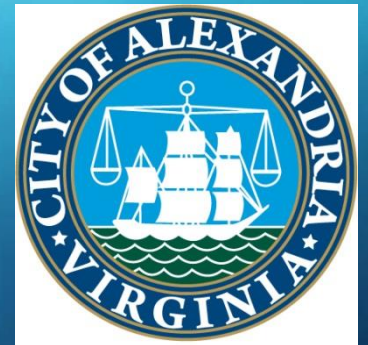
Long Range Educational Facilities Plan Phase II

Work Group Kick-Off Meeting

January 30, 2017



Every Student Succeeds



Essential Questions

1. What is the Long Range Educational Facilities Plan (LREFP) and what will the second phase include?
2. Who makes up the LREFP Work Group and what is your role?
3. How will the first phase of the LREFP and educational specifications (Ed. Specs.) be used in the second phase?
4. What are the current enrollment projections influencing the LREFP?
5. How does the proposed CIP influence the LREFP?
6. What will be the product of the second phase of the LREFP?
7. What are the next steps?

Introduction

June 2015

Joint Alexandria City Public Schools/City of Alexandria

Long Range Educational Facilities Plan



- The Long Range Educational Facilities Plan (LREFP) outlines options for providing educational facilities to meet the capacity needs using the ACPS School Board approved educational specifications (Ed. Specs.) as a guide. This is intended to be a living document which is updated on a regular basis.
- The plan is developed as a joint effort between Alexandria City Public Schools (ACPS) and the City of Alexandria (City) with the Work Group's input and overall community involvement.
- ACPS and the City completed the first phase which included elementary and middle schools in the Summer of 2015.

*Endorsed by City Council, June 23, 2015
Adopted by ACPS School Board, June 11, 2015*



LREFP Phase II

Over the past year, ACPS has developed and the School Board has approved the Pre-K Center Ed. Specs. and the High School Ed. Specs to serve the second phase of the LREFP. The second phase of the LREFP will:

- Look at the current pre-k and high school facilities ACPS is providing and assess their functionality compared to our Educational Specifications
- Include enrollment projections and future needs at the pre-k and high school levels
- Analyze fiscal constraints and proposed capital projects and their viability

Who Are You?

- The LREFP Work Group is comprised of members of the School Board, City Council, representatives of our partners and community members representing different issues.
- The role of the LREFP Work Group is to review the developments throughout the process of the second phase, offer input to the document and engage the community in the process.



Documents to Be Incorporated

We will be using the following documents as guides throughout this process:

- **LREFP (First Phase)** – Approved in 2015, the LREFP offers a substantial amount of information and framework for the second phase of the document. Some of the information that will be pertinent to the second phase are the enrollment projections, fiscal challenges and high school profile pages.
- **Pre-K Center Ed. Specs.** – In July 2016, the School Board approved the Ed. Specs. to be used to guide future pre-k projects. Some main characteristics are that it promotes a school size of about 360 students, or 20 classrooms, and focuses on minimizing transitions and active play.
- **High School Ed. Specs.** – In January 2017, the School Board approved the Ed. Specs. to guide future high school projects and assess current high school conditions. Some main characteristics are that it promotes a school size of about 1,600 students and provides a facility which supports teacher and student collaboration.

High School Enrollment

ACPS High School enrollment has grown by approximately 900 students over the last ten years:

| | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 |
|-------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Total High School Enrollment | 2,867 | 3,010 | 2,936 | 3,052 | 2,957 | 3,132 | 3,284 | 3,473 | 3,594 | 3,754 |
| Total High School Capacity | 3649 | 3649 | 3649 | 3649 | 3649 | 3649 | 3649 | 3649 | 3649 | 3649 |
| Utilization | 79% | 82% | 80% | 84% | 81% | 86% | 90% | 95% | 98% | 103% |

Below are the enrollment projections for high school for the next 10 years, indicating a continuation of this growth:

| | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 |
|-------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Total High School Enrollment | 3,944 | 4,056 | 4,200 | 4,425 | 4,698 | 4,924 | 4,906 | 4,797 | 4,652 | 4,629 |
| Total High School Capacity | 3649 | 3649 | 3649 | 3649 | 3649 | 3649 | 3649 | 3649 | 3649 | 3649 |
| Utilization | 108% | 111% | 115% | 121% | 129% | 135% | 134% | 131% | 127% | 127% |

Pre-K Enrollment

Currently, pre-k enrollment is not projected; this is something we are hoping to accomplish as part of the LREFP phase II process to determine the actual pre-k need of Alexandria. Below is a chart showing pre-k currently offered in ACPS facilities.

| School | Early Childhood Special Education | | ACPS Virginia Preschool Initiative | | HeadStart | | Early HeadStart | | Partner Virginia Preschool Initiative | | Total Capacity |
|-------------------|-----------------------------------|------------|------------------------------------|------------|-------------|------------|-----------------|-----------|---------------------------------------|-----------|----------------|
| | Sections | Capacity | Sections | Capacity | Sections | Capacity | Sections | Capacity | Sections | Capacity | |
| William Ramsay | | | 2 | 32 | | | | | | | 32 |
| John Adams | 9 ^{*^} | 90 | 3 | 48 | 4 | 74 | | | 1 | 18 | 230 |
| Patrick Henry | | | 6 | 96 | 3 | 60 | | | | | 156 |
| Cora Kelly | 1 [*] | 6 | | | 2 | 36 | | | 1 | 18 | 60 |
| Charles Barrett | 2 | 24 | | | | | | | | | 24 |
| Jefferson Houston | 4 | 48 | 1 | 16 | 4 | 78 | | | | | 142 |
| George Washington | | | | | 1.5 | 23 | 3 | 24 | 0.5 | 9 | 56 |
| TC Williams | | | | | | | 3 | 24 | | | 24 |
| Totals | 16 | 168 | 12 | 192 | 14.5 | 271 | 6 | 48 | 2.5 | 45 | 724 |

* 1 full day autism class, ^ 2 classes located at Fairlington preschool

CIP Projects

Projects currently being pursued as part of ACPS's CIP related to high school and pre-k include the following:

- Partnering with NOVA Community College for an early college program at the high school level.
- Renovation of a wing at John Adams Elementary School to provide a pre-k center at John Adams for about 360 students to accommodate the pre-k sections currently at John Adams and Patrick Henry to be completed in FY 2019.
- New high school capacity on the Minnie Howard campus to accommodate approximately 1,600 students for a total capacity addition of 717* seats to tentatively be completed in FY 2023.
- Second pre-k center for 360 students at a location to be determined to be completed in FY 2027.

* Current capacity of Minnie Howard is 883, if replaced with a 1,600 capacity school we would be adding 717 seats.

End Deliverables

The second phase of the LREFP will include recommended plans for future pre-k and high school demand as well as updates to the following sections of the LREFP as they relate to pre-k and high school:

- Enrollment Trends and Forecasting
- Mini Master Plans, as needed, to include school-specific recommendations for high school and pre-k
- Fiscal Challenges

T.C. WILLIAMS: KING STREET CAMPUS

3801 West Braddock Road, Alexandria, VA 22302

| AT A GLANCE... | | |
|--------------------|---------------------|-------------------------------------|
| Year Built | 2007 | Floor Area Permitted by Zoning (SF) |
| Current Floor Area | 461,147 | 547,000 |
| Zoning | R-20 (032.04-09-08) | Floor Area Ratio |
| Lot Size (acres) | 25.6 | 0.51* |

T.C. Williams: King Street Campus was not included in the educational adequacy analysis.

BACKGROUND

T.C. Williams is Alexandria's only high school. There are two campuses. The Minnie Howard Campus serves grade 9 and the King Street Campus serves grades 10-12. The King Street building is a state of the art facility that opened in 2007 and provides smaller learning communities as well as flexible academic space capable of meeting the evolving secondary school curriculum requirements. In Fall 2008, the second phase was complete and included an artificial turf sports field, renovated stadium, new athletic track, new playing field, new bus driveway, and a two story parking garage. The high school received a LEED Gold rating. The academic curriculum includes 188 courses. Special academic programs includes Academy of Finance, Advanced Placement/Honors, English as a Second Language, Special Education/Inclusion Program, STEM Academy and Vocational Programs.



SCHOOL SITE

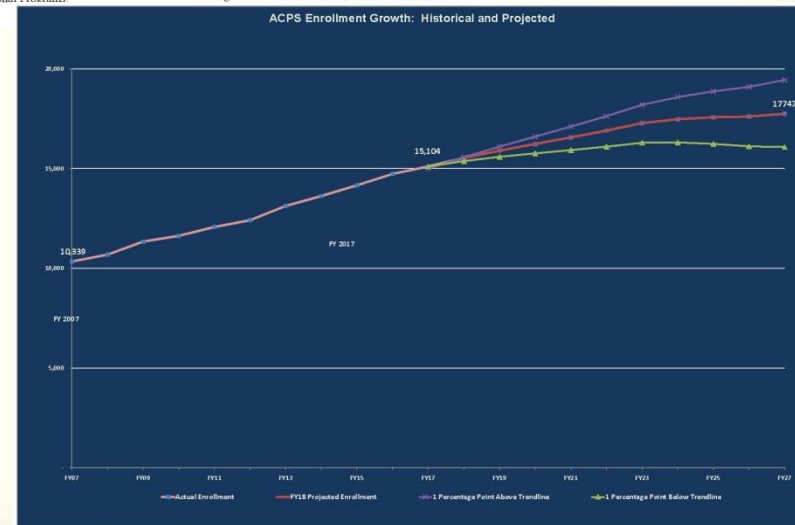
The King Street campus includes high school football field and a six lane track. Six tennis courts are currently under construction and are expected to open spring 2015. Adjacent to the school is Chiquapan Park. Features of the park include athletic fields, basketball courts, garden plots, a picnic area and playground, tennis courts and a wooded area.



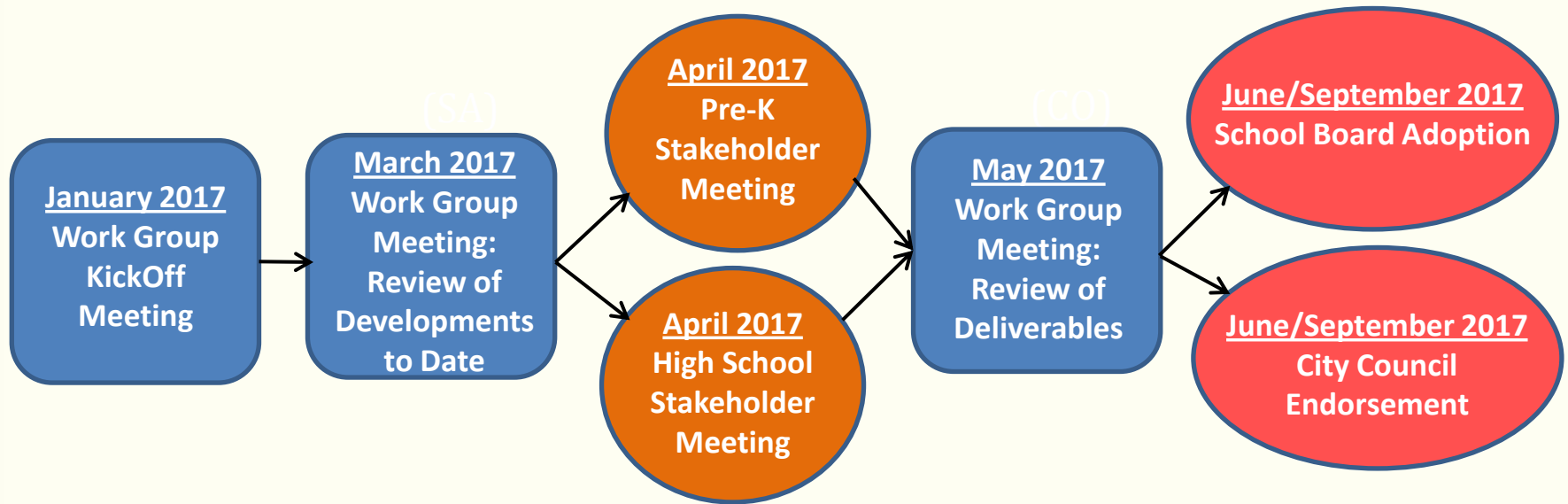
RECOMMENDATION

The high schools were not included in the educational

TERRACON



Next Steps



Schedule is tentative and subject to change.

Discussion

Are there additional members or certain organizations you feel should be included on the Work Group who are not already?

For those involved in the initial process, what are some lessons learned or successes of the first phase?

What are some specific outcomes you are hoping to accomplish with the second phase of the LREFP?

How can we keep the community engaged throughout this process?

Contact Information

Katherine Carraway

Urban Planner

(703) 746-3855

katherine.carraway@alexandriava.gov

Erika Gulick

Facilities Planner/GIS Specialist

(703) 619-8298

erika.gulick@acps.k12.va.us

Please also sign up for our LREFP e-mail bank to receive updates [here](#).



Long Range Educational Facilities Plan – Second Phase Work Group Meeting #2

LOCATION: Patrick Henry Elementary School: Cafeteria

DATE: March 2, 2017

TIME: 7:00 pm – 8:30 pm

AGENDA

1. Welcome / Introduction of Members
2. Review of January 30th Meeting Notes
3. Enrollment Projections & Capacity
 - a. Process
 - b. City-Wide Forecast
 - c. Enrollment Projections
 - d. Capacity

Long Range Educational Facilities Plan Phase II

Work Group Meeting: Enrollment & Capacity

March 2, 2017



Every Student Succeeds

Agenda

- Overview of Enrollment Projection Process (City)
- City-Wide Forecast (City)
- Enrollment Projections (ACPS)
 - Division-Wide Projections and Model Adjustments
 - High School Projections
 - Pre-K Projections
- Deriving Capacity from School Board Approved Educational Specifications (B&D)
- Current T.C. Williams Capacity Analysis (B&D)
- Current Pre-K Capacity Analysis(ACPS)
- Summary (ACPS)
- Next-Steps (ACPS)

Essential Questions

- What was the original process for developing the enrollment projections?
- What are the projections for Alexandria?
 - City-Wide?
 - School Division-Wide?
 - High School?
 - Pre-K?
- How is capacity calculated for our schools and how is it used?
- How do our current capacities compare with our current and projected enrollment for high school and pre-k?

Collaboration Between the City and ACPS



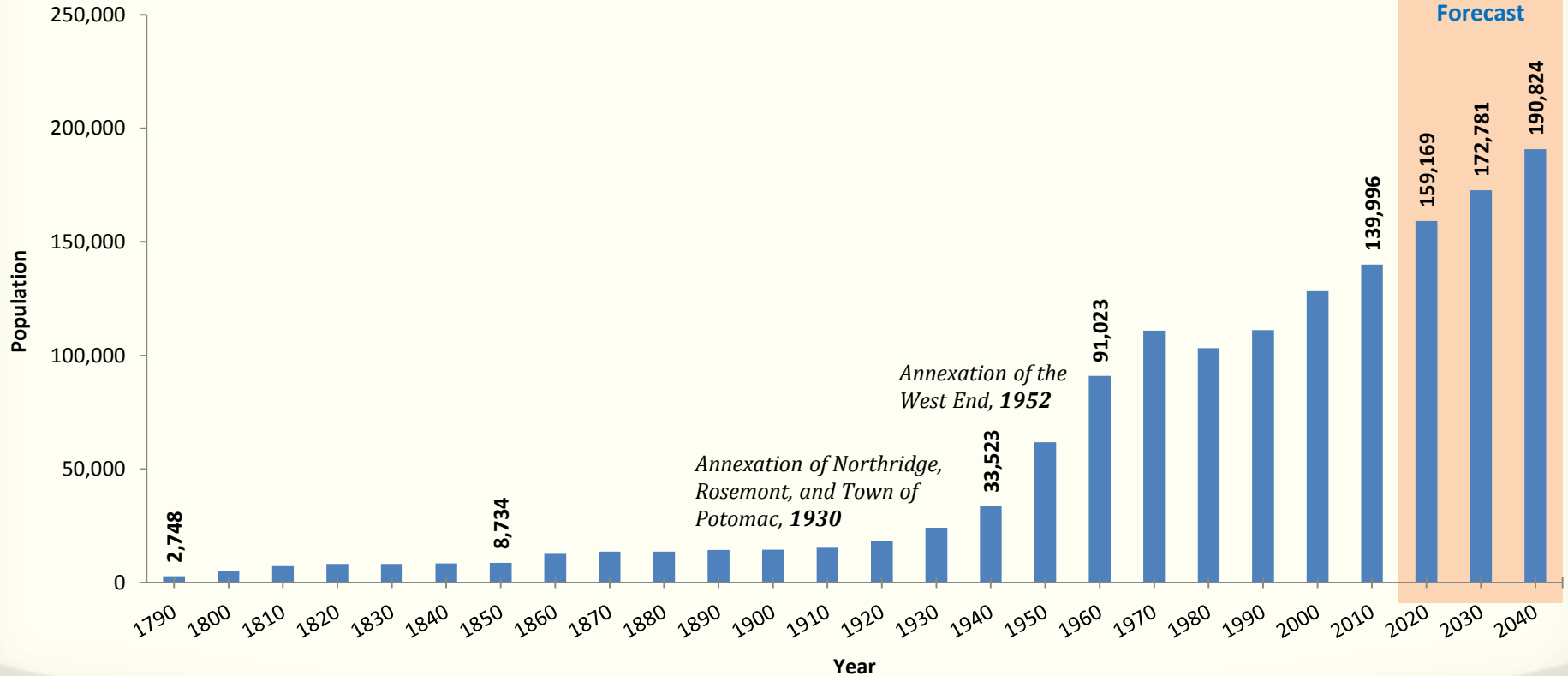
Collaboration with Planning & Zoning

- The Department of Planning & Zoning (P&Z) maintains several data sources useful to the student enrollment forecast:
 - Population estimates
 - Demographic data
 - Future residential development
 - Student generation rates

Population Forecasts and Demographics

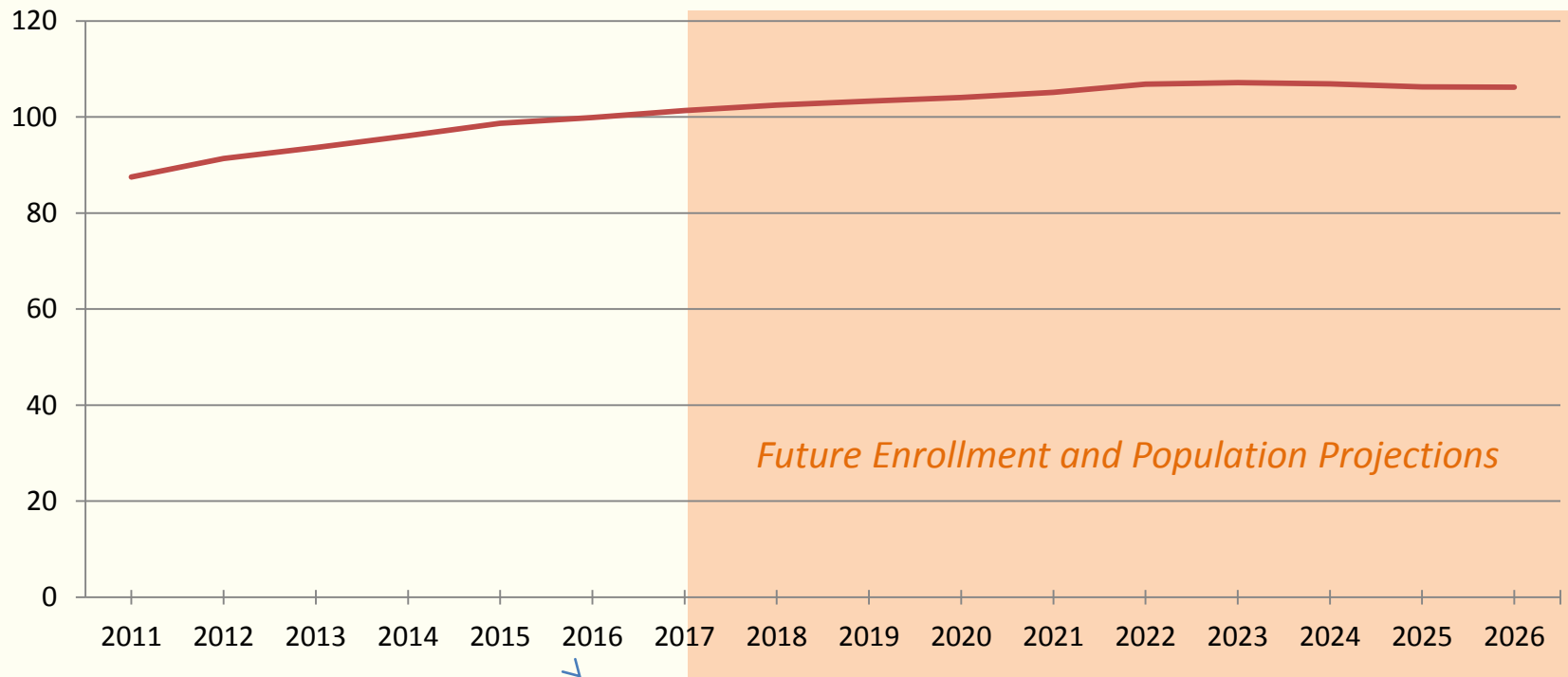
City of Alexandria Population

Based on U.S. Census Bureau Estimates (1790-2010)
 Planning & Zoning Forecasted Values (2020-2040)



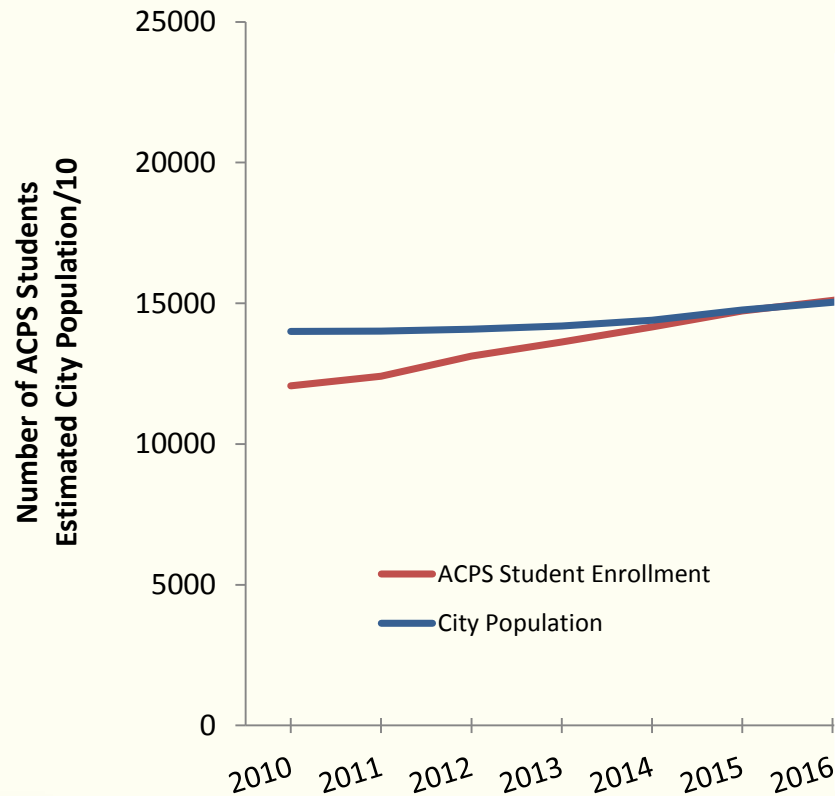
Population Forecasts and Demographics

ACPS Students per 1000 Residents



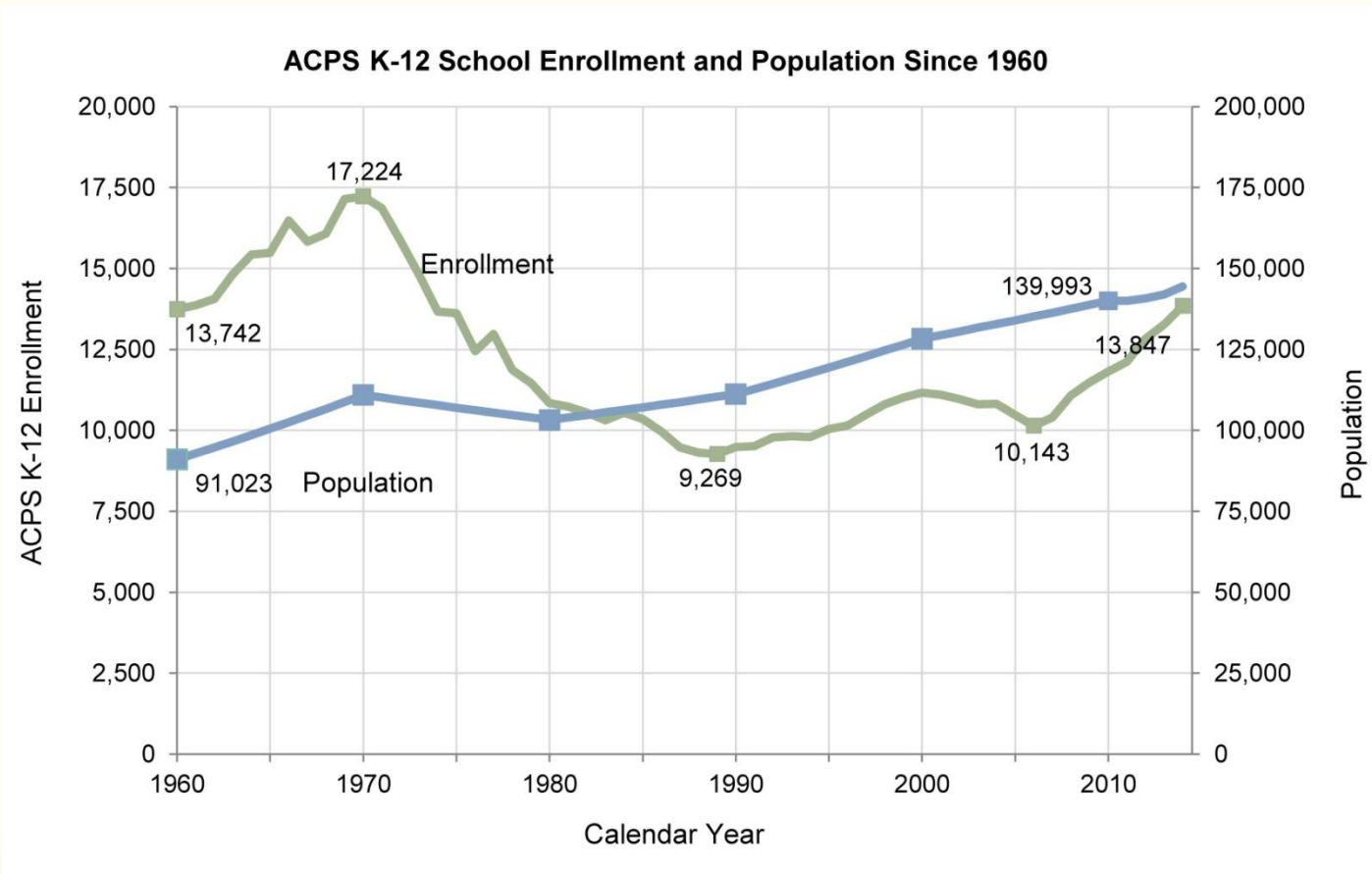
Population Forecasts and Demographics

ACPS Enrollment and City Population Growth



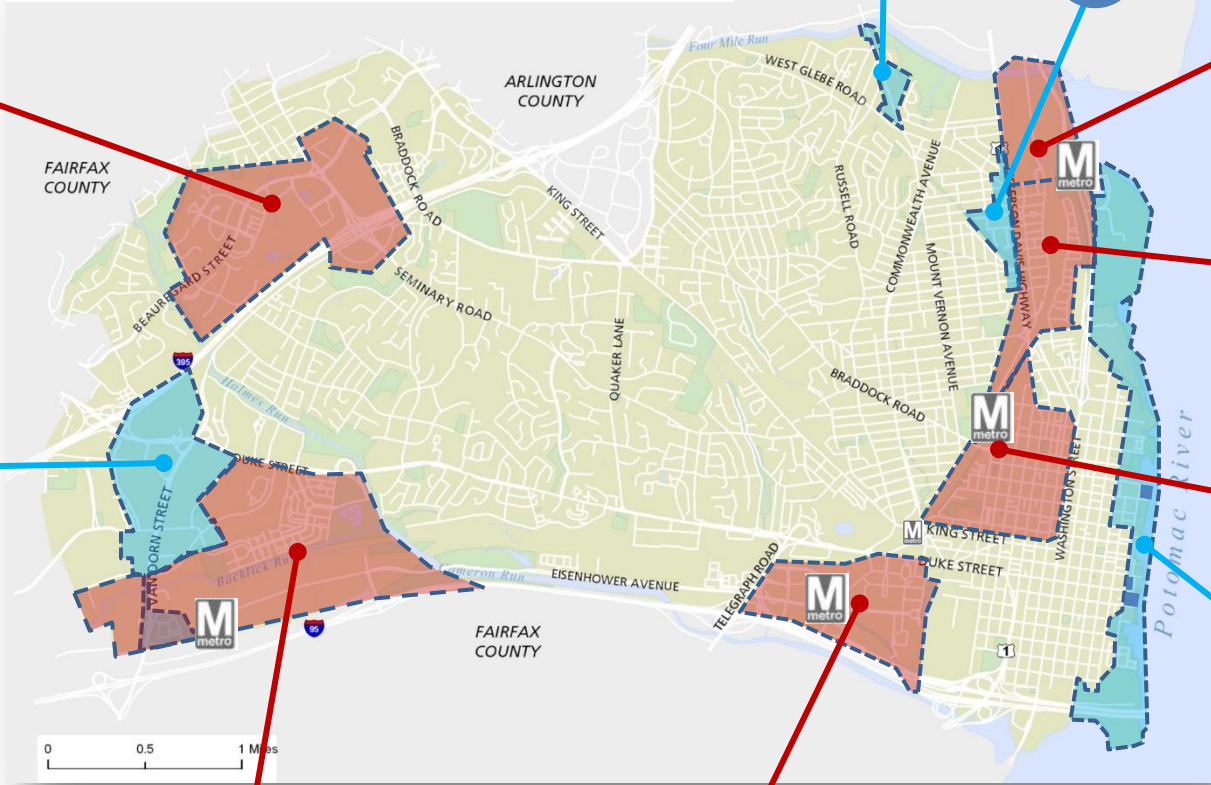
- ACPS enrollment has grown at a faster rate than estimated population growth.
- Since the 1980's the city's population has grown at a rate of approximately 1% a year while ACPS has been growing at an annualized rate of 2.8% since 2010.

Population Forecasts and Demographics

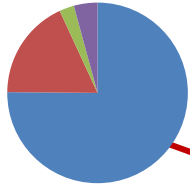


Future Development

Growth Capacity in Recently Adopted Plans



Beauregard



9.7 million sf

Arlandria

1.7 million sf

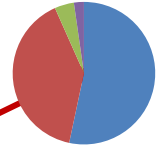


Oakville/Rt 1

2.8 million sf

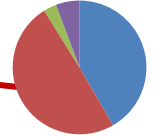


Potomac Yard North 1



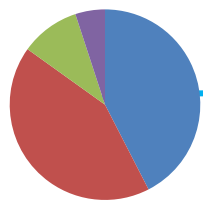
7.5 million sf

Potomac Yard South



3.8 million sf

Landmark/Van Dorn



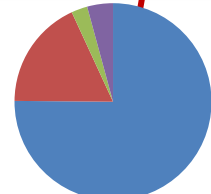
13.9 million sf

Braddock Metro



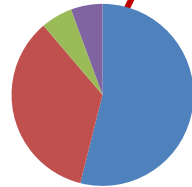
3.6 million sf

Eisenhower West



9.3 million sf

Eisenhower East

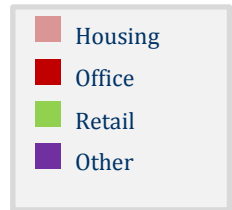


8.9 million sf

Waterfront



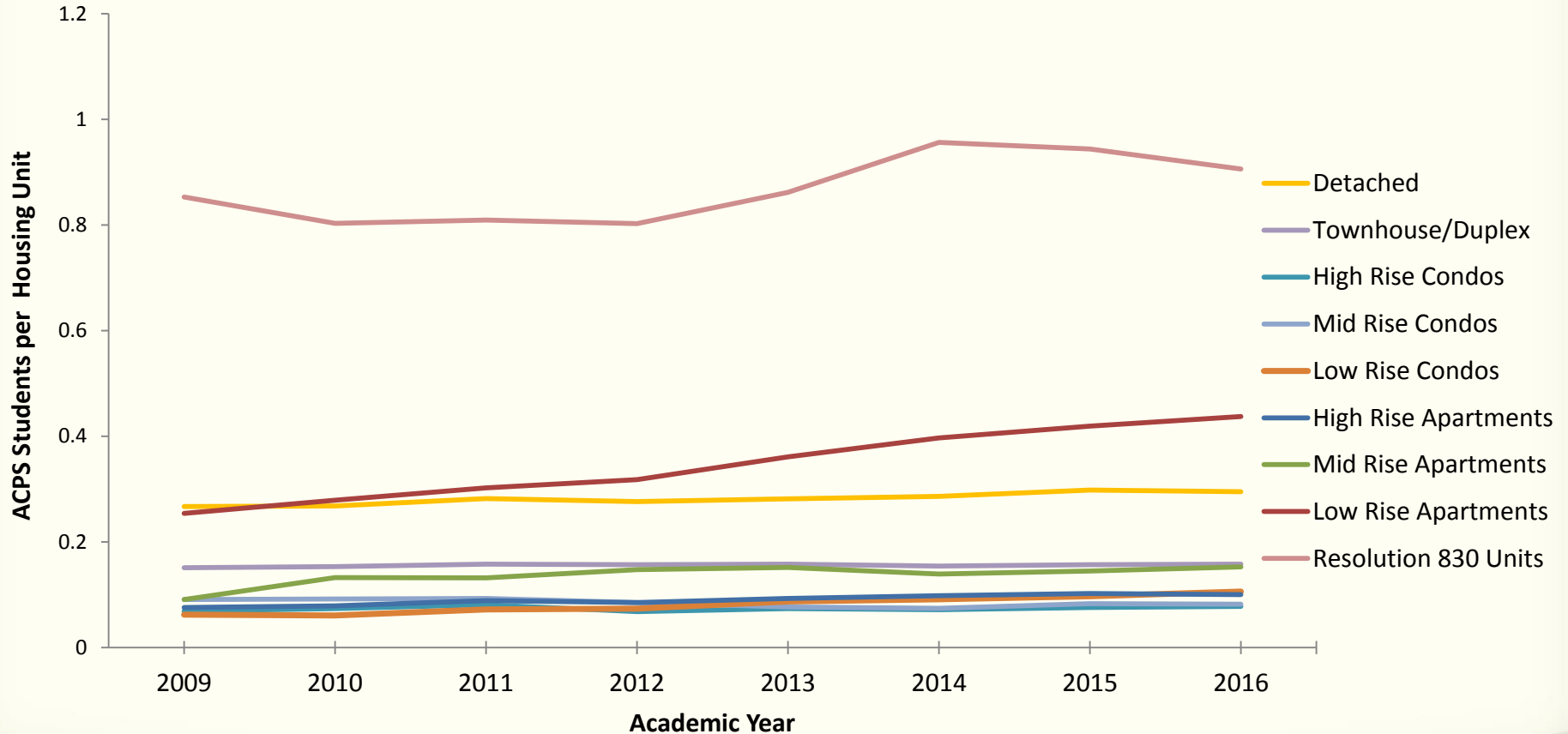
800,000 sf



Land use mixes are flexible; charts show one potential mix.

Student Generation Rates

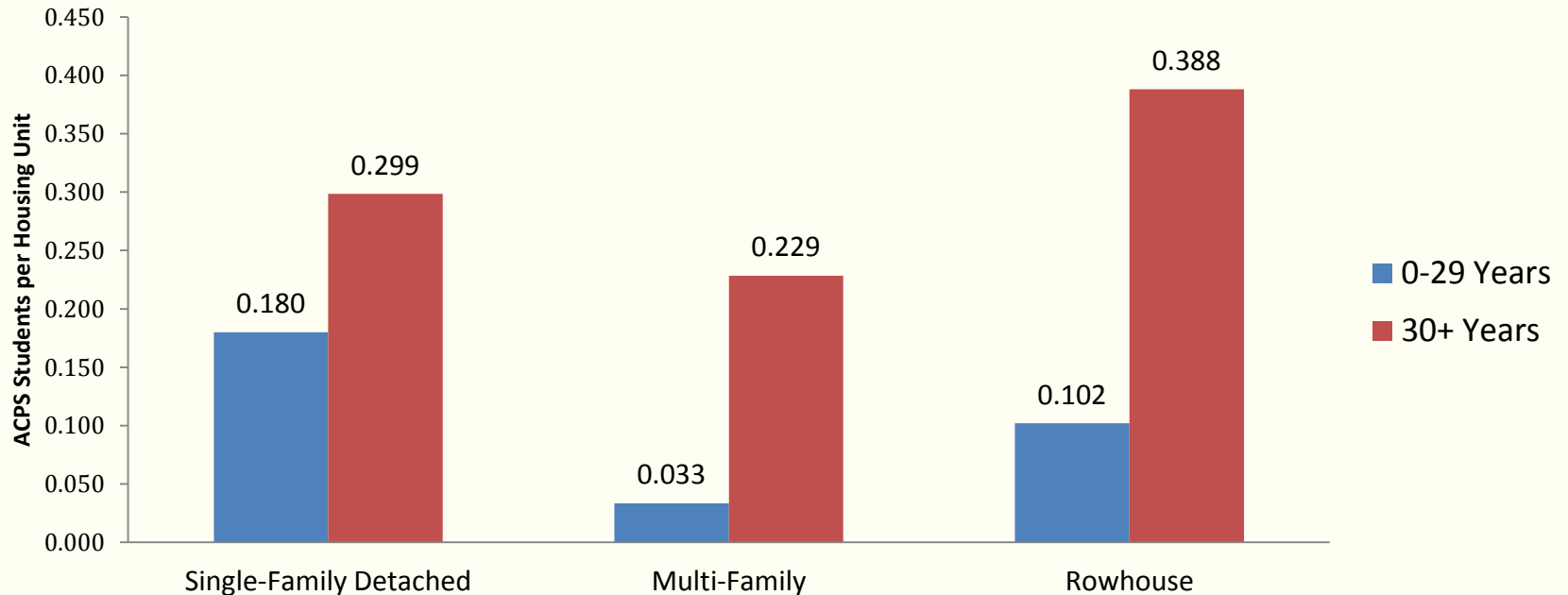
ACPS Student Generation Rates by Housing Type and Year



Student Generation Rates

ACPS Student Generation Rates by Unit Type and Age of Unit

Academic Years 2014-15, 2015-16, and 2016-17



Enrollment Projections: Division-Wide

- ACPS total enrollment grew by 386 students this past year or roughly 2.6% from October 2015, 14,670 students to October 2016, 15,056 students.
- The projections for the 2016-2017 school year were 15,199, indicating projections were 99% accurate.
- Several adjustments were made to the enrollment model to account for more recent trends in growth:
 - Changing escalation factor at elementary levels
 - Three year K capture rate average
 - Adjusting birth rate projections to include more recent data
- Next year we are projecting 15,522 students, a growth of 417 students or 2.8% from this year

Enrollment Projections: Division-Wide

| School | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2027-2028 |
|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Charles Barrett | 485 | 508 | 515 | 520 | 522 | 534 | 538 | 536 | 543 | 553 | 559 |
| Cora Kelly | 410 | 427 | 437 | 455 | 457 | 472 | 462 | 459 | 466 | 469 | 475 |
| Douglas MacArthur | 704 | 708 | 697 | 685 | 696 | 684 | 703 | 711 | 724 | 734 | 744 |
| George Mason | 555 | 561 | 565 | 560 | 562 | 556 | 569 | 588 | 589 | 601 | 612 |
| James K. Polk | 773 | 800 | 807 | 825 | 852 | 854 | 848 | 839 | 852 | 862 | 874 |
| Jefferson-Houston | 410 | 429 | 438 | 470 | 499 | 499 | 504 | 509 | 515 | 521 | 528 |
| John Adams | 994 | 1026 | 1031 | 986 | 974 | 954 | 989 | 995 | 1009 | 1033 | 1041 |
| Lyles-Crouch | 436 | 422 | 416 | 404 | 414 | 403 | 410 | 419 | 424 | 430 | 436 |
| Matthew Maury | 417 | 419 | 409 | 419 | 416 | 418 | 429 | 424 | 430 | 437 | 441 |
| Mount Vernon | 881 | 857 | 844 | 842 | 857 | 871 | 887 | 899 | 911 | 924 | 938 |
| Patrick Henry | 653 | 641 | 651 | 657 | 668 | 664 | 658 | 667 | 660 | 661 | 670 |
| Samuel Tucker | 790 | 771 | 754 | 778 | 785 | 822 | 838 | 859 | 884 | 893 | 908 |
| William Ramsay | 908 | 904 | 876 | 889 | 875 | 910 | 915 | 947 | 969 | 994 | 1010 |
| Elementary School Total | 8416 | 8473 | 8440 | 8490 | 8577 | 8641 | 8750 | 8852 | 8976 | 9112 | 9236 |
| George Washington | 1333 | 1430 | 1510 | 1550 | 1550 | 1544 | 1544 | 1575 | 1569 | 1586 | 1594 |
| Francis Hammond | 1409 | 1468 | 1576 | 1574 | 1525 | 1492 | 1560 | 1620 | 1694 | 1712 | 1736 |
| Jefferson-Houston | 144 | 158 | 190 | 203 | 205 | 221 | 253 | 275 | 275 | 275 | 276 |
| Patrick Henry | 0 | 0 | 75 | 156 | 221 | 214 | 195 | 194 | 207 | 219 | 223 |
| Middle School Total | 2886 | 3056 | 3351 | 3483 | 3501 | 3471 | 3552 | 3664 | 3745 | 3792 | 3829 |
| Minnie Howard Center | 811 | 819 | 797 | 859 | 955 | 1044 | 977 | 866 | 885 | 919 | 945 |
| TC Williams HS | 2943 | 3125 | 3259 | 3341 | 3470 | 3654 | 3947 | 4040 | 3912 | 3733 | 3684 |
| High School Total | 3754 | 3944 | 4056 | 4200 | 4425 | 4698 | 4924 | 4906 | 4797 | 4652 | 4629 |
| TOTAL ENROLLMENT | 15056 | 15473 | 15847 | 16173 | 16503 | 16810 | 17226 | 17422 | 17518 | 17556 | 17694 |

Outlined in red are actual final enrollment numbers from October 2016.

NOTE: Elementary includes ACPS pre-k student enrollment.

High School Projections

While the entire school division's enrollment grew by **2.6%** from last year to this year, high school student enrollment grew by **4.5%**.

| School Name | Grade | 16-17 | 17-18 | 18-19 | 19-20 | 20-21 | 21-22 | 22-23 | 23-24 | 24-25 | 25-26 | 26-27 |
|---|-------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| T.C. Williams: Minnie Howard | 9 | 811 | 819 | 797 | 859 | 955 | 1044 | 977 | 866 | 885 | 919 | 945 |
| T.C. Williams: Minnie Howard | | 811 | 819 | 797 | 859 | 955 | 1044 | 977 | 866 | 885 | 919 | 945 |
| T.C. Williams: King Street | 9 | 266 | 269 | 262 | 283 | 314 | 343 | 321 | 285 | 291 | 302 | 310 |
| | 10 | 1022 | 1119 | 1130 | 1100 | 1186 | 1318 | 1441 | 1348 | 1196 | 1222 | 1268 |
| | 11 | 883 | 929 | 1017 | 1027 | 1000 | 1078 | 1198 | 1310 | 1226 | 1087 | 1111 |
| | 12 | 772 | 808 | 850 | 931 | 970 | 915 | 987 | 1097 | 1199 | 1122 | 995 |
| T.C. Williams: King Street Total | | 2943 | 3125 | 3259 | 3341 | 3470 | 3654 | 3947 | 4040 | 3912 | 3733 | 3684 |
| Grand Total | | 3754 | 3944 | 4056 | 4200 | 4425 | 4698 | 4924 | 4906 | 4797 | 4652 | 4629 |

NOTE: Projections for 9th grade are calculated in total and then split between the two campuses based on the prior year's break-down.

Pre-K Projections

Historically, pre-k projections have not been performed as ACPS and partners provide as much space as possible throughout the City and often have wait-lists.

The state uses the following formula for projecting disadvantaged four-year olds to determine the amount of Virginia Preschool Initiative (VPI) slots to fund for a given municipality:

| | | | | | | |
|-------------------------------|----------|-------------------------------------|----------|----------------------------------|----------|------------------------------|
| Total Kindergarten Enrollment | X | Division-Wide Free Lunch Percentage | - | Slots Provided Through HeadStart | = | Potentially Funded VPI Slots |
|-------------------------------|----------|-------------------------------------|----------|----------------------------------|----------|------------------------------|

Pre-K Projections

Using the state’s formula, historical ACPS free lunch percentage data and projected K enrollment, projected disadvantage four year olds throughout the City is:

| | | | | |
|--|----------|--|----------|---|
| Total Kindergarten Enrollment | X | Division-Wide Free Lunch Percentage | = | Disadvantaged Four Year Olds |
|--|----------|--|----------|---|

| School Year | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| K Projection | 1496 | 1499 | 1510 | 1538 | 1561 | 1584 | 1607 | 1631 | 1655 | 1679 |
| Historic Free Lunch %* | 49.84% | 49.79% | 49.91% | 49.85% | 49.85% | 49.87% | 49.86% | 49.86% | 49.86% | 49.86% |
| Projected Disadvantaged 4 Year Olds | 746 | 746 | 754 | 767 | 778 | 790 | 801 | 813 | 825 | 837 |
| 2016-2018 City-Wide Slots Provided VPI & HeadStart Combined** | 569 | 569 | 569 | 569 | 569 | 569 | 569 | 569 | 569 | 569 |
| Slot Deficit | -177 | -177 | -185 | -198 | -209 | -221 | -232 | -244 | -256 | -268 |

* Uses a three year average of Free Lunch % from the prior three years. ACPS has been around 50% Free lunch % for the past three years division-wide.

** Assumes slots remain the same provided by all partners as current for the next ten years.

Ed Spec Capacity

The **capacity** is the sum of the maximum capacities of all capacity driving classrooms within a school.

A capacity driving classroom is a teaching space that is greater than 600 SF

Ed Spec Capacity

Student Capacity can be defined in several ways and can change over time.

Number of students a school facility can support within the existing capacity driving spaces based on planning **class size targets** and **Ed Spec square footage standards** per space.

Used for master planning.

Space type:

Capacity driving

Non-capacity driving

Room Size:

min: >600 SF

Ed Spec Standards: SF by Type

Class Size (a.k.a. Loading Factor):

Pre-K Targeted (Planning): 18

Pre-K Cap (Max): 16-20

High School Targeted (Planning): 25

High School Cap (Range): 25-35

Ed Spec Capacity

The Ed Specs establish a targeted square foot per student goal by school type and room type

Pre-K Target SqFt per Student:
 $1,025 \text{ sqft} \div 18 \text{ students} = 57 \text{ sqft}$

High School Target SqFt per Student:
 $900 \text{ sqft} \div 25 \text{ students} = 36 \text{ sqft}$

Utilization

The **utilization** is calculated by dividing enrollment by capacity.

Space Efficiency

The **space efficiency** is how secondary teaching spaces are used over the course of a day.

The space efficiency assumes a classroom is used six out of seven periods in a day.

A space efficiency lower than 100% is needed at the secondary levels to allow for scheduling flexibility.

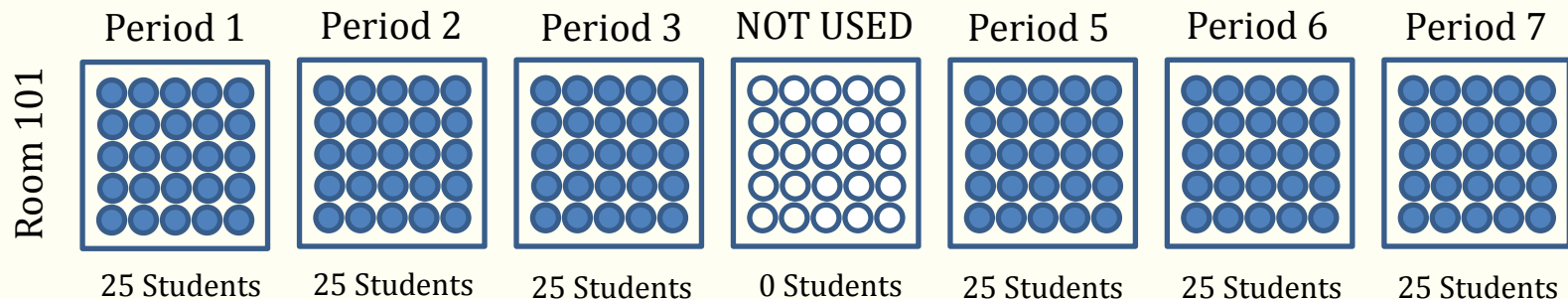
At any one point in the day, the assumption is 86% of teaching spaces are being used at one time.

Therefore, the efficiency factor is $6 \div 7$, or 86% and is applied to the capacity calculation.

Ed Spec Capacity: High School

The **efficiency** is how secondary teaching spaces are used over the course of a day.

It assumes a classroom is used six out of the seven periods in a day.



$$25 \text{ students} \times 6 \text{ periods} = 150 \text{ students}$$

$$25 \text{ students} \times 7 \text{ periods} = 175 \text{ students}$$

$$\text{Efficiency} = 150 / 175 \text{ students} = 86\%$$

Ed Spec Capacity: High School

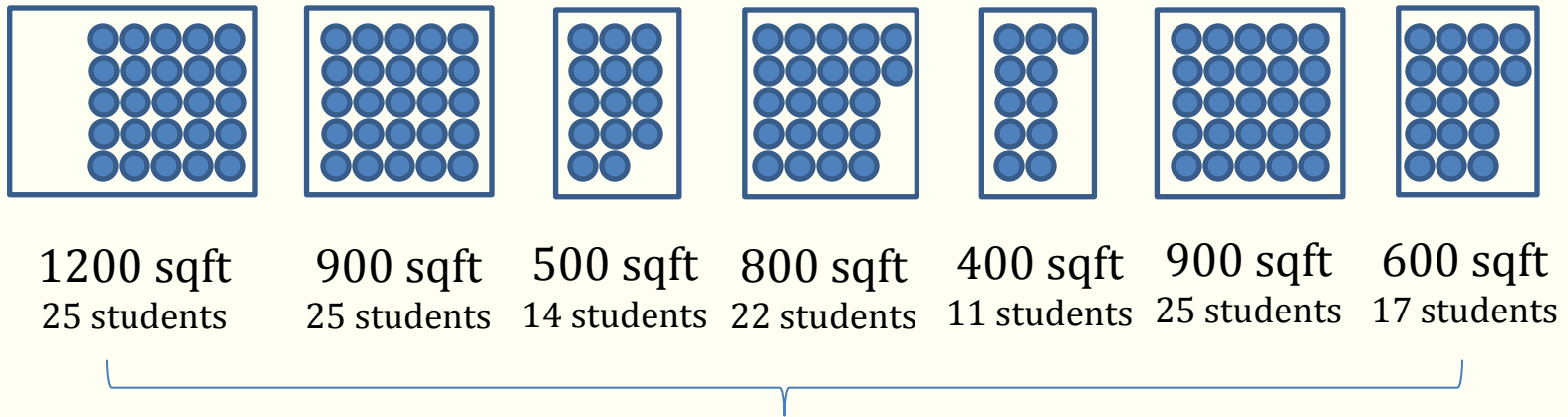
The **Ed Spec Capacity** is the sum of the maximum capacity of all capacity driving classrooms

(Classroom Area ÷ Square Footage per Student) x
Efficiency Factor of 86% for secondary schools

$$(\text{Area} \div \text{SqFt/student}) \times .86$$

Ed Spec Capacity: High School

The **Ed Spec Capacity** is the sum of the maximum capacity of all capacity driving classrooms.



139 students x 86% efficiency = 120 Ed Spec Capacity

Ed Spec Capacity: High School

The **Ed Spec Capacity** of T.C. Williams is calculated at 2,928 students with 169 available teaching spaces.

There are 3,405 available seats in the 169 teaching spaces

$3,405 \times .86 \text{ efficiency} = 2,928 \text{ seats}$

The current scheduling efficiency of the school averages 69%, meaning the average classroom is only used 69% of the day.

With an efficiency factor of 69% the school “feels” as though it only has 2,349 seats.

There may be options for ACPS to explore more efficient use of space based on the School Board approved educational specifications. Exploration of these options may help relieve the “feeling” of capacity constraints until additional capacity is added at the high school level.

Ed Spec Capacity: Pre-K

VPI and HeadStart Ed Spec Capacity
Classroom Area \div 57 Square Feet/Student = Classroom
Capacity

Early Childhood Special Ed Capacity
(Classroom Area \div 57 Square Feet/Student) \times 2 Sections for
Half Day Scheduling = Classroom Capacity

Ed Spec Capacity: Pre-K

| School | Pre-K In ACPS Elementary Schools | | | | |
|------------------------------|----------------------------------|--------------------|------------|------------------------|---------------------------|
| | ACPS Enrollment ³ | HeadStart Capacity | Total | Ed Spec Pre-K Capacity | Ed Spec Pre-K Utilization |
| Charles Barrett ¹ | 21 | 0 | 21 | 22 | 95.45% |
| Cora Kelly ² | 3 | 36 | 39 | 33 | 118.18% |
| Jefferson-Houston | 49 | 78 | 127 | 116 | 109.48% |
| John Adams ^{1,2} | 123 | 74 | 197 | 144 | 136.81% |
| Patrick Henry | 96 | 60 | 156 | 124 | 125.81% |
| William Ramsay | 32 | 0 | 32 | 29 | 110.34% |
| Total | 324 | 248 | 572 | 468 | 122.22% |

¹Capacity for ECSE is calculated based on SF in the classroom for 12 students (85 SF/Student) and then doubled to account for half day scheduling.

²Autism amounts have been removed from total capacity totals.

Ed Spec Capacity: Pre-K

Based on the capacity analysis:

- Ed. Spec. Capacity for Pre-K currently offered in ACPS facilities indicates a seating deficit of approximately **100 seats.**

Please note that all VPI and HeadStart offered in ACPS facilities meet the requirements as set by the state and federal programs. ACPS's School Board approved Ed. Spec. is a guideline for best practices in pre-k classroom spaces and is not a program specific requirement.

Summary

Division-Wide

- ACPS continues to grow at all grade levels.
- ACPS and City Staff are working collaboratively on updating the enrollment model to utilize GIS to account for redistricting in future years.

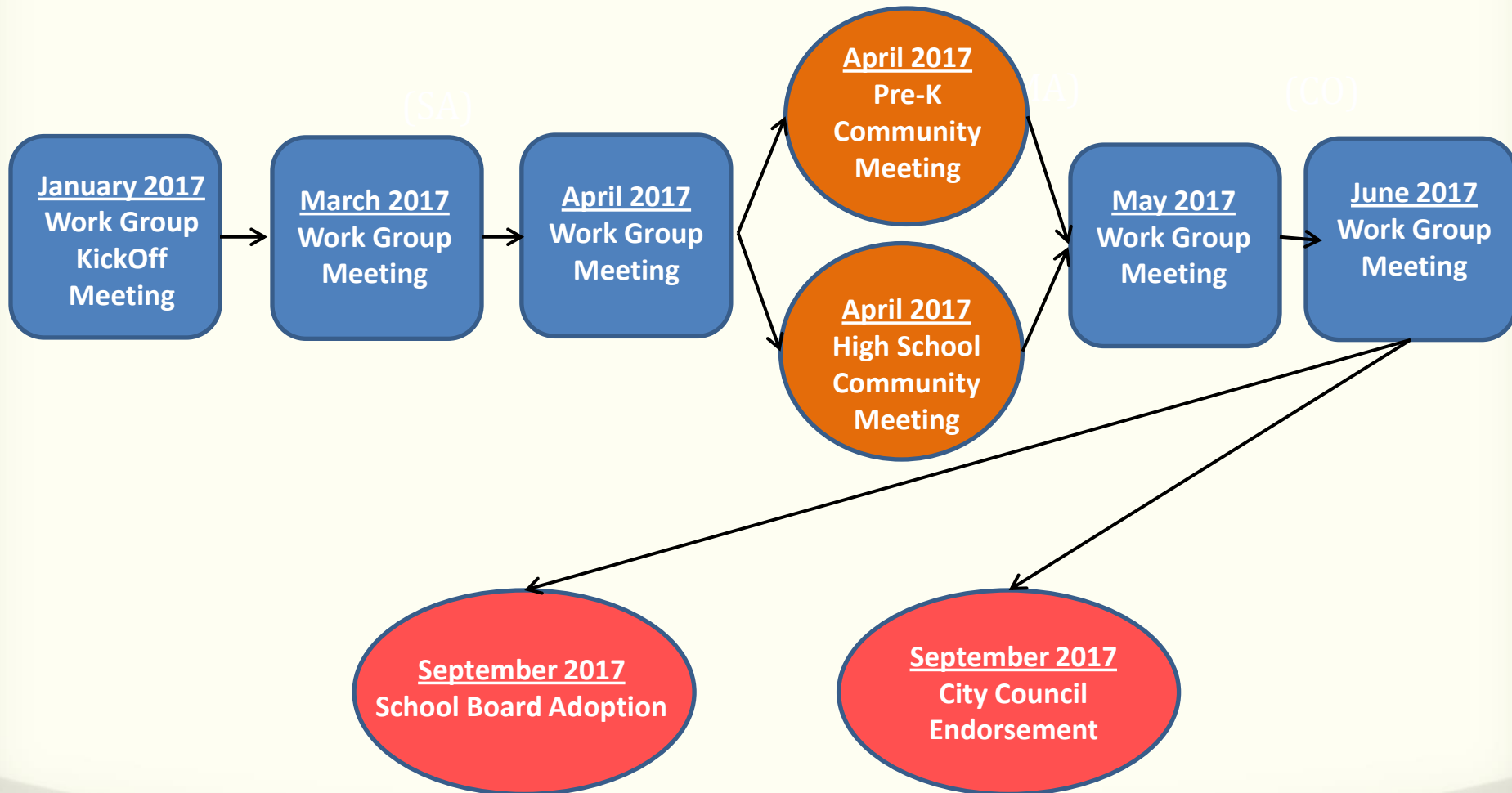
High School

- ACPS is expected to continue growing, especially at the high school level
- There may be interim solutions for efficiency at the high school level until capacity is added such as scheduling or additions of teacher planning space.

Pre-K

- The capacity of pre-k programs offered throughout the City are not meeting the potential demand of disadvantaged four-year olds city-wide.

Next Steps



Schedule is tentative and subject to change

Contact Information

Mary Catherine Collins

Urban Planner

(703) 746-3832

marycatherine.collins@alexandriava.gov

Erika Gulick

Facilities Planner/GIS Specialist

(703) 619-8298

erika.gulick@acps.k12.va.us

Please also sign up for our LREFP e-mail bank to receive updates [here](#).



Long Range Educational Facilities Plan – Second Phase Work Group Meeting 2 Notes

LOCATION: Patrick Henry Elementary School – School Cafeteria
DATE: March 2, 2017
TIME: 7:00pm – 8:30 pm

Work Group Members Present: Board Chair Ramee Gentry, Board Member Christopher Lewis (on behalf of Board Member Karen Graf), Vice-Mayor Justin Wilson, John Lennon, Joy Cameron, Judy Noritake, Chris Hartman, Lori Quill, Mike Burch, Kennetra Wood, Victor Martin

Staff/Consultant Presenters: Erika Gulick (ACPS), Karl Moritz (CoA), Mary Catherine Collins (CoA), Ty Specht (B&D)

Staff/consultants presented on population, enrollment trends, and capacity. The Work Group expressed interest in staff working on the following information:

- Further analysis of high school growth – cohort survival vs students moving into District. Analysis should consider housing type.
- Chart ACPS Students per 1000 Residents before Year 2011 to show previous years of enrollment (Slide 7)
- Student generation rates for multifamily buildings that are now fully online and occupied (Potomac Yard)

The Work Group specifically requested the website be updated to include information about Phase 2, so the public understands the goals and mission of the planning project. This should include an outline of meetings and notes from the meetings completed as well as an updated Work Program for the Work Group. Additionally, the Work Group wants “homework” communicated at each meeting so they can prepare for the next. Going forward, it was clarified that the Work Group will not make programmatic decisions about pre-kindergarten center(s) or high school(s) as part of their charge.

Every Student Succeeds



Long Range Educational Facilities Plan – Second Phase Work Group Meeting #3

LOCATION: George Washington Middle School - Library

DATE: April 3, 2017

TIME: 7:00pm – 8:30 pm

AGENDA

1. Welcome, Meeting Notes and Work Program
2. Presentation:
 - a. Time and Needs for Pre-K and High School
 - b. Proposed Projects
 - c. Available Land
 - i. Existing ACPS Sites
 - ii. Land from Small Area Plans/Development
 - iii. Potential Acquisition Opportunities
3. Recommendation Brainstorming Activity
4. Overview of Plan and Expectations for Community Meetings

Every Student Succeeds



Long Range Educational Facilities Plan – Second Phase Pre-K Stakeholders Meeting Notes

LOCATION: John Adams Elementary School – School Library

DATE: April 18, 2017

TIME: 7:00pm – 8:30 pm

Work Group Members Present: Board Chair Ramee Gentry, Vice-Mayor Justin Wilson, John Lennon, Lori Arrasmith Quill, Mike Burch, Kennetra Wood, Dr. Tammy Mann, Cynthia Skinner, Matt Walsh

Staff/Consultant Presenters: Erika Gulick (ACPS), Kayla Anthony (B&D)

Pre-k stakeholders were updated on the progress of Phase 2 of the LREFP. Staff/consultants presented information on the LREFP process, educational specifications, pre-k capacity, and pre-k projections. The presentation covered the following essential questions:

- What is the Long Range Educational Facilities Plan (LREFP)?
- How will the first phase of the LREFP and educational specifications (Ed. Specs.) be used in the second phase?
- What will the second phase of the LREFP include?
- What are the current Pre-K enrollment projections influencing the LREFP?
- How does the proposed CIP influence the LREFP?

After the presentation concluded, stakeholders divided into three (3) discussion groups to provide feedback and ideas to ACPS concerning the future needs and recommendations for pre-k. Each group responded to three questions:

1. What are the preferred site characteristics of potential Pre-K sites?
2. What services would you like to see offered in a potential Pre-K center?
3. Discuss the preliminary recommendations identified by the Work Group. (A chart of recommendations was shown – see notes and chart from Work Group Meeting 3).

Stakeholders provided feedback in written form on easel pads as well as in verbal form to the larger group of stakeholders. The following feedback was recorded:

Every Student Succeeds

Prompt 1: What are the preferred characteristics of potential Pre-K sites?

Feedback from groups:

- Access to public transit
- Outdoor space
- Access to features like nature walk at John Adams
- Space for multiple playgrounds that are enclosed with high fences
- Lots of storage
- Single story
- Close proximity to neighborhoods with the highest need
- Proximity to other resources (i.e. shopping centers, office building, churches, etc.)
- Proximity to support services (i.e. recreational, emergency, etc.)
- Safe area for transportation (pick-up, drop-off, parking, bus, etc.)

Prompt 2: What services would you like to see offered in a potential Pre-K center?

- Health services including dental
- Pre-K specific mental health services including psychologist, OT, PT, speech
- Pre-K specific social services
- Early intervention services
- Parental and community liaisons
- Logistics for shared resources (i.e. OT/PT/psych, etc.) and coordination is key
- After and before care
- FACE parent liaison
- Ability to have family-style meals
- Team teaching ready classrooms
- Kitchen with dishwasher
- Sensory room
- Staff spaces
- Laundry facilities
- Conference room space

Prompt 3: Comment on preliminary recommendations identified by the Work Group.

Every Student Succeeds



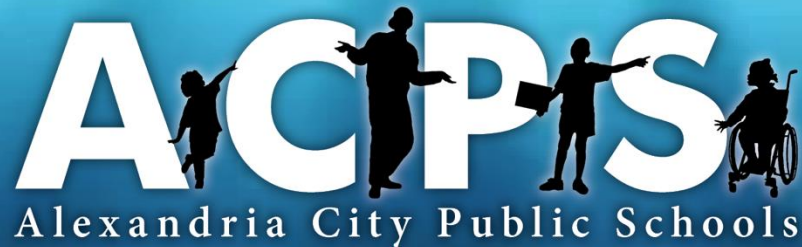
- Short Term
 - Least restrictive environment and inclusive setting
 - Finding church or other spaces is an option but may be difficult
 - Private partnerships
 - More incentives (i.e. more density) for developers
- Intermediate Term
 - Build “up”
 - Urban school model (i.e. at Potomac Yards)
 - Trailers are challenging with PK; specifically inclusion and team teaching
 - Private partnerships
 - More incentives (i.e. more density) for developers
- Long Term
 - Build “up”
 - Co-locate within elementary schools

Every Student Succeeds

Long Range Educational Facilities Plan Phase II

Pre-K Community Meeting

April 18, 2017

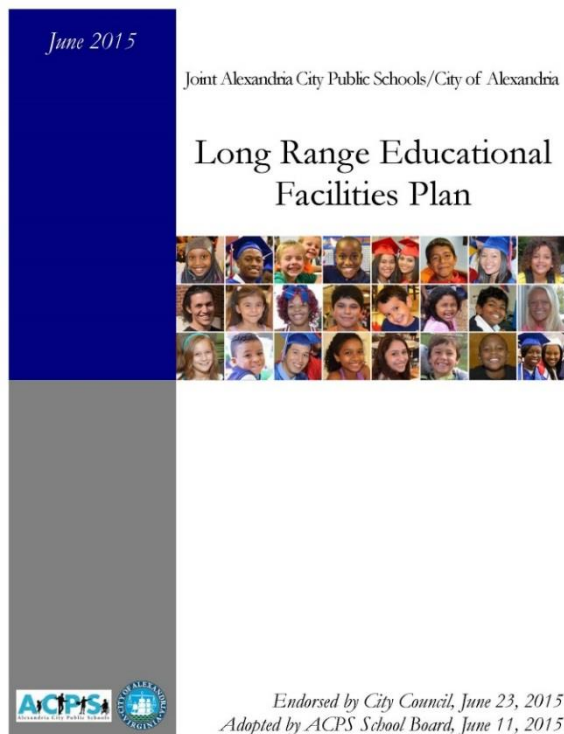


Every Student Succeeds

Essential Questions

1. What is the Long Range Educational Facilities Plan (LREFP)?
2. How will the first phase of the LREFP and educational specifications (Ed. Specs.) be used in the second phase?
3. What will the second phase of the LREFP include?
4. What are the current Pre-K enrollment projections influencing the LREFP?
5. How does the proposed CIP influence the LREFP?

Introduction to the LREFP



- **The Long Range Educational Facilities Plan (LREFP)** outlines options for how educational facilities can meet capacity needs using the ACPS educational specifications (Ed. Specs.) as a guide.
 - The LREFP is meant to be a living document
 - It is developed as a joint effort between ACPS and the City of Alexandria, with input from a Work Group and overall community involvement.
- **Phase 1** of the LREFP included elementary and middle schools (Summer 2015).

What are Ed Specs?

Educational Specifications (Ed Specs) are:

- Guiding planning documents that describe the proposed outcomes of a school modernization or new construction project.
- Used to assess the gap between current schools and model schools.
- Used as a basis for developing site-specific Ed Specs for construction projects with community input.
- The recipe for building schools, outlining quality and quantity of the new or renovated school space.

Educational Specifications

- **Summer 2014:** ACPS developed Ed Specs for elementary and middle schools as part of the first phase of the Long Range Educational Facilities Plan (LREFP).
- **March – June 2016:** ACPS developed draft Ed Specs for a Pre-K center, using:
 - State and National Guidelines
 - Input from ACPS staff and nationally recognized third-party consultants
 - Latest research in educational facilities

Educational Specifications

- **March – June 2016:** Numerous stakeholder groups participated in developing Pre-K Ed Specs, including:
 - ACPS Senior Leadership Team
 - Department of Curriculum & Instruction
 - ChildFind
 - Pre-K Center and School-Based Staff
 - Campagna Center
 - Facilities Staff
- **July 5, 2016:** ACPS School Board approves the Pre-Kindergarten Center Educational Specifications.

Pre-K Educational Specifications

- The ideal capacity of the model Pre-K Center is 360, with a range of capacity from 320 – 400. The model includes:
 - 20 Classrooms
 - Multipurpose Room
 - Stage
 - Play group area
 - Health Suite
 - Library
 - Outdoor Playspace
 - Staff planning space
- Proposed model school size is approximately 55,000 building square feet.

Introduction to LREFP Phase II

- **Phase I LREFP** – Approved in 2015, Phase I offers a substantial amount of information and framework for Phase II, including enrollment projections and fiscal challenges.
- **Pre-K Center Ed. Specs.** – Approved in July 2016, the Pre-K Ed Specs will guide future Pre-K projects.
- **Phase II** – Ongoing since Spring 2016, Phase II includes:
 - Potential for a centralized Pre-K facility
 - Assessment of current Pre-K facilities compared to Ed. Specs
 - Enrollment projections and future needs of Pre-K
 - Analyze fiscal constraints and proposed capital projects and their viability

LREFP Phase II: Progress to Date

The Work Group for the second phase convened in January 2017 and is comprised of representation from:

- School Board
- City Council
- Partner Organizations
- Community Groups
- High School and Pre-K Specific Staff

The Work Group has met 3 times so far and reviewed information from staff about the current and future needs of Pre-K and High School.

Pre-K Capacity & Projections

- ACPS works with the City of Alexandria Department of Planning & Zoning to forecast student enrollment
- Historically, Pre-K projections were not performed; ACPS accomplished this as part of the LREFP Phase II process
- ACPS projected disadvantaged four year olds throughout the city using the following data:
 - State formula for projecting disadvantaged four-year olds
 - Historical ACPS free lunch percentage data
 - Projected Kindergarten enrollment

| | | | | |
|-------------------------------------|----------|---|----------|---------------------------------|
| Total Kindergarten Enrollment | X | Division-Wide Free Lunch Percentage | = | Disadvantaged Four Year Olds |
|-------------------------------------|----------|---|----------|---------------------------------|

Pre-K Capacity & Projections

Projected disadvantaged four year olds throughout the City

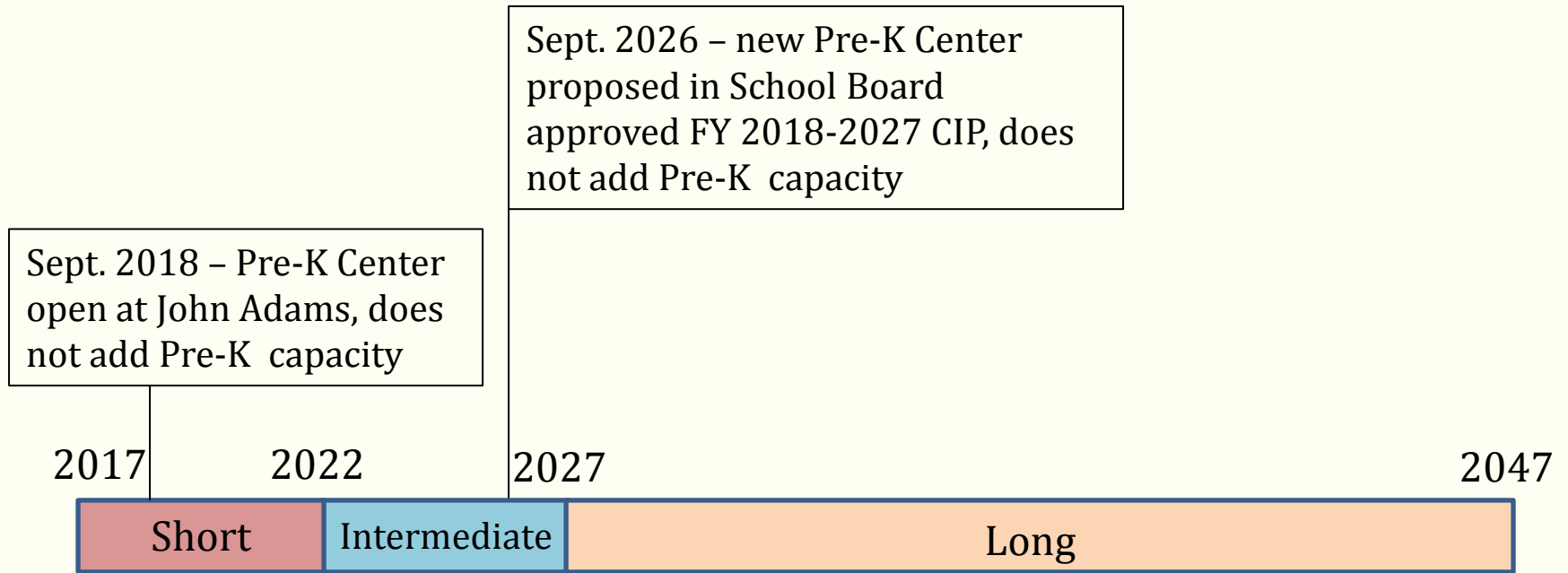
| School Year | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| K Projection | 1,496 | 1,499 | 1,510 | 1,538 | 1,561 | 1,584 | 1,607 | 1,631 | 1,655 | 1,679 |
| Historic Free Lunch %* | 49.84% | 49.79% | 49.91% | 49.85% | 49.85% | 49.87% | 49.86% | 49.86% | 49.86% | 49.86% |
| Projected Disadvantaged 4 Year Olds | 746 | 746 | 754 | 767 | 778 | 790 | 801 | 813 | 825 | 837 |
| 2016-2018 City-Wide Slots Provided VPI & HeadStart Combined** | 569 | 569 | 569 | 569 | 569 | 569 | 569 | 569 | 569 | 569 |
| Slot Deficit | -177 | -177 | -185 | -198 | -209 | -221 | -232 | -244 | -256 | -268 |

* Uses a three year average of Free Lunch % from the prior three years. ACPS has been around 50% Free lunch % for the past three years division-wide.

** Assumes slots remain the same provided by all partners as current for the next ten years.

The capacity of Pre-K programs offered throughout the City are not meeting the potential demand of disadvantaged four-year olds city-wide.

Proposed Projects Timeline



Outcomes

Phase II of the LREFP will include:

- Recommended plans for future Pre-K demand
- Updates to sections of the LREFP as they relate to Pre-K
 - Enrollment Trends and Forecasting
 - Mini Master Plans, as needed, to include school-specific recommendations for Pre-K
 - Fiscal Challenges

T.C. WILLIAMS: KING STREET CAMPUS

3801 West Braddock Road, Alexandria, VA 22302

| <i>AT A GLANCE...</i> | | |
|-----------------------|---------------------------------|---|
| <i>Year Built</i> | 2007 | <i>Current Floor Area</i> 461,147 |
| <i>Zoning</i> | R-20 (032.04-09-08) | <i>Floor Area Permitted by Zoning (SF)</i> 547,000 |
| | <i>Lot Size (acres)</i> 25.6 | <i>Floor Area Ratio</i> 0.51* |

T.C. Williams: King Street Campus was not included in the educational adequacy analysis.

BACKGROUND

T.C. Williams is Alexandria's only high school. There are two campuses. The Minnie Howard Campus serves grade 9 and the King Street Campus serves grades 10-12. The King Street building is a state of the art facility that opened in 2007 and provides smaller learning communities as well as flexible academic space capable of meeting the evolving secondary school curriculum requirements. In Fall 2008, the second phase was complete and included an artificial turf sports field, renovated stadium, new athletic track, new playing field, new bus driveway, and a two story parking garage. The high school received a LEED Gold rating. The academic curriculum includes 188 courses. Special academic programs includes Academy of Finance, Advanced Placement/Honors, English as a Second Language, Special Education/Inclusion Program, STEM Academy and Vocational Programs.



SCHOOL SITE

The King Street campus includes high school football field and a six lane track. Six tennis courts are currently under construction and are expected to open spring 2015. Adjacent to the school is Chinquapin Park. Features of the park include athletic fields, basketball courts, garden plots, a picnic area and playground, tennis courts and a wooded area.



RECOMMENDATION

The high schools were not included in the educational adequacy analysis. This work should be undertaken as subsequent part of this planning effort.

TECHNOLOGY

Pre-K Discussion

1. What are the preferred site characteristics of potential Pre-K sites?

Pre-K Discussion

1. What are the preferred site characteristics of potential Pre-K sites?
2. What services would you like to see offered in a potential Pre-K center?

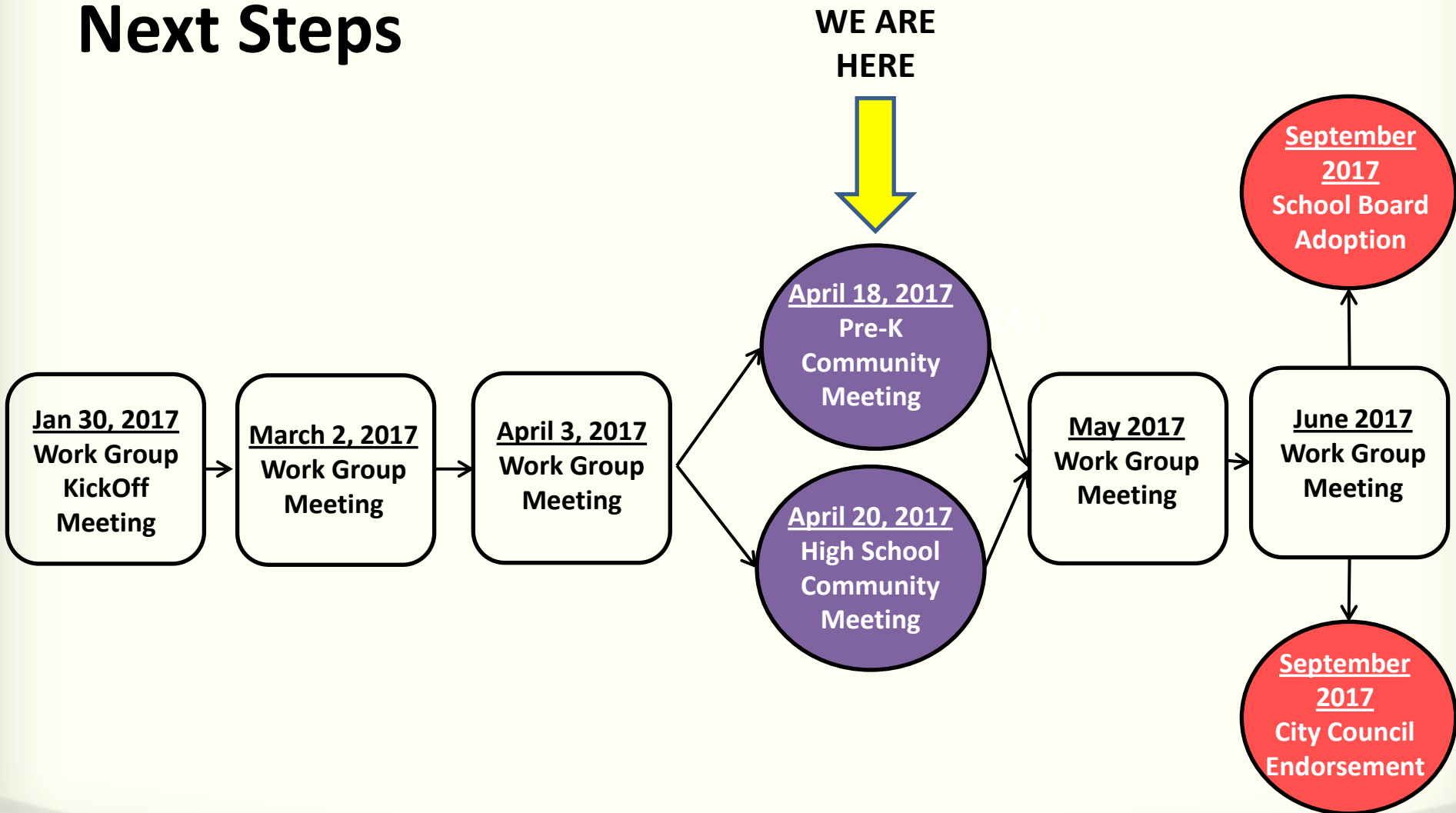
Pre-K Discussion

1. What are the preferred site characteristics of potential Pre-K sites?
2. What services would you like to see offered in a potential Pre-K center?
3. Discuss the preliminary recommendations identified by the Work Group
 - See chart on next slide

Topic 1: Preliminary Recommendations from Work Group

| Short-Term (0 – 5 Yrs) | Intermediate (6 – 10 Yrs) | Long-Term (11 – 30 Yrs) |
|--|--|---|
| Co-locate Pre-K space on west end of City | Transform North Potomac Yards site into elementary school | Build additional capacity <ul style="list-style-type: none"> • New center each on east and west ends |
| Co-locate space with family services | Transform Cora Kelly into Pre-K center | Build additional capacity <ul style="list-style-type: none"> • Co-locate centers with elementary schools |
| Utilize smaller pockets of space (churches and recreation centers) | Building capacity over time to ensure sustainability | |
| Increase efficiency in current buildings to accommodate more Pre-K | Give developers bonus density to include Pre-K space in new developments | |
| Increase private providers | Add ancillary classroom space (trailers) | |

Next Steps



Schedule is tentative and subject to change

Contact Information

Please send any questions or comments to
longrangeplan@acps.k12.va.us.

You can also review all materials to date and sign up for e-mail updates here:

<https://www.acps.k12.va.us/lrefp>



Long Range Educational Facilities Plan – Second Phase High School Community Meeting

LOCATION: T.C. Williams High School – Rotunda

DATE: April 20, 2017

TIME: 7:00 pm – 8:30 pm

AGENDA

1. Welcome & Introduction
2. Presentation:
 - a. Long Range Educational Facilities Plan
 - b. Educational Specifications
 - c. High School Projections
 - d. Proposed Projects
3. Discussion
4. Next Steps

Every Student Succeeds



Long Range Educational Facilities Plan – Second Phase High School Stakeholders Meeting Notes

LOCATION: T.C. Williams High School – Rotunda

DATE: April 20, 2017

TIME: 7:00pm – 8:30 pm

Work Group Members Present: Board Chair Ramee Gentry, Vice-Mayor Justin Wilson, John Lennon, Lori Arrasmith Quill, Mike Burch

Staff/Consultant Presenters: Erika Gulick (ACPS), Kayla Anthony (B&D)

High school stakeholders were updated on the progress of Phase 2 of the LREFP. Staff/consultants presented information on the LREFP process, educational specifications, high school capacity and projections. The presentation covered the following essential questions:

- What is the Long Range Educational Facilities Plan (LREFP)?
- How will the first phase of the LREFP and educational specifications (Ed. Specs.) be used in the second phase?
- What will the second phase of the LREFP include?
- What are the current high school enrollment projections influencing the LREFP?
- How does the proposed CIP influence the LREFP?

After the presentation concluded, stakeholders divided into four (4) discussion groups to provide feedback and ideas to ACPS concerning the future needs and recommendations for pre-k. Each group responded to three questions:

1. Discuss the short-term preliminary recommendations identified by the Work Group. (A chart of recommendations was shown – see notes and chart from Work Group Meeting 3).
2. Discuss the intermediate preliminary recommendations identified by the Work Group.
3. Discuss the long-term preliminary recommendations identified by the Work Group.

Stakeholders provided feedback in written form on easel pads and Post-It notes as well as in verbal form to the larger group of stakeholders. The following feedback was recorded:

Prompt 1: Discuss Short Term Options and Recommendations:

Every Student Succeeds



- Inquired about where the trailers would go and how long they would be there.
- Redesign existing specialty rooms to increase efficiency
- Use scheduling optimization software
- Very positive feedback about the Middle College partnership with NOVA
- Discussion occurred about ensuring that building systems are strong/large enough to support capacity and enrollment.
- Ensure that the students in the ancillary spaces (trailers) feel connected to main campus
- If adjustments made to master schedule, ensure that appropriate sized learned spaces are maintained.
- Have senior opt-out periods
- Late/early schedule starts
- Ensure bus schedules between MH & TC are timely and have enough time to get to class
- Utilize NOVA more
- Utilize office space for classrooms either temporarily or permanently
- Using online learning more

Prompt 2: Discuss Intermediate Options and Recommendations:

- Negative feedback from groups on creating a bigger high school (i.e. too costly and creates too big of school)
- Some discussion about making George Washington a high school campus, but do not know where the middle school students would go
- Update master schedule and revise programming to utilize alternative learning options
- Create STEM academies or smaller alternative focused high school
- Use short term ideas, but don't let short term solutions define long term ones
- Negative feedback to sending kids back and forth between MH and TC
- Discussion about the Victory Center as potential use for classroom space
- Discussion about partnering with other organizations (i.e. National Science Foundation)
- Consider expansion of apprenticeship program with NOVA and other businesses

Prompt 3: Discuss Long-Term Options and Recommendations:

- Build additional capacity potentially at Minnie Howard or other locations

Every Student Succeeds



- Continue to analyze projection model to determine future student needs
- Work to acquire land
- Review all city property and building portfolio to identify new school sites
- Building a new high school has positive reactions
- Schools should fit needs of multiple types of learners including use of specialty programs
- Look at different grade pairings (K-6, 7-8, 9-12 or K-6, 7-9, 10-12)
- Building additional capacity (at T.C. or MH) should happen in intermediate term, not long term.
- Building T.C. “up”
- Consider using office building space

Every Student Succeeds

Long Range Educational Facilities Plan Phase II

Community Meeting: High School Stakeholder Meeting

April 20, 2017

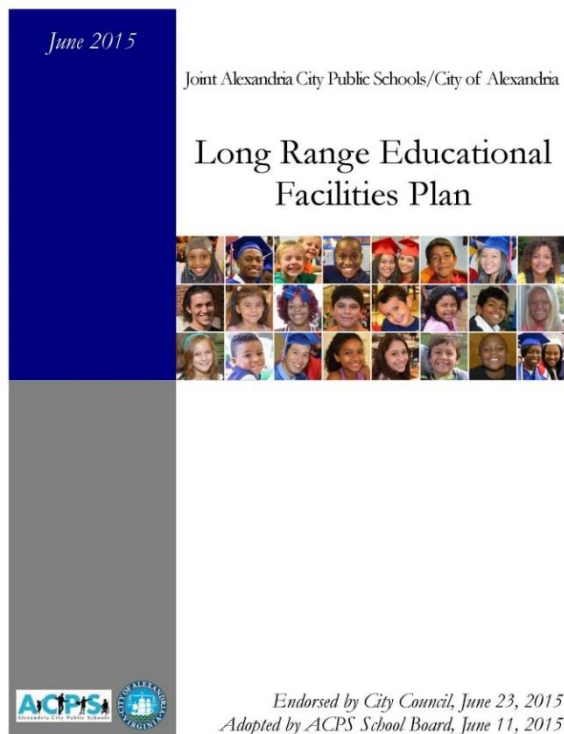


Every Student Succeeds

Essential Questions

1. What is the Long Range Educational Facilities Plan (LREFP)?
2. How will the first phase of the LREFP and educational specifications (Ed. Specs.) be used in the second phase?
3. What will the second phase of the LREFP include?
4. What are the current high school enrollment projections influencing the LREFP?
5. How does the proposed CIP influence the LREFP?

Introduction to the LREFP



- **The Long Range Educational Facilities Plan (LREFP)** outlines options for how educational facilities can meet capacity needs using the ACPS educational specifications (Ed. Specs.) as a guide.
 - The LREFP is meant to be a living document
 - It is developed as a joint effort between ACPS and the City of Alexandria, with input from a Work Group and overall community involvement.
- **Phase 1** of the LREFP included elementary and middle schools (Summer 2015).

Introduction to LREFP Phase II

- **Phase I LREFP** – Approved in 2015, Phase I offers a substantial amount of information and framework for Phase II, including enrollment projections, fiscal challenges and high school profile pages.
- **High School Ed. Specs.** – Approved in January 2017, the High School Ed Specs will guide future high school projects.
- **Phase II** – Ongoing since Spring 2016, Phase II includes:
 - Assessment of current high school facilities compared to Ed. Specs
 - Enrollment projections and future needs of high schools
 - Analyze fiscal constraints and proposed capital projects and their viability

What are Ed Specs?

Educational Specifications (Ed Specs) are:

- Guiding planning documents that describe the proposed outcomes of a school modernization or new construction project.
- Used to assess the gap between current schools and model schools.
- Used as a basis for developing site-specific Ed Specs for construction projects with community input.
- The recipe for building schools, outlining quality and quantity of the new or renovated school space.

Educational Specifications

- **Summer 2014:** ACPS developed Ed Specs for elementary and middle schools as part of the first phase of the Long Range Educational Facilities Plan (LREFP).
- **March 2016 – January 2017:** ACPS developed draft Ed Specs for a high school, using:
 - State and National Guidelines
 - Input from ACPS staff and third-party consultants
 - Latest research in educational facilities

Educational Specifications

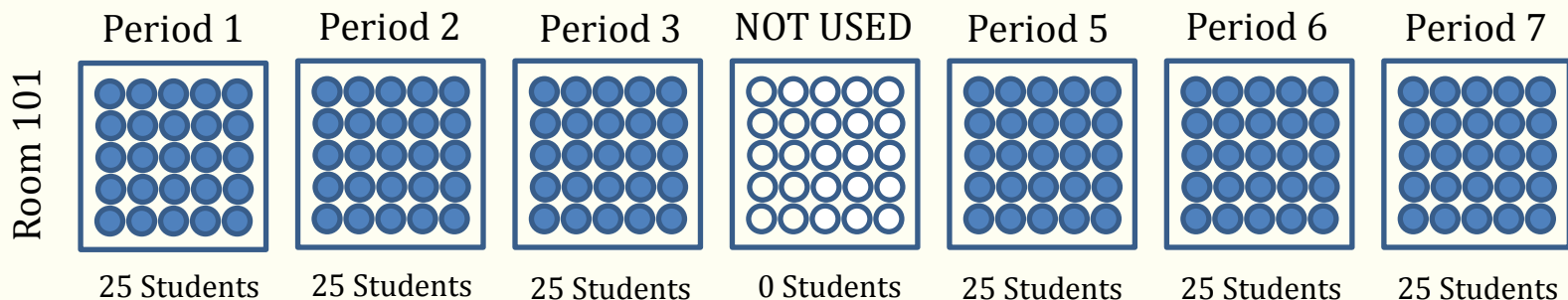
- **March 2016 – January 2017:** Numerous stakeholder groups participated in developing high school Ed Specs, including:
 - ACPS Senior Leadership Team
 - Department of Curriculum & Instruction
 - Secondary School Administration
 - Facilities Staff
- **January 26, 2017:** ACPS School Board approves the High School Educational Specifications.

Key Components of High School Ed Specs

- The model high school includes:
 - 73 Classrooms
 - Teacher Collaboration Suites
 - Career and Technical Education (CTE)
 - Extracurricular Spaces
 - Community Spaces
 - International Academy Program Spaces
- Proposed model school size is approximately 285,000 SF
- The High School Ed Spec is not a proposed floorplan for a new high school.

Key Components of High School Ed Specs

- The ideal capacity of the model high school is 1,600, with a range of capacity from 1,400 – 1,800.
- Ed. Spec. capacity for the high school is determined by using an 86% efficiency rate for capacity driving spaces (i.e. classrooms). See the diagram below:



25 students x 6 periods = 150 students

25 students x 7 periods = 175 students

Efficiency = 150 / 175 students = 86%

High School Capacity & Projections

- ACPS works with the City of Alexandria Department of Planning & Zoning to forecast student enrollment
- While the entire school division's enrollment grew by **2.6%** from last year to this year, high school student enrollment grew by **4.5%**.
 - ACPS High School enrollment grew by approximately 900 students over the last ten years.
- Current Ed Spec capacity at the T.C. Williams: King Street campus is 2,928.
 - The actual spaces are being used at a 69% efficiency rate, making the building feel as though it has a capacity of 2,349.
- Capacity at the Minnie Howard campus is estimated at 883.
- Total estimated high school Ed. Spec. capacity is 3,811

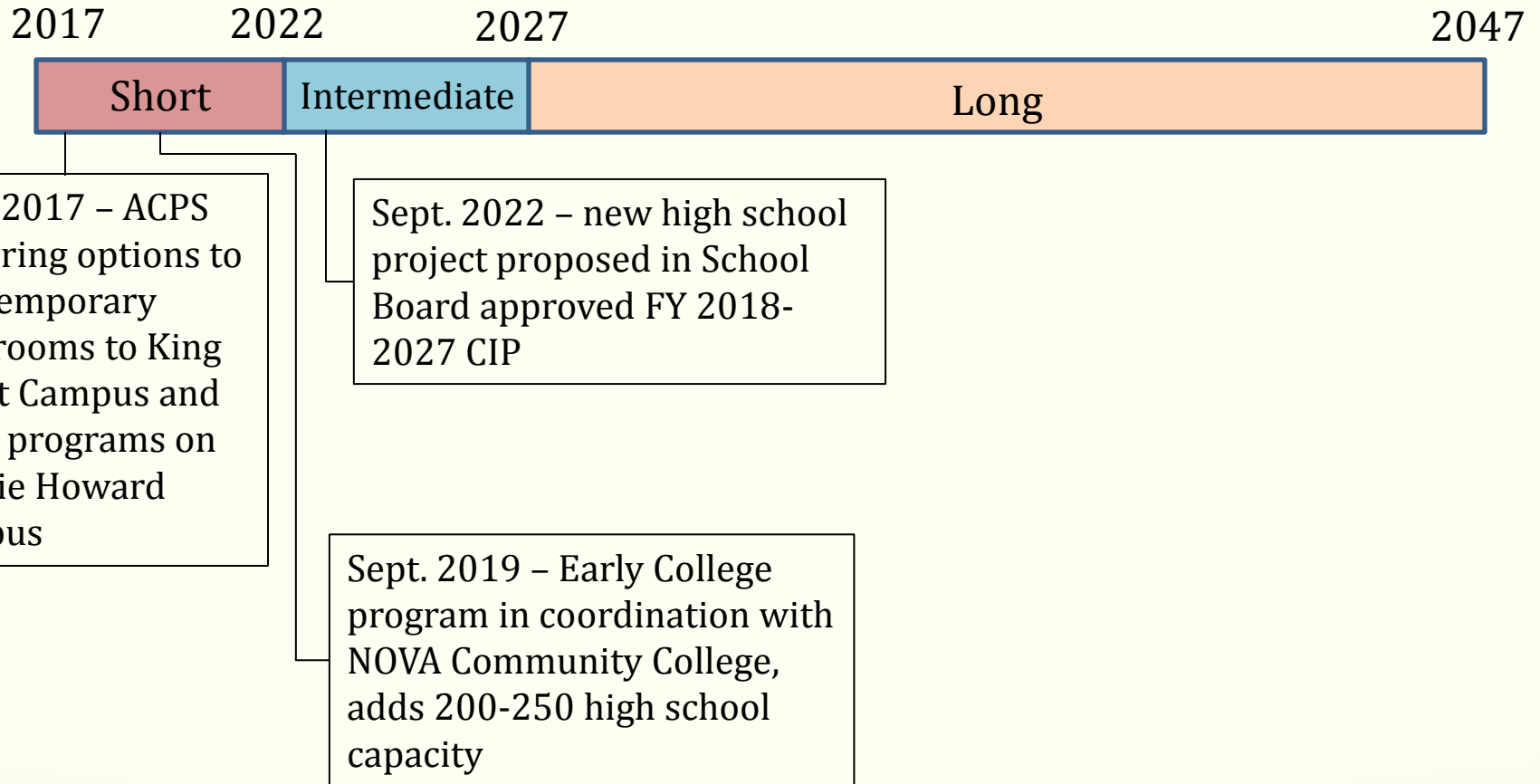
High School Capacity & Projections

Enrollment projections for high school for the next 10 years indicate a continuation of growth:

| School Name | Grade | FY17 | FY18 | FY19 | FY20 | FY21 | FY2022 | FY2023 | FY2024 | FY2025 | FY 2026 | FY 2027 |
|---|-------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| T.C. Williams: Minnie Howard | 9 | 811 | 819 | 797 | 859 | 955 | 1044 | 977 | 866 | 885 | 919 | 945 |
| T.C. Williams: Minnie Howard | | 811 | 819 | 797 | 859 | 955 | 1044 | 977 | 866 | 885 | 919 | 945 |
| T.C. Williams: King Street | 9 | 266 | 269 | 262 | 283 | 314 | 343 | 321 | 285 | 291 | 302 | 310 |
| | 10 | 1022 | 1119 | 1130 | 1100 | 1186 | 1318 | 1441 | 1348 | 1196 | 1222 | 1268 |
| | 11 | 883 | 929 | 1017 | 1027 | 1000 | 1078 | 1198 | 1310 | 1226 | 1087 | 1111 |
| | 12 | 772 | 808 | 850 | 931 | 970 | 915 | 987 | 1097 | 1199 | 1122 | 995 |
| T.C. Williams: King Street Total | | 2943 | 3125 | 3259 | 3341 | 3470 | 3654 | 3947 | 4040 | 3912 | 3733 | 3684 |
| Grand Total | | 3754 | 3944 | 4056 | 4200 | 4425 | 4698 | 4924 | 4906 | 4797 | 4652 | 4629 |
| Total High School Ed Spec Capacity | | 3811 | 3811 | 3811 | 3811 | 3811 | 3811 | 3811 | 3811 | 3811 | 3811 | 3811 |
| Utilization | | 98.50% | 103.49% | 106.43% | 110.21% | 116.11% | 123.27% | 129.20% | 128.73% | 125.87% | 122.07% | 121.46% |

ACPS is expected to continue growing, especially at the high school level. There may be interim solutions for efficiency at the high school level until capacity is added such as scheduling or additions of teacher planning space.

Proposed Projects Timeline



Outcomes

Phase II of the LREFP will include:

- Recommended plans for future high school demand
- Updates to sections of the LREFP as they relate to high school
 - Enrollment Trends and Forecasting
 - Mini Master Plans, as needed, to include school-specific recommendations for high school
 - Fiscal Challenges

T.C. WILLIAMS: KING STREET CAMPUS

3801 West Braddock Road, Alexandria, VA 22302

| <i>AT A GLANCE...</i> | | |
|-----------------------|-------------------------|--|
| <i>Year Built</i> | 2007 | <i>Current Floor Area</i> |
| | | 461,147 |
| <i>Zoning</i> | R-20 (032.04-09-08) | <i>Floor Area Permitted by Zoning (SF)</i> |
| | | 547,000 |
| | <i>Lot Size (acres)</i> | <i>Floor Area Ratio</i> |
| | 25.6 | 0.51* |

T.C. Williams: King Street Campus was not included in the educational adequacy analysis.

BACKGROUND

T.C. Williams is Alexandria's only high school. There are two campuses. The Minnie Howard Campus serves grade 9 and the King Street Campus serves grades 10-12. The King Street building is a state of the art facility that opened in 2007 and provides smaller learning communities as well as flexible academic space capable of meeting the evolving secondary school curriculum requirements. In Fall 2008, the second phase was complete and included an artificial turf sports field, renovated stadium, new athletic track, new playing field, new bus driveway, and a two story parking garage. The high school received a LEED Gold rating. The academic curriculum includes 188 courses. Special academic programs includes Academy of Finance, Advanced Placement/Honors, English as a Second Language, Special Education/Inclusion Program, STEM Academy and Vocational Programs.



SCHOOL SITE

The King Street campus includes high school football field and a six lane track. Six tennis courts are currently under construction and are expected to open spring 2015. Adjacent to the school is Chinquapin Park. Features of the park include athletic fields, basketball courts, garden plots, a picnic area and playground, tennis courts and a wooded area.



RECOMMENDATION

The high schools were not included in the educational adequacy analysis. This work should be undertaken as subsequent part of this planning effort.

TECHNOLOGY

High School Discussion

1. Short-Term Needs and Preliminary Discussion (from Work Group)
 - Defined as 0 – 5 Years

Topic 1: Short-Term Needs and Preliminary Discussion

Short-Term (0 – 5 Years)

Add ancillary classroom space (trailers) to provide immediate capacity

Update the master schedule to provide increased utilization of each classroom

Increase number and frequency of shuttles between Minnie Howard and King Street Campus

Revise programming – utilize alternative learning options such as online learning, semester vs. year, senior experience, off-campus courses, internships

Early College – partnership with NOVA

Explore International Academy programming

Learn from other districts how to best manage large student populations (Fairfax County)

High School Discussion

1. Short-Term Needs and Preliminary Discussion (from Work Group)
 - Defined as 0 – 5 Years
2. Intermediate Needs and Preliminary Discussion (from Work Group)
 - Defined as 6 – 10 Years

Topic 2: Intermediate Needs and Preliminary Discussion

Intermediate (6 – 10 Years)

Build additional capacity

- Construct additional buildings
- Expand on King Street Campus

Update the master schedule to provide increased utilization of each classroom

Send upper level students to Minnie Howard for some courses – dual usage of both campuses (buses back and forth between)

Revise programming – utilize alternative learning options such as online learning, semester vs. year, senior experience, off-campus courses, internships

Create a specially-designed STEM academy

Add maker spaces

High School Discussion

1. Short-Term Needs and Preliminary Discussion (from Work Group)
 - Defined as 0 – 5 Years
2. Intermediate Needs and Preliminary Discussion (from Work Group)
 - Defined as 6 – 10 Years
3. Long-Term Needs and Preliminary Discussion (from Work Group)
 - Defined as 11 – 30 Years

Topic 3: Long-Term Needs and Preliminary Discussion

Long-Term (11 – 30 Years)

Build additional capacity

- Expand on King Street Campus

Build additional high school capacity

Update the master schedule to provide increased utilization of each classroom

Revise programming – utilize alternative learning options such as online learning, semester vs. year, senior experience, off-campus courses, internships

Next Steps



Schedule is tentative and subject to change

Contact Information

Please send any questions or comments to
longrangeplan@acps.k12.va.us.

You can also review all materials to date and sign up for e-mail updates here:

<https://www.acps.k12.va.us/lrefp>



Long Range Educational Facilities Plan – Second Phase Work Group Meeting #4

LOCATION: John Adams Elementary School – Library

DATE: May 24, 2017

TIME: 7:00pm – 8:30 pm

AGENDA

1. Welcome
2. Meeting Notes
3. Presentation:
 - a. Review Feedback from Community Meetings
 - b. Discuss Recommendations and Potential Magnitude of Costs Impacts
 - c. Overview of LREFP & Phase 2 Updates
4. Develop Recommendations for Addendum to LREFP

Every Student Succeeds

T.C. WILLIAMS: KING STREET CAMPUS

3330 King Street Alexandria, VA 22302

| | | |
|---|--|--|
| Year Built: 2007 | Current School Floor Area: 461,147 sq ft | Current Lot Size: 19.88 acres |
| Zoning: R20 | Floor Area Permitted by Zoning: 547,000 | Floor to Area Ratio: .51 per DSUP |
| Classroom Count: 169 | Ed Spec Capacity @ 86% Efficiency: 2,928 | Projected Utilization (2022): 125% |
| Space Adequacy: | Alignment: | Current Efficiency: |
| Exceeds Space Requirements: classrooms are greater than 110% of space requirements | 38 classrooms - 23% | <p>ACPS Target Efficiency: 86% Generally this rate means rooms are used seven out of eight periods each day. See the "Schedule Efficiency" section for additional detail.</p> <p>A-Day Schedule Average: 77% The average efficiency for A-Day is based on the following class periods: 1, 3, 5, and 7.</p> <p>B-Day Schedule Average: 78% The average efficiency for B-Day is based on the following class periods: 1, 2, 4, and 6.</p> |
| Satisfactory: classrooms are between 90% to 110% of space requirements outlined in the Ed Spec | 20 classrooms - 12% | |
| Borderline: classrooms are between 80% to 89% of space requirements | 75 classrooms - 44% | |
| Inadequate: classrooms are between 70% to 79% of space requirements | 10 classrooms - 6% | |
| Very Inadequate: classrooms are within less than 69% of space requirements | 26 classrooms - 15% | |

Student Counts:

| | FY 2017 Enrollment | FY 2022 Projected |
|--|-----------------------|----------------------|
| Student Count | 2943 | 3654 |
| Capacity | 2928 | 2928 |
| Utilization Rate (Student Count / Capacity) | 101% | 125% |

Utilization Rate Categories:

| Enrollment as % of Capacity | Definition |
|-----------------------------|------------------|
| < 89 | Underutilized |
| 90 - 110% | Ideally Utilized |
| > 111 % | Over Capacity |

BACKGROUND

T.C. Williams, Alexandria's only public high school, is a comprehensive high school comprised of two campuses: the Minnie Howard Campus and the King Street Campus. In September 2016, T.C. Williams High School had a total enrollment of 3,754 students across both campuses.

The Minnie Howard Campus serves grade 9, and the King Street Campus serves grades 10 – 12 and grade 9 students who participate in the International Academy program. Some 9th grade students from Minnie Howard travel to the King Street Campus during school hours on ACPS provided buses to attend specific class offerings, often in the afternoon.

The King Street Campus was built in 1965 and modernized in 2007 with a new facility at its present site. The modernized building is a state-of-the-art facility that provides smaller learning communities, as well as flexible academic space capable of meeting the evolving secondary school curriculum requirements. In fall 2008, the second phase of the campus modernization project was completed and included an artificial turf sports field, renovated stadium, new athletic track, new playing field, new bus driveway, and a two-story parking garage. The project received a LEED Gold rating.

ACADEMIC PROGRAM

The academic program at T.C. Williams High School includes 188 courses in reading, language arts, mathematics, social studies, and science, as well as fine arts, performing arts, physical education, and health. The school also offers the following special academic programs:

- Academy of Finance
- Advanced Placement/Honors/Dual Enrollment
- AVID
- International Academy
- Special Education/Inclusion Program
- STEM Academy
- Career and Technical Programs

The King Street and Minnie Howard campuses operate as one high school. The King Street campus serves all 10th-12th grade students and all 9th-12th grade students enrolled in the International Academy. The King Street campus serves 9th grade students from the Minnie Howard campus in instances where a course is not offered at the Minnie Howard campus. Over one-third of the Minnie Howard enrollment in 2016-2017 school year took one or multiple courses at the King Street campus, at some point during the day, typically during the afternoon. These students are provided transportation from the Minnie Howard campus to the King Street campus.

ENROLLMENT AND UTILIZATION

The King Street Campus had a September 2016 enrollment of 2,943 students. The calculated capacity of the King Street Campus is 2,928 students based on an 86% efficiency rate, yielding a utilization rate (enrollment vs. capacity) of 101% in September 2016. Enrollment projections indicate the King Street Campus school population will increase to 3,654 by the year 2022, resulting in a utilization of 125% at the King Street Campus, which equates to a gap of 726 seats if seeking 100% utilization. ACPS considers ideal utilization as a range of 90% to 110%.

KEY FINDINGS

SUMMARY

The design of the King Street Campus was informed by older standards. ACPS has since developed Educational Specifications (Ed Specs) which were approved by the School Board in January 2017 and are reflective of current program and practices and represent ACPS's ideal 21st century high school.

Only 35% of classrooms meet or exceed the 2017 board approved educational adequacy benchmarks. The remaining 65% of classrooms are smaller than the prescribed minimum size requirements set in the Ed Specs. Additionally, based on the 2016-17 course schedule, the current use of classrooms averages below the ACPS benchmark efficiency rate of 86%.

EDUCATIONAL ADEQUACY

Educational adequacy is the measure of existing educational spaces in comparison to ACPS's desired space requirements and standards set forth in the 2017 School Board-approved high school Ed Specs. The educational adequacy assessment of the school also helps to calculate the capacity of the school.

Based upon the data collected, only 35% of classrooms at the King Street Campus meet or exceed the educational adequacy benchmarks for an ideal 21st century high school. Spaces that are non-conforming to the Ed Specs impact the potential capacity of the school and utilization of space.

Of 169 total teaching spaces, only 20 spaces fall within 10% of the space requirements set forth in the Ed Specs. Despite having more room, larger spaces can only hold up to the maximize class size; therefore the 38 spaces that exceed the size requirement hold the same number of students as a standard Ed Specs classroom, as Board policy caps the class size per teacher. The remaining 111 classrooms are undersized. Per the Ed Specs, spaces that are smaller by more than 10% of the standard classroom space should hold fewer students.

SCHEDULE EFFICIENCY

Schedule efficiency examines how classroom spaces are used throughout the school day. ACPS's Ed Specs strive for an 86% efficiency rate on a regular basis. Generally this rate means rooms are used seven out of eight periods a day and teachers utilize an alternative space such as a teacher collaboration suite for their planning period.

Analysis of course scheduling and room use based on the 2016-2017 schedule reveals that T.C. Williams' instructional spaces are used slightly less than the desired rate, as shown in the Current Efficiency box. Classroom efficiency is specific to each day's schedule and can vary annually. For the purposes of this analysis, only blocks 1 through 7 were considered, as these are the core academic blocks of the school day. T.C. Williams employs a Red/Blue block schedule, which impacts the instruction within a classroom each day. A classroom may be utilized for four periods during Red Day and only three periods during Blue Day, depending on the scheduling need. Specialty classrooms, such as for culinary courses, impact the efficiency as they may not be needed for every block. The day-to-day utilization of a classroom impacts the average schedule efficiency for that day. The average efficiency of classrooms at the King Street Campus during a Red Day schedule is 77% while the average efficiency during a Blue Day schedule is 78% based on the 2016-2017 schedule. Opportunities to improve schedule efficiency should be explored.

T.C. WILLIAMS: MINNIE HOWARD CAMPUS

3801 West Braddock Road, Alexandria, VA 22302

| | | |
|--|---|--|
| Year Built: 1954 | Current School Floor Area: 130,435 sq ft | Floor Area Permitted by Zoning 146,623 sq ft |
| Zoning: R12 (031.02-02-05) POS | Lot Size (acres): 6.6 5.4 For fields adjacent to the school | Floor to Area Ratio: 0.51 Not Applicable for POS |
| Classroom Count: 47 | Ed Spec Capacity @ 86% Efficiency: 859 | Projected Utilization (2022): 122% |
| Space Adequacy: | Alignment: | Current Efficiency: |
| Exceeds Space Requirements: classrooms are greater than 110% of space requirements | 1 classroom - 2% | ACPS Target Efficiency: 86% Generally this rate means rooms are used seven out of eight periods each day. See the "Schedule Efficiency" section for additional detail. A-Day Schedule Average: 70% The average efficiency for A-Day is based on the following class periods: 1, 3, 5, and 7. B-Day Schedule Average: 66% The average efficiency for B-Day is based on the following class periods: 1, 2, 4, and 6. |
| Satisfactory: classrooms are within 10% +/- of the Ed Spec space requirements | 7 classrooms - 15% | |
| Borderline: classrooms are between 80% to 89% of space requirements | 5 classrooms - 11% | |
| Inadequate: classrooms are between 70% to 79% of space requirements | 23 classrooms - 49% | |
| Very Inadequate: classrooms are within less than 69% of space requirements | 11 classrooms - 23% | |

Student Counts:

| | FY 2017 Enrollment | FY 2022 Projected |
|--|-----------------------|----------------------|
| Student Count | 811 | 1044 |
| Capacity | 859 | 859 |
| Utilization Rate (Student Count / Capacity) | 94% | 122% |

Utilization Rate Categories:

| Enrollment as % of Capacity | Definition |
|-----------------------------|------------------|
| < 89 | Underutilized |
| 90 - 110% | Ideally Utilized |
| > 111 % | Over Capacity |

BACKGROUND

T.C. Williams, Alexandria's only public high school, is a comprehensive high school comprised of two campuses: the Minnie Howard Campus and the King Street Campus. In September 2016, T.C. Williams High School had a

total enrollment of 3,754 students across both campuses. The Minnie Howard Campus serves grade 9 and the King Street Campus serves grades 10 – 12. A portion of 9th grade students travel to the King Street Campus during school hours on ACPS provided buses to attend specific class offerings.

The Minnie Howard School building was originally constructed in 1954 as an elementary school. There was a major classroom and gymnasium addition in 1969 when it was converted to a middle school. The facility served as the central administrative offices from 1981 to 1993, when it was again renovated and became the 9th grade center. ACPS has had several plans to modernize the campus in recent CIPs and is currently looking to assess the feasibility of the site for a new high school building.

ACADEMIC PROGRAM

The academic program at T.C. Williams High School includes 188 courses in reading, language arts, mathematics, social studies, and science, as well as fine arts, performing arts, physical education, and health. The school also offers the following special academic programs:

- Academy of Finance
- Advanced Placement/Honors
- AVID
- English Learners
- Special Education/Inclusion Program
- STEM Academy
- Career and Technical Programs

The Minnie Howard campus serves all 9th grade students except for those enrolled in the International Academy. The Minnie Howard campus does not provide all of the advanced courses 9th grade students may be eligible to take. Over one-third of the Minnie Howard enrollment in 2016-2017 school year attended the King Street campus for courses not offered at Minnie Howard at some point during the day, typically during the afternoon. These students are provided transportation from the Minnie Howard campus to the King Street campus.

ENROLLMENT AND UTILIZATION

The Minnie Howard Campus had a September 2016 enrollment of 811 students. The estimated capacity of the Campus is 859, yielding a utilization rate (enrollment vs. capacity) of 94%. Enrollment projections indicate the Minnie Howard school population will increase to 1,044 students by the year 2022, resulting in a utilization of 122%, which equates to a gap of 185 seats if seeking 100% utilization. ACPS considers ideal utilization as a range of 90 to 110%.

KEY FINDINGS

EDUCATIONAL ADEQUACY

Educational adequacy is the measure of existing educational spaces in comparison to ACPS's desired space

requirements and standards set forth in the 2017 School Board-approved high school Ed Specs. The educational adequacy assessment of the school helps to calculate its capacity, and is specific to square footage measurements.

Only 17% of classrooms meet or exceed the 2017 board approved educational adequacy benchmarks. The remaining 83% of classrooms are smaller than the sizes identified as adequate in the Ed Specs. Additionally, based on the 2016-2017 course schedule, the current use of classrooms averages below the ACPS benchmark efficiency rate of 86%.

SCHEDULE EFFICIENCY

Schedule efficiency examines how spaces are used throughout the school day. ACPS's Ed Specs strive for an 86% efficiency rate of classroom use on a regular basis. Generally this rate means teachers use their assigned rooms seven out of eight periods a day and utilize an alternative space, such as a teacher collaboration suite for their planning period.

Analysis of the 2016-2017 course scheduling and room use reveals that T.C. Williams: Minnie Howard Campus' instructional spaces are used less than the desired rate, as shown in the Current Efficiency box. As is the case with the King Street campus, classroom efficiency is specific to each day's schedule and can vary annually. For the purposes of this analysis, only blocks 1 through 7 were considered, as these are the core academic blocks of the school day. T.C. Williams employs a Red/Blue block schedule, which impacts the instruction within a classroom each day. A classroom may be utilized for four periods during Red Day and only three periods during Blue Day, depending on the scheduling need. Specialty classrooms impact the efficiency as they may not be needed for every block. The day-to-day utilization of a classroom impacts the average schedule efficiency for that day. The average efficiency of classrooms at the King Street Campus during a Red Day schedule is 70% while the average efficiency during a Blue Day schedule is 66%, based on the 2016-2017 course schedule. Opportunities to improve schedule efficiency should be explored.

RECOMMENDATIONS

The capacity of T.C. Williams High School’s two campuses cannot meet the projected growth in enrollment, nor do the majority of classrooms meet the minimum recommended size requirements per the Ed Specs. Options to provide additional student capacity at one or both campuses or a new site should be explored. Work group members and stakeholders emphasized their desire that short-term recommendations, often identified as an early priority, do not become long-term recommendations for the Division. Rather, short-term recommendations should serve a specific purpose for a given timeframe. Based on the analysis of the data collected and meetings with the work group and stakeholders, the following recommendations for the King Street and Minnie Howard Campuses are provided.

These recommendations are meant to serve as a guideline for future proposed Capital Improvement Program projects and should be re-evaluated based on need and feasibility at the time of implementation. Recommendations were made to align with City Strategic plan goals and ACPS 2020 Strategic Plan goals and should be implemented in alignment with these goals.

GROUP 1 — REQUIRED PLANNING

- Conduct further analysis of the master schedule and use of space at both campuses to explore ways to maximize existing space. The analysis should include studying how to increase the number of teacher collaboration suites and/or reconfiguring existing space to improve the enrollment capacity.
- Study the potential outcomes of a shifted schedule (e.g. multiple tracks of students with alternating start and end times).
- Study the possibility of transporting 10 – 12 grade students to the Minnie Howard Campus for classes to relieve capacity constraints at T.C. Williams.
- Conduct analysis to determine if either site can accommodate additional square footage to support more students. This analysis should include the impacts to shared and core spaces such as dining.
- Conduct an analysis of adjusting grade-level pairings throughout the Division (i.e., K-6, 7-9, 10-12).
- Study the combined use of both campuses. Determine how specialty classrooms can be efficiently used across both.
- Study/evaluate options for building additional capacity.
- New high school graduation requirements within the Commonwealth of Virginia are currently in development, known as the "Profile of a Virginia Graduate." The profile is the framework for the Virginia Board of Education’s revision of graduation requirements, which will go into effect for freshmen entering high school in the fall of the 2018-19 (the graduating class of 2022). The requirements will likely affect the number of required program and support spaces, as well as the types of spaces needed for high school programs. Once the requirements are approved, the division should conduct an analysis of high school spaces to ensure instructional spaces are in alignment with the new high school program requirements.

GROUP 2 — SHORT TERM RECOMMENDATIONS

- Continue and expand partnerships with local entities, such as NOVA Community College, to increase off-campus learning opportunities.
- Determine how much capacity can be provided at off-campus locations to inform future utilization of T.C. Williams.
- Ensure that future programs and priorities for the Minnie Howard Campus are in alignment with the site's capacity analysis.
- If applicable, adjust the master schedule based on analysis.
- In order to maximize capacity at both campuses, explore how students can travel between the two without significantly adding to the Division’s transportation costs or local traffic levels.
- Utilize relocatables to accommodate more students as enrollment increases.

GROUP 3 — INTERMEDIATE RECOMMENDATIONS

- If applicable, reassign grade-level pairings throughout the division based on analysis and ACPS priorities.
- Build additional capacity for T.C. Williams High School at the King Street Campus, at the Minnie Howard Campus, and/or at another location within the City.

GROUP 4 — LONG TERM RECOMMENDATIONS

| |
|--|
| |
|--|

EARLY CHILDHOOD EDUCATION (PRE-K)

BACKGROUND

ACPS Early Childhood Programs consist of three components: Virginia Preschool Initiative (VPI), Preschoolers Learning Together (PLT), and Early Childhood Special Education (ECSE). ACPS also has partnerships with local early care providers such as the Campagna Center, which provides Head Start and other programs. Some of these programs occur within ACPS schools and partner locations.

VPI is provided by a State grant and local funding. The purpose of VPI is to provide quality early childhood programs for children, whom the State of Virginia defines as “at-risk four-year olds.” VPI is a program designed for families who might not otherwise be able to access quality early childhood education opportunities.

PLT is a half-day preschool program offered to eligible children ages two years and six months thru four years (by September 30). This is an opportunity for developing children from the Alexandria community to be integrated into an early childhood special education (ECSE) classroom for the purpose of providing typical role models to students with disabilities.

ECSE provides special education services to students between the ages of two to five who are identified as having a developmental delay or disability.

Head Start is provided by a federal grant and local funding through partners. Head Start, similar to VPI, provides quality early childhood education for students who meet certain socioeconomic criteria.

The City of Alexandria has an Early Care and Education Workgroup (ECEW), which is a cross-sector workgroup made up of leaders from across ACPS, city agencies, partners, and the non-profit community. The group was convened to explore how Alexandria can build an early care and early childhood education system that is high quality, culturally and financially accessible, and comprehensive (including health, education, socio-emotional, family, and community support).

| School | Table 1: 2016-2017 Pre-K in ACPS Elementary Schools | | | | |
|---------------------|---|----------------------------------|------------------|------------------------|---------------------------|
| | ACPS Enrollment | HeadStart/ Partner Enrollment | Total Enrollment | Ed Spec Pre-K Capacity | Ed Spec Pre-K Utilization |
| Charles Barrett | 21 | 0 | 21 | 22 | 95% |
| Cora Kelly | 3 | 36 | 39 | 45 | 88% |
| Jefferson - Houston | 49 | 78 | 127 | 116 | 109% |
| John Adams | 123 | 92 | 197 | 144 | 137% |
| Patrick Henry | 96 | 60 | 156 | 124 | 126% |
| William Ramsay | 32 | 0 | 32 | 29 | 110% |
| George Washington | 0 | 41 | 41 | 45 | 91% |
| T.C. Williams | 0 | 24 | 24 | 40 | 60% |
| Total | 324 | 331 | 637 | 565 | 113% |

As shown in Table 1, ACPS currently offers early childhood education spaces in six elementary schools, one of the middle schools and at the high school. The location of programs has been informed by available capacity. Please note that all enrollment numbers included in Table 1 are for school year 2016 - 2017.

Historically, division-wide pre-K student forecasts have not been calculated as part of student projections since ACPS is limited in the amount of space that can be offered. ACPS currently provides as much space as possible throughout the City for current programs.

The State of Virginia uses a formula to project the number of disadvantaged four-year olds, which determines the amount of VPI slots to fund for a given municipality. The formula multiplies total kindergarten enrollment by the division-wide free lunch percentage and subtracts the number of slots provided through Head Start. Using the State’s formula, ACPS estimates there are 746 disadvantaged four-year olds in the City of Alexandria. In 2017, there were 569 pre-school slots provided through VPI and Head Start, leaving a deficit of 177. Projections indicate the disadvantaged four-year old population will

increase to 790 by 2022, leaving a deficit of 209 if no additional slots are provided.

VISION FOR EARLY CHILDHOOD PROGRAMS

The City of Alexandria is committed to making pre-K accessible to all families with pre-K age students and understands that this will require ACPS and partner support. The LREFP work group sought to explore the best ways to provide the maximum amount of pre-K spaces throughout the division. Programs could be provided within existing elementary schools, at new centers, or a combination of both.

ACPS Ed Specs provide guidelines for classroom design. The standard for a pre-K room is the same for a kindergarten classroom due to the similar emphasis on play and programmatic needs in the two grade levels. The similar classroom configuration also allows for flexibility year-to-year as student enrollment and program needs change. At schools that house Head Start, classes can be held in standard pre-K or kindergarten classrooms, provided the classroom meets the licensing criteria.

ACPS developed Ed Specs for a pre-K center as part of the LREFP. The Ed Specs outline space recommendations for a pre-K classroom, and are used to evaluate current capacity within existing pre-K classrooms already being used by ACPS. There are other partners who provide pre-K throughout the City and utilize their own private facilities.

PRE-K WITHIN EXISTING ELEMENTARY SCHOOLS

Currently, ACPS elementary schools have limited capacity within existing, permanent classrooms to accommodate larger enrollments, whether pre-K or kindergarten, through grade five. For the current school year, no elementary school is being utilized at less than 90%, and nine are above 100% utilization. ACPS considers ideal utilization as a range of 90% to 110%. Elementary student enrollment is projected to grow over the next ten years by about 800 students, further constraining the use of existing classroom space for early childhood education without expansions or a new school. As additional elementary capacity is added and as enrollments are updated based on boundary changes, ACPS should explore additional opportunities to provide pre-K spaces within existing elementary schools.

FUTURE PRE-K SPACE

In addition to pre-K spaces within existing elementary schools, ACPS and its partners also desire to explore

additional space for pre-K through centers, increased school capacity or space available in the community. Anticipated outcomes of additional centers as a model to increase services offered to families and create equity between programs will need to be explored if a pre-K center is proposed in the future. The center currently being pursued at John Adams elementary school could serve as a good example for future decision-making.

ACPS developed Ed Specs with partner input to outline space recommendations for a potential future center; however, these specifications can be used as a reference for ACPS and its partners to develop adequate pre-K spaces in other facilities.

Any solution should promote joint professional development and collaboration of staff employed by ACPS and the Campagna Center (Head Start) and support the Early Care in Education Workgroup's mission of seamless points of entry for parents seeking services. Solutions should also promote joint program development and delivery within VPI, ECSE, and Head Start, while maintaining critical funding streams and other policy requirements needed for state and federal funding.

RECOMMENDATIONS

The capacity of pre-K spaces throughout Alexandria cannot serve the current or projected population of disadvantaged four-year olds. This reality is supported by the waitlists reported by partners. Because of this, access should be expanded to serve all families within the City. These recommendations are specific to pre-K within ACPS facilities. Options to provide additional pre-K capacity at individual sites and/or a new pre-K center should be explored to meet this vision. Work group members and stakeholders emphasized their desire that short-term recommendations do not become long-term solutions for the division. Rather, short-term recommendations should serve a specific purpose for a given timeframe. Based on the analysis of the data collected and meetings with the work group and stakeholders, the following considerations for early childhood spaces are recommended.

These recommendations are meant to serve as a guideline for future proposed Capital Improvement Program projects and should be re-evaluated based on need and feasibility at the time of implementation. Recommendations were made to align with City Strategic plan goals and ACPS 2020 Strategic Plan goals and should be implemented in alignment with these goals.

GROUP 1 — REQUIRED PLANNING

- Analyze the impact of new elementary schools, capacity projects, and redistricting for providing capacity at elementary schools, develop a potential distribution plan for early childhood classrooms.
- Study the available capacity within City-owned buildings for space conversion and potential co-location. If capacity exists, analyze whether spaces can be converted to meet Ed Spec standards.
- Study the availability of privately-owned buildings/institutions for space conversion and potential co-location. If capacity exists, analyze whether spaces can be converted to meet Ed Spec standards.
- Evaluate implementation of co-located pre-K center to be open in 2018 to determine if additional centers would be beneficial.
- Study the possibility of co-location on City-owned sites. Perform feasibility analysis to see if build out can occur to provide space.
- Analyze the potential for/impact of providing density increases to developers who accommodate additional building capacity within new developments. Determine if land use solutions (i.e.: parking incentives, increased density, etc.) can provide additional pre-K capacity.

GROUP 2 — SHORT TERM RECOMMENDATIONS

- Calculate pre-K projections annually
- Maintain and expand, where possible, current pre-K capacity at existing elementary schools strategically located in areas of highest need.
- Expand pre-K capacity with private partners.
- Determine the amount of additional capacity that private partners can provide.
- Promote multi-story and urban school models to optimize real estate and provide maximum pre-K spaces within elementary schools.
- Identify and analyze potential land acquisition, co-location, or leasing opportunities for pre-K .

GROUP 3 — INTERMEDIATE RECOMMENDATIONS

- Analyze the feasibility of previously identified sites for additional pre-K capacity that aligns with the Board-approved Ed Specs.
- Explore feasibility of additional pre-K centers as a model based on the School Board-approved Ed Specs and after review and analysis of the initial co-located pre-K center.

GROUP 4 — LONG TERM RECOMMENDATIONS

- Configure spaces within existing elementary schools to meet Ed Specs for early childhood and/or incorporate into design for future capital projects.

T.C. WILLIAMS: KING STREET CAMPUS

3330 King Street Alexandria, VA 22302

| | | |
|---|--|--|
| Year Built: 2007 | Current School Floor Area: 461,147 sq ft | Current Lot Size: 19.88 acres |
| Zoning: R20 | Floor Area Permitted by Zoning: 547,000 | Floor to Area Ratio: .51 per DSUP |
| Classroom Count: 169 | Ed Spec Capacity @ 86% Efficiency: 2,928 | Projected Utilization (2022): 125% |
| Space Adequacy: | Alignment: | Current Efficiency: |
| Exceeds Space Requirements: classrooms are greater than 110% of space requirements | 38 classrooms - 23% | <p>ACPS Target Efficiency: 86% Generally this rate means rooms are used seven out of eight periods each day. See the "Schedule Efficiency" section for additional detail.</p> <p>A-Day Schedule Average: 77% The average efficiency for A-Day is based on the following class periods: 1, 3, 5, and 7.</p> <p>B-Day Schedule Average: 78% The average efficiency for B-Day is based on the following class periods: 1, 2, 4, and 6.</p> |
| Satisfactory: classrooms are between 90% to 110% of space requirements outlined in the Ed Spec | 20 classrooms - 12% | |
| Borderline: classrooms are between 80% to 89% of space requirements | 75 classrooms - 44% | |
| Inadequate: classrooms are between 70% to 79% of space requirements | 10 classrooms - 6% | |
| Very Inadequate: classrooms are within less than 69% of space requirements | 26 classrooms - 15% | |

Student Counts:

| | FY 2017 Enrollment | FY 2022 Projected |
|--|-----------------------|----------------------|
| Student Count | 2943 | 3654 |
| Capacity | 2928 | 2928 |
| Utilization Rate (Student Count / Capacity) | 101% | 125% |

Utilization Rate Categories:

| Enrollment as % of Capacity | Definition |
|-----------------------------|------------------|
| < 89 | Underutilized |
| 90 - 110% | Ideally Utilized |
| > 111 % | Over Capacity |

BACKGROUND

T.C. Williams, Alexandria's only public high school, is a comprehensive high school comprised of two campuses: the Minnie Howard Campus and the King Street Campus. In September 2016, T.C. Williams High School had a total enrollment of 3,754 students across both campuses.

The Minnie Howard Campus serves grade 9, and the King Street Campus serves grades 10 – 12 and grade 9 students who participate in the International Academy program. Some 9th grade students from Minnie Howard travel to the King Street Campus during school hours on ACPS provided buses to attend specific class offerings, often in the afternoon.

The King Street Campus was built in 1965 and modernized in 2007 with a new facility at its present site. The modernized building is a state-of-the-art facility that provides smaller learning communities, as well as flexible academic space capable of meeting the evolving secondary school curriculum requirements. In fall 2008, the second phase of the campus modernization project was completed and included an artificial turf sports field, renovated stadium, new athletic track, new playing field, new bus driveway, and a two-story parking garage. The project received a LEED Gold rating.

ACADEMIC PROGRAM

The academic program at T.C. Williams High School includes 188 courses in reading, language arts, mathematics, social studies, and science, as well as fine arts, performing arts, physical education, and health. The school also offers the following special academic programs:

- Academy of Finance
- Advanced Placement/Honors/Dual Enrollment
- AVID
- International Academy
- Special Education/Inclusion Program
- STEM Academy
- Career and Technical Programs

The King Street and Minnie Howard campuses operate as one high school. The King Street campus serves all 10th-12th grade students and all 9th-12th grade students enrolled in the International Academy. The King Street campus serves 9th grade students from the Minnie Howard campus in instances where a course is not offered at the Minnie Howard campus. Over one-third of the Minnie Howard enrollment in 2016-2017 school year took one or multiple courses at the King Street campus, at some point during the day, typically during the afternoon. These students are provided transportation from the Minnie Howard campus to the King Street campus.

ENROLLMENT AND UTILIZATION

The King Street Campus had a September 2016 enrollment of 2,943 students. The calculated capacity of the King Street Campus is 2,928 students based on an 86% efficiency rate, yielding a utilization rate (enrollment vs. capacity) of 101% in September 2016. Enrollment projections indicate the King Street Campus school population will increase to 3,654 by the year 2022, resulting in a utilization of 125% at the King Street Campus, which equates to a gap of 726 seats if seeking 100% utilization. ACPS considers ideal utilization as a range of 90% to 110%.

KEY FINDINGS

SUMMARY

The design of the King Street Campus was informed by older standards. ACPS has since developed Educational Specifications (Ed Specs) which were approved by the School Board in January 2017 and are reflective of current program and practices and represent ACPS's ideal 21st century high school.

Only 35% of classrooms meet or exceed the 2017 board approved educational adequacy benchmarks. The remaining 65% of classrooms are smaller than the prescribed minimum size requirements set in the Ed Specs. Additionally, based on the 2016-17 course schedule, the current use of classrooms averages below the ACPS benchmark efficiency rate of 86%.

EDUCATIONAL ADEQUACY

Educational adequacy is the measure of existing educational spaces in comparison to ACPS's desired space requirements and standards set forth in the 2017 School Board-approved high school Ed Specs. The educational adequacy assessment of the school also helps to calculate the capacity of the school.

Based upon the data collected, only 35% of classrooms at the King Street Campus meet or exceed the educational adequacy benchmarks for an ideal 21st century high school. Spaces that are non-conforming to the Ed Specs impact the potential capacity of the school and utilization of space.

Of 169 total teaching spaces, only 20 spaces fall within 10% of the space requirements set forth in the Ed Specs. Despite having more room, larger spaces can only hold up to the maximize class size; therefore the 38 spaces that exceed the size requirement hold the same number of students as a standard Ed Specs classroom, as Board policy caps the class size per teacher. The remaining 111 classrooms are undersized. Per the Ed Specs, spaces that are smaller by more than 10% of the standard classroom space should hold fewer students.

SCHEDULE EFFICIENCY

Schedule efficiency examines how classroom spaces are used throughout the school day. ACPS's Ed Specs strive for an 86% efficiency rate on a regular basis. Generally this rate means rooms are used seven out of eight periods a day and teachers utilize an alternative space such as a teacher collaboration suite for their planning period.

Analysis of course scheduling and room use based on the 2016-2017 schedule reveals that T.C. Williams' instructional spaces are used slightly less than the desired rate, as shown in the Current Efficiency box. Classroom efficiency is specific to each day's schedule and can vary annually. For the purposes of this analysis, only blocks 1 through 7 were considered, as these are the core academic blocks of the school day. T.C. Williams employs a Red/Blue block schedule, which impacts the instruction within a classroom each day. A classroom may be utilized for four periods during Red Day and only three periods during Blue Day, depending on the scheduling need. Specialty classrooms, such as for culinary courses, impact the efficiency as they may not be needed for every block. The day-to-day utilization of a classroom impacts the average schedule efficiency for that day. The average efficiency of classrooms at the King Street Campus during a Red Day schedule is 77% while the average efficiency during a Blue Day schedule is 78% based on the 2016-2017 schedule. Opportunities to improve schedule efficiency should be explored.

T.C. WILLIAMS: MINNIE HOWARD CAMPUS

3801 West Braddock Road, Alexandria, VA 22302

| | | |
|--|---|--|
| Year Built: 1954 | Current School Floor Area: 130,435 sq ft | Floor Area Permitted by Zoning 146,623 sq ft |
| Zoning: R12 (031.02-02-05) POS | Lot Size (acres): 6.6 5.4 For fields adjacent to the school | Floor to Area Ratio: 0.51 Not Applicable for POS |
| Classroom Count: 47 | Ed Spec Capacity @ 86% Efficiency: 859 | Projected Utilization (2022): 122% |
| Space Adequacy: | Alignment: | Current Efficiency: |
| Exceeds Space Requirements: classrooms are greater than 110% of space requirements | 1 classroom - 2% | <p>ACPS Target Efficiency: 86% Generally this rate means rooms are used seven out of eight periods each day. See the "Schedule Efficiency" section for additional detail.</p> <p>A-Day Schedule Average: 70% The average efficiency for A-Day is based on the following class periods: 1, 3, 5, and 7.</p> <p>B-Day Schedule Average: 66% The average efficiency for B-Day is based on the following class periods: 1, 2, 4, and 6.</p> |
| Satisfactory: classrooms are within 10% +/- of the Ed Spec space requirements | 7 classrooms - 15% | |
| Borderline: classrooms are between 80% to 89% of space requirements | 5 classrooms - 11% | |
| Inadequate: classrooms are between 70% to 79% of space requirements | 23 classrooms - 49% | |
| Very Inadequate: classrooms are within less than 69% of space requirements | 11 classrooms - 23% | |

Student Counts:

| | FY 2017 Enrollment | FY 2022 Projected |
|--|-----------------------|----------------------|
| Student Count | 811 | 1044 |
| Capacity | 859 | 859 |
| Utilization Rate (Student Count / Capacity) | 94% | 122% |

Utilization Rate Categories:

| Enrollment as % of Capacity | Definition |
|-----------------------------|------------------|
| < 89 | Underutilized |
| 90 - 110% | Ideally Utilized |
| > 111 % | Over Capacity |

BACKGROUND

T.C. Williams, Alexandria's only public high school, is a comprehensive high school comprised of two campuses: the Minnie Howard Campus and the King Street Campus. In September 2016, T.C. Williams High School had a

total enrollment of 3,754 students across both campuses. The Minnie Howard Campus serves grade 9 and the King Street Campus serves grades 10 – 12. A portion of 9th grade students travel to the King Street Campus during school hours on ACPS provided buses to attend specific class offerings.

The Minnie Howard School building was originally constructed in 1954 as an elementary school. There was a major classroom and gymnasium addition in 1969 when it was converted to a middle school. The facility served as the central administrative offices from 1981 to 1993, when it was again renovated and became the 9th grade center. ACPS has had several plans to modernize the campus in recent CIPs and is currently looking to assess the feasibility of the site for a new high school building.

ACADEMIC PROGRAM

The academic program at T.C. Williams High School includes 188 courses in reading, language arts, mathematics, social studies, and science, as well as fine arts, performing arts, physical education, and health. The school also offers the following special academic programs:

- Academy of Finance
- Advanced Placement/Honors
- AVID
- English Learners
- Special Education/Inclusion Program
- STEM Academy
- Career and Technical Programs

The Minnie Howard campus serves all 9th grade students except for those enrolled in the International Academy. The Minnie Howard campus does not provide all of the advanced courses 9th grade students may be eligible to take. Over one-third of the Minnie Howard enrollment in 2016-2017 school year attended the King Street campus for courses not offered at Minnie Howard at some point during the day, typically during the afternoon. These students are provided transportation from the Minnie Howard campus to the King Street campus.

ENROLLMENT AND UTILIZATION

The Minnie Howard Campus had a September 2016 enrollment of 811 students. The estimated capacity of the Campus is 859, yielding a utilization rate (enrollment vs. capacity) of 94%. Enrollment projections indicate the Minnie Howard school population will increase to 1,044 students by the year 2022, resulting in a utilization of 122%, which equates to a gap of 185 seats if seeking 100% utilization. ACPS considers ideal utilization as a range of 90 to 110%.

KEY FINDINGS

EDUCATIONAL ADEQUACY

Educational adequacy is the measure of existing educational spaces in comparison to ACPS's desired space

requirements and standards set forth in the 2017 School Board-approved high school Ed Specs. The educational adequacy assessment of the school helps to calculate its capacity, and is specific to square footage measurements.

Only 17% of classrooms meet or exceed the 2017 board approved educational adequacy benchmarks. The remaining 83% of classrooms are smaller than the sizes identified as adequate in the Ed Specs. Additionally, based on the 2016-2017 course schedule, the current use of classrooms averages below the ACPS benchmark efficiency rate of 86%.

SCHEDULE EFFICIENCY

Schedule efficiency examines how spaces are used throughout the school day. ACPS's Ed Specs strive for an 86% efficiency rate of classroom use on a regular basis. Generally this rate means teachers use their assigned rooms seven out of eight periods a day and utilize an alternative space, such as a teacher collaboration suite for their planning period.

Analysis of the 2016-2017 course scheduling and room use reveals that T.C. Williams: Minnie Howard Campus' instructional spaces are used less than the desired rate, as shown in the Current Efficiency box. As is the case with the King Street campus, classroom efficiency is specific to each day's schedule and can vary annually. For the purposes of this analysis, only blocks 1 through 7 were considered, as these are the core academic blocks of the school day. T.C. Williams employs a Red/Blue block schedule, which impacts the instruction within a classroom each day. A classroom may be utilized for four periods during Red Day and only three periods during Blue Day, depending on the scheduling need. Specialty classrooms impact the efficiency as they may not be needed for every block. The day-to-day utilization of a classroom impacts the average schedule efficiency for that day. The average efficiency of classrooms at the King Street Campus during a Red Day schedule is 70% while the average efficiency during a Blue Day schedule is 66%, based on the 2016-2017 course schedule. Opportunities to improve schedule efficiency should be explored.

RECOMMENDATIONS

The capacity of T.C. Williams High School’s two campuses cannot meet the projected growth in enrollment, nor do the majority of classrooms meet the minimum recommended size requirements per the Ed Specs. Options to provide additional student capacity at one or both campuses or a new site should be explored. Work group members and stakeholders emphasized their desire that short-term recommendations, often identified as an early priority, do not become long-term recommendations for the Division. Rather, short-term recommendations should serve a specific purpose for a given timeframe. Based on the analysis of the data collected and meetings with the work group and stakeholders, the following recommendations for the King Street and Minnie Howard Campuses are provided.

These recommendations are meant to serve as a guideline for future proposed Capital Improvement Program projects and should be re-evaluated based on need and feasibility at the time of implementation. Recommendations were made to align with City Strategic plan goals and ACPS 2020 Strategic Plan goals and should be implemented in alignment with these goals.

GROUP 1 — REQUIRED PLANNING

- Conduct further analysis of the master schedule and use of space at both campuses to explore ways to maximize existing space. The analysis should include studying how to increase the number of teacher collaboration suites and/or reconfiguring existing space to improve the enrollment capacity.
- Study the potential outcomes of a shifted schedule (e.g. multiple tracks of students with alternating start and end times).
- Study the possibility of transporting 10 – 12 grade students to the Minnie Howard Campus for classes to relieve capacity constraints at T.C. Williams.
- Conduct analysis to determine if either site can accommodate additional square footage to support more students. This analysis should include the impacts to shared and core spaces such as dining.
- Conduct an analysis of adjusting grade-level pairings throughout the Division (i.e., K-6, 7-9, 10-12).
- Study the combined use of both campuses. Determine how specialty classrooms can be efficiently used across both.
- Study/evaluate options for building additional capacity.
- New high school graduation requirements within the Commonwealth of Virginia are currently in development, known as the "Profile of a Virginia Graduate." The profile is the framework for the Virginia Board of Education’s revision of graduation requirements, which will go into effect for freshmen entering high school in the fall of the 2018-19 (the graduating class of 2022). The requirements will likely affect the number of required program and support spaces, as well as the types of spaces needed for high school programs. Once the requirements are approved, the division should conduct an analysis of high school spaces to ensure instructional spaces are in alignment with the new high school program requirements.

GROUP 2 — SHORT TERM RECOMMENDATIONS

- Continue and expand partnerships with local entities, such as NOVA Community College, to increase off-campus learning opportunities.
- Determine how much capacity can be provided at off-campus locations to inform future utilization of T.C. Williams.
- Ensure that future programs and priorities for the Minnie Howard Campus are in alignment with the site's capacity analysis.
- If applicable, adjust the master schedule based on analysis.
- In order to maximize capacity at both campuses, explore how students can travel between the two without significantly adding to the Division’s transportation costs or local traffic levels.
- Utilize relocatables to accommodate more students as enrollment increases.

GROUP 3 — INTERMEDIATE RECOMMENDATIONS

- If applicable, reassign grade-level pairings throughout the division based on analysis and ACPS priorities.
- Build additional capacity for T.C. Williams High School at the King Street Campus, at the Minnie Howard Campus, and/or at another location within the City.

GROUP 4 — LONG TERM RECOMMENDATIONS

| |
|--|
| |
|--|

EARLY CHILDHOOD EDUCATION (PRE-K)

BACKGROUND

ACPS Early Childhood Programs consist of three components: Virginia Preschool Initiative (VPI), Preschoolers Learning Together (PLT), and Early Childhood Special Education (ECSE). ACPS also has partnerships with local early care providers such as the Campagna Center, which provides Head Start and other programs. Some of these programs occur within ACPS schools and partner locations.

VPI is provided by a State grant and local funding. The purpose of VPI is to provide quality early childhood programs for children, whom the State of Virginia defines as “at-risk four-year olds.” VPI is a program designed for families who might not otherwise be able to access quality early childhood education opportunities.

PLT is a half-day preschool program offered to eligible children ages two years and six months thru four years (by September 30). This is an opportunity for developing children from the Alexandria community to be integrated into an early childhood special education (ECSE) classroom for the purpose of providing typical role models to students with disabilities.

ECSE provides special education services to students between the ages of two to five who are identified as having a developmental delay or disability.

Head Start is provided by a federal grant and local funding through partners. Head Start, similar to VPI, provides quality early childhood education for students who meet certain socioeconomic criteria.

The City of Alexandria has an Early Care and Education Workgroup (ECEW), which is a cross-sector workgroup made up of leaders from across ACPS, city agencies, partners, and the non-profit community. The group was convened to explore how Alexandria can build an early care and early childhood education system that is high quality, culturally and financially accessible, and comprehensive (including health, education, socio-emotional, family, and community support).

| School | ACPS Enrollment | HeadStart/ Partner Enrollment | Total Enrollment | Ed Spec Pre-K Capacity | Ed Spec Pre-K Utilization |
|---------------------|-----------------|-------------------------------|------------------|------------------------|---------------------------|
| Charles Barrett | 21 | 0 | 21 | 22 | 95% |
| Cora Kelly | 3 | 36 | 39 | 45 | 88% |
| Jefferson - Houston | 49 | 78 | 127 | 116 | 109% |
| John Adams | 123 | 92 | 197 | 144 | 137% |
| Patrick Henry | 96 | 60 | 156 | 124 | 126% |
| William Ramsay | 32 | 0 | 32 | 29 | 110% |
| George Washington | 0 | 41 | 41 | 45 | 91% |
| T.C. Williams | 0 | 24 | 24 | 40 | 60% |
| Total | 324 | 331 | 637 | 565 | 113% |

As shown in Table 1, ACPS currently offers early childhood education spaces in six elementary schools, one of the middle schools and at the high school. The location of programs has been informed by available capacity. Please note that all enrollment numbers included in Table 1 are for school year 2016 - 2017.

Historically, division-wide pre-K student forecasts have not been calculated as part of student projections since ACPS is limited in the amount of space that can be offered. ACPS currently provides as much space as possible throughout the City for current programs.

The State of Virginia uses a formula to project the number of disadvantaged four-year olds, which determines the amount of VPI slots to fund for a given municipality. The formula multiplies total kindergarten enrollment by the division-wide free lunch percentage and subtracts the number of slots provided through Head Start. Using the State’s formula, ACPS estimates there are 746 disadvantaged four-year olds in the City of Alexandria. In 2017, there were 569 pre-school slots provided through VPI and Head Start, leaving a deficit of 177. Projections indicate the disadvantaged four-year old population will

increase to 790 by 2022, leaving a deficit of 209 if no additional slots are provided.

VISION FOR EARLY CHILDHOOD PROGRAMS

The City of Alexandria is committed to making pre-K accessible to all families with pre-K age students and understands that this will require ACPS and partner support. The LREFP work group sought to explore the best ways to provide the maximum amount of pre-K spaces throughout the division. Programs could be provided within existing elementary schools, at new centers, or a combination of both.

ACPS Ed Specs provide guidelines for classroom design. The standard for a pre-K room is the same for a kindergarten classroom due to the similar emphasis on play and programmatic needs in the two grade levels. The similar classroom configuration also allows for flexibility year-to-year as student enrollment and program needs change. At schools that house Head Start, classes can be held in standard pre-K or kindergarten classrooms, provided the classroom meets the licensing criteria.

ACPS developed Ed Specs for a pre-K center as part of the LREFP. The Ed Specs outline space recommendations for a pre-K classroom, and are used to evaluate current capacity within existing pre-K classrooms already being used by ACPS. There are other partners who provide pre-K throughout the City and utilize their own private facilities.

PRE-K WITHIN EXISTING ELEMENTARY SCHOOLS

Currently, ACPS elementary schools have limited capacity within existing, permanent classrooms to accommodate larger enrollments, whether pre-K or kindergarten, through grade five. For the current school year, no elementary school is being utilized at less than 90%, and nine are above 100% utilization. ACPS considers ideal utilization as a range of 90% to 110%. Elementary student enrollment is projected to grow over the next ten years by about 800 students, further constraining the use of existing classroom space for early childhood education without expansions or a new school. As additional elementary capacity is added and as enrollments are updated based on boundary changes, ACPS should explore additional opportunities to provide pre-K spaces within existing elementary schools.

FUTURE PRE-K SPACE

In addition to pre-K spaces within existing elementary schools, ACPS and its partners also desire to explore

additional space for pre-K through centers, increased school capacity or space available in the community. Anticipated outcomes of additional centers as a model to increase services offered to families and create equity between programs will need to be explored if a pre-K center is proposed in the future. The center currently being pursued at John Adams elementary school could serve as a good example for future decision-making.

ACPS developed Ed Specs with partner input to outline space recommendations for a potential future center; however, these specifications can be used as a reference for ACPS and its partners to develop adequate pre-K spaces in other facilities.

Any solution should promote joint professional development and collaboration of staff employed by ACPS and the Campagna Center (Head Start) and support the Early Care in Education Workgroup's mission of seamless points of entry for parents seeking services. Solutions should also promote joint program development and delivery within VPI, ECSE, and Head Start, while maintaining critical funding streams and other policy requirements needed for state and federal funding.

RECOMMENDATIONS

The capacity of pre-K spaces throughout Alexandria cannot serve the current or projected population of disadvantaged four-year olds. This reality is supported by the waitlists reported by partners. Because of this, access should be expanded to serve all families within the City. These recommendations are specific to pre-K within ACPS facilities. Options to provide additional pre-K capacity at individual sites and/or a new pre-K center should be explored to meet this vision. Work group members and stakeholders emphasized their desire that short-term recommendations do not become long-term solutions for the division. Rather, short-term recommendations should serve a specific purpose for a given timeframe. Based on the analysis of the data collected and meetings with the work group and stakeholders, the following considerations for early childhood spaces are recommended.

These recommendations are meant to serve as a guideline for future proposed Capital Improvement Program projects and should be re-evaluated based on need and feasibility at the time of implementation. Recommendations were made to align with City Strategic plan goals and ACPS 2020 Strategic Plan goals and should be implemented in alignment with these goals.

GROUP 1 — REQUIRED PLANNING

- Analyze the impact of new elementary schools, capacity projects, and redistricting for providing capacity at elementary schools, develop a potential distribution plan for early childhood classrooms.
- Study the available capacity within City-owned buildings for space conversion and potential co-location. If capacity exists, analyze whether spaces can be converted to meet Ed Spec standards.
- Study the availability of privately-owned buildings/institutions for space conversion and potential co-location. If capacity exists, analyze whether spaces can be converted to meet Ed Spec standards.
- Evaluate implementation of co-located pre-K center to be open in 2018 to determine if additional centers would be beneficial.
- Study the possibility of co-location on City-owned sites. Perform feasibility analysis to see if build out can occur to provide space.
- Analyze the potential for/impact of providing density increases to developers who accommodate additional building capacity within new developments. Determine if land use solutions (i.e.: parking incentives, increased density, etc.) can provide additional pre-K capacity.

GROUP 2 — SHORT TERM RECOMMENDATIONS

- Calculate pre-K projections annually
- Maintain and expand, where possible, current pre-K capacity at existing elementary schools strategically located in areas of highest need.
- Expand pre-K capacity with private partners.
- Determine the amount of additional capacity that private partners can provide.
- Promote multi-story and urban school models to optimize real estate and provide maximum pre-K spaces within elementary schools.
- Identify and analyze potential land acquisition, co-location, or leasing opportunities for pre-K .

GROUP 3 — INTERMEDIATE RECOMMENDATIONS

- Analyze the feasibility of previously identified sites for additional pre-K capacity that aligns with the Board-approved Ed Specs.
- Explore feasibility of additional pre-K centers as a model based on the School Board-approved Ed Specs and after review and analysis of the initial co-located pre-K center.

GROUP 4 — LONG TERM RECOMMENDATIONS

- Configure spaces within existing elementary schools to meet Ed Specs for early childhood and/or incorporate into design for future capital projects.

Date: April 26, 2018

For ACTION: _____

For INFORMATION: X

Board Agenda: Yes X
No _____

FROM: Erika Gulick, Facilities Planner/GIS Specialist

THROUGH: Lois F. Berlin, Ed.D., Interim Superintendent of Schools
Mignon Anthony, Chief Operating Officer

TO: The Honorable Ramee A. Gentry, Chair, and Members of the Alexandria City School Board

TOPIC: Long Range Educational Facilities Plan: Phase II

BACKGROUND: The LREFP reviews current capacity, projected growth and the effectiveness of current facilities in meeting the need throughout ACPS. The first phase of the LREFP, which determined needs and potential solutions for the elementary and middle school levels, was finalized in the summer of 2015 and adopted and endorsed by the School Board and City Council, respectively. ACPS and the City of Alexandria intend to go through a similar process with the School Board and City Council this spring to adopt the second phase of the LREFP beginning with this presentation to the School Board.

SUMMARY: The Long Range Educational Facilities Plan (LREFP) Work Group recently made final recommendations to address high school and pre-K capacity through its completion of the second phase of the LREFP. The LREFP Work Group began meeting in January 2017 and finalized its recommendations to address pre-K and high school capacity needs in February 2018. The Work Group's recommendations were divided into 4 categories:

1. Required Planning: Includes assessments that should be conducted
2. Short Term: Details capacity/educational adequacy solutions that should be pursued in the 0-5 year time frame
3. Intermediate: Details capacity/educational adequacy solutions that should be pursued in the 6-10 year time frame
4. Long-Term: Details capacity/educational adequacy solutions that should be pursued in the 11-30 year time frame

The final addendums and results of a city-wide survey about the LREFP recommendations are included in the attachments.

RECOMMENDATION: The Superintendent recommends that the School Board review the presentation and attachments.

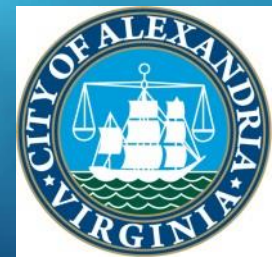
CONTACT PERSON: Erika Gulick, 703-619-8298

ATTACHMENTS: Attachment 1 – LREFP Phase II Presentation
Attachment 2 – Final Draft Addendums
Attachment 3 – AlexEngage Survey Results

Long Range Educational Facilities Plan Phase II

School Board Meeting

April 26, 2018



Every Student Succeeds

Essential Questions

1. What is the purpose of the Long Range Educational Facilities Plan (LREFP)?
2. How was Phase II of the LREFP developed?
3. What were the recommendations for pre-K?
4. What were the recommendations for high school?
5. How will the LREFP be used in the future?

LREFP Overview: Phase I

June 2015

Joint Alexandria City Public Schools/City of Alexandria

Long Range Educational Facilities Plan



*Endorsed by City Council, June 23, 2015
Adopted by ACPS School Board, June 11, 2015*

Long Range Educational Facilities Plan (LREFP)

- Outlined options for how educational facilities can meet capacity needs
- Intended to be a living document
- Developed as a joint effort between ACPS and the City of Alexandria, with input from a Work Group and overall community involvement.

Phase I: Established methodologies, elementary and middle school recommendations

Phase II: Pre-K and high school recommendations

LREFP Overview: Phase II

- **Phase II of the LREFP** began in Spring 2016 and includes recommendations for both Early Childhood Education and High School in the City of Alexandria
- **Early Childhood Education:**
 - Enrollment projections and future needs of Pre-K
 - Potential for a centralized Pre-K facility
 - Assessment of current Pre-K facilities compared to Ed. Specs
- **High School**
 - Enrollment projections and future needs of high schools
 - Assessment of current high school facilities compared to Ed. Specs

LREFP Overview: Phase II

- **As part of Phase II**, ACPS developed educational specifications for a pre-K center and high school, using:
 - State and National Guidelines
 - Input from ACPS staff and third-party consultants
 - Latest research in educational facilities
- **Numerous stakeholder groups participated** in developing Ed Specs, including:
 - School Administration & Staff
 - Partners (pre-K)
 - ACPS Senior Leadership Team
 - Curriculum & Instruction Staff
 - Facilities Staff
- **Pre-K Center Educational Specifications** were approved in July 2016.
- **High School Educational Specifications** were approved in January 2017.

Phase II Work Group

- The Work Group was established to review and advise staff on the work being done to develop Phase II of the Long Range Educational Facilities Plan (LREFP).
- The Work Group was responsible for defining ACPS short, intermediate, and long term facilities' needs for pre-kindergarten and high school and identifying solutions.
- The Work Group convened in January 2017 and is comprised of 17 members, as shown on the next slide.

Phase II Work Group

Community Members

- Dr. Tammy Mann, Campagna Center
- Joy Cameron, PTA
- John Lennon, PTA
- Judy Noritake, Community
- Lori Arrasmith Quill, Community
- Matthew Walsh, Community
- Kathy Stenzel, BFAAC
- Cynthia Skinner, Early Childhood Education Work Group
- Steve Patterson, NOVA Community College
- Kennetra Wood, ACPS T.C. Williams
- Mark Eisenhour, ACPS T.C. Williams
- Michael Burch, ACPS T.C. Williams
- Victor Martin, Alternate Programs

Elected Officials

- Ramee Gentry, School Board Chair
- William Campbell, School Board Member
- Justin Wilson, Vice-Mayor
- Allison Silberberg, Mayor

Assigned Staff (Not Work Group Members)

- Erika Gulick, ACPS
- Clarence Stukes, ACPS
- Katherine Carraway, P&Z, COA
- Karl Moritz, P&Z, COA

Consultants (Not Work Group Members)

- Brailsford & Dunlavy

Development Timeline

1. **January 30, 2017:** Work Group Kick-Off Meeting
2. **March 2, 2017:** Enrollment Projections & Capacity
3. **April 3, 2017:** Review Current CIP Projects and Land Acquisition Opportunities, Prepare Preliminary Recommendations
4. **April 18, 2017:** Pre-K Stakeholder Meeting
5. **April 20, 2017:** High School Stakeholder Meeting
6. **May 24, 2017:** Review Community Feedback, Develop Recommendations, Analysis Fiscal Challenges, Draft Addendums
7. **June 12, 2017:** Review Final Recommendations, Develop Final Addendums
8. **September 20, 2017:** Review Final Addendums
9. **February 7, 2018:** Latest Addendum
10. **February 20, 2018 – March 11, 2018:** AlexEngage Survey

LREFP Phase II: Early Childhood Education Outcomes

Phase II of the LREFP includes:

- History and background of early childhood programs
 - Virginia Preschool Initiative (VPI)
 - Preschoolers Learning Together (PLT)
 - Early Childhood Special Education (ECSE)
- Current enrollment and capacity of existing pre-K spaces in ACPS Elementary Schools
- Division-wide pre-K student forecasting based on the State of Virginia’s formula for disadvantaged four-year olds
- Recommendations for serving current and future pre-K demand

EARLY CHILDHOOD EDUCATION (PRE-K)

BACKGROUND

ACPS Early Childhood Programs consist of three components: Virginia Preschool Initiative (VPI), Preschoolers Learning Together (PLT), and Early Childhood Special Education (ECSE). ACPS also has partnerships with local early care providers such as the Campagna Center, which provides Head Start and other programs. Some of these programs occur within ACPS schools and partner locations.

VPI is provided by a State grant and local funding. The purpose of VPI is to provide quality early childhood programs for children, whom the State of Virginia defines as “at-risk four-year olds.” VPI is a program designed for families who might not otherwise be able to access quality early childhood education opportunities.

PLT is a half-day preschool program offered to eligible children ages two years and six months thru four years (by September 30). This is an opportunity for developing children from the Alexandria community to be integrated into an early childhood special education (ECSE) classroom for the purpose of providing typical role models to students with disabilities.

ECSE provides special education services to students between the ages of two to five who are identified as having a developmental delay or disability.

Head Start is provided by a federal grant and local funding through partners. Head Start, similar to VPI, provides quality early childhood education for students who meet certain socioeconomic criteria.

The City of Alexandria has an Early Care and Education Workgroup (ECEW), which is a cross-sector workgroup made up of leaders from across ACPS, city agencies, partners, and the non-profit community. The group was convened to explore how Alexandria can build an early care and early childhood education system that is high quality, culturally and financially accessible, and comprehensive (including health, education, socio-emotional, family, and community support).

| School | Table 1: 2016-2017 Pre-K in ACPS Elementary Schools | | | | |
|---------------------|---|------------------------------|------------------|------------------------|---------------------------|
| | ACPS Enrollment | HeadStart/Partner Enrollment | Total Enrollment | Ed Spec Pre-K Capacity | Ed Spec Pre-K Utilization |
| Charles Barrett | 21 | 0 | 21 | 22 | 95% |
| Cora Kelly | 3 | 36 | 39 | 45 | 88% |
| Jefferson - Houston | 49 | 78 | 127 | 116 | 109% |
| John Adams | 123 | 92 | 197 | 144 | 137% |
| Patrick Henry | 96 | 60 | 156 | 124 | 126% |
| William Ramsay | 32 | 0 | 32 | 29 | 110% |
| George Washington | 0 | 41 | 41 | 45 | 91% |
| T.C. Williams | 0 | 24 | 24 | 40 | 60% |
| Total | 324 | 331 | 637 | 565 | 113% |

As shown in Table 1, ACPS currently offers early childhood education spaces in six elementary schools, one of the middle schools and at the high school. The location of programs has been informed by available capacity. Please note that all enrollment numbers included in Table 1 are for school year 2016 - 2017.

Historically, division-wide pre-K student forecasts have not been calculated as part of student projections since ACPS is limited in the amount of space that can be offered. ACPS currently provides as much space as possible throughout the City for current programs.

The State of Virginia uses a formula to project the number of disadvantaged four-year olds, which determines the amount of VPI slots to fund for a given municipality. The formula multiplies total kindergarten enrollment by the division-wide free lunch percentage and subtracts the number of slots provided through Head Start. Using the State’s formula, ACPS estimates there are 746 disadvantaged four-year olds in the City of Alexandria. In 2017, there were 569 pre-school slots provided through VPI and Head Start, leaving a deficit of 177. Projections indicate the disadvantaged four-year old population will

Pre-K Goals

- Meet the demand for pre-K capacity in current programs.
- Pre-K programs should be located in areas of highest need.
- Access should be expanded to serve all families in Alexandria.
- Spaces should align with Ed Specs.
- Short-term solutions should not become long-term solutions.

Note: Recommendations are specific to pre-K programs within ACPS facilities.

Pre-K Recommendations: Required Planning

- Evaluate existing space throughout the City and ACPS facilities to find additional space for pre-K classrooms.
- Seek out space from private organizations.
- Analyze the co-located early childhood education center when open to determine if that is a good model.
- Explore the feasibility of incentivizing pre-K space to be added to new development.

Pre-K Recommendations: Short-Term (0-5 years)

- Calculate pre-K projections annually.
- Maintain and expand current pre-K capacity in ACPS facilities where able.
- Work with private partners to determine if they can add additional capacity.
- Promote multi-story and urban school models.
- Identify and analyze potential land acquisition, co-location, or leasing opportunities.

Pre-K Recommendations: Intermediate (6-10 years)

- Analyze the feasibility of previously identified sites for additional pre-K capacity that aligns with the Board-approved Ed Specs.
- After review of the existing early childhood center at John Adams, determine if additional centers are desired.



Pre-K Recommendations: Long-Term (11-30 years)

- Include co-located pre-K in future elementary school buildings and capital projects.

LREFP Phase II: High School Outcomes

Phase II of the LREFP includes:

- Explanation of current high school operation
- Site information for T.C. Williams: King Street and Minnie Howard campuses
- Assessment of spaces compared to the High School Ed. Specs.
- Division-Wide enrollment forecast for ACPS high school students
- Recommendations to lessen the capacity gap at the high school level

T.C. WILLIAMS: KING STREET CAMPUS

3330 King Street Alexandria, VA 22302

| | | | | | |
|------------------|------------|------------------------------------|---------------------|-------------------------------|--------------|
| Year Built: | 2007 | Current School Floor Area: | 461,147 sq ft | Current Lot Size: | 19.88 acres |
| Zoning: | R20 | Floor Area Permitted by Zoning: | 547,000 | Floor to Area Ratio: | .51 per DSUP |
| Classroom Count: | 169 | Ed Spec Capacity @ 86% Efficiency: | 2,928 | Projected Utilization (2022): | 125% |
| Space Adequacy: | Alignment: | | Current Efficiency: | | |

| | |
|---|--------------|
| Exceeds Space Requirements: classrooms are greater than 110% of space requirements | 38 classroom |
| Satisfactory: classrooms are between 90% to 110% of space requirements outlined in the Ed Spec | 20 classroom |
| Borderline: classrooms are between 80% to 89% of space requirements | 75 classroom |
| Inadequate: classrooms are between 70% to 79% of space requirements | 10 classroom |
| Very Inadequate: classrooms are within less than 69% of space requirements | 26 classroom |

| Student Counts: | | FY 2017 | FY 2022 |
|---|--|------------|-----------|
| | | Enrollment | Projected |
| Student Count | | 2943 | 3654 |
| Capacity | | 2928 | 2928 |
| Utilization Rate (Student Count / Capacity) | | 101% | 125% |

BACKGROUND

T.C. Williams, Alexandria's only public high school, is a comprehensive high school comprised of two campuses: the Minnie Howard Campus and the King Street Campus. In September 2016, T.C. Williams High School had a total enrollment of 3,754 students across both campuses.

DRAFT Long Range Educational Facilities Plan February

T.C. WILLIAMS: MINNIE HOWARD CAMPUS

3801 West Braddock Road, Alexandria, VA 22302

| | | | | | |
|---|-----------------------------|--|--|---------------------------------|--------------------------------|
| Year Built: | 1954 | Current School Floor Area: | 130,435 sq ft | Floor Area Permitted by Zoning: | 146,623 sq ft |
| Zoning: | R12 (031.02-02-05) POS | Lot Size (acres): 6.6 5.4 For fields adjacent to the school | | Floor to Area Ratio: | 0.51 Not Applicable for POS |
| Classroom Count: | 47 | Ed Spec Capacity @ 86% Efficiency: | 859 | Projected Utilization (2022): | 122% |
| Space Adequacy: | Alignment: | | Current Efficiency: | | |
| Exceeds Space Requirements: classrooms are greater than 110% of space requirements | 1 classroom - 2% | | ACPS Target Efficiency: 86% Generally this rate means rooms are used seven out of eight periods each day. See the "Schedule Efficiency" section for additional detail. | | |
| Satisfactory: classrooms are within 10% +/- of the Ed Spec space requirements | 7 classrooms - 15% | | Average: 70% The average efficiency for A-Day is based on the following class periods: 1, 3, 5, and 7. | | |
| Borderline: classrooms are between 80% to 89% of space requirements | 5 classrooms - 11% | | A-Day Schedule Average: 70% | | |
| Inadequate: classrooms are between 70% to 79% of space requirements | 23 classrooms - 49% | | B-Day Schedule Average: 66% The average efficiency for B-Day is based on the following class periods: 1, 2, 4, and 6. | | |
| Very Inadequate: classrooms are within less than 69% of space requirements | 11 classrooms - 23% | | | | |

| Student Counts: | | FY 2017 | FY 2022 |
|---|--|------------|-----------|
| | | Enrollment | Projected |
| Student Count | | 811 | 1044 |
| Capacity | | 859 | 859 |
| Utilization Rate (Student Count / Capacity) | | 94% | 122% |

Utilization Rate Categories:

| Enrollment as % of Capacity | Definition |
|-----------------------------|------------------|
| < 89 | Underutilized |
| 90 - 110% | Ideally Utilized |
| > 111 % | Over Capacity |

BACKGROUND

T.C. Williams, Alexandria's only public high school, is a comprehensive high school comprised of two campuses: the Minnie Howard Campus and the King Street Campus. In September 2016, T.C. Williams High School had a

total enrollment of 3,754 students across both campuses. The Minnie Howard Campus serves grade 9 and the King Street Campus serves grades 10 - 12. A portion of 9th grade students travel to the King Street Campus during school hours on ACPS provided buses to attend specific class offerings.

DRAFT Long Range Educational Facilities Plan February 7, 2018

Chapter 4.4

High School Goals

- Meet the demand for high school capacity
- Align spaces with ed. specs
- Consider all options to create additional capacity
- Ensure short term solutions do not become long term solutions



High School Recommendations: Required Planning

- Analyze schedule and existing space to optimize use at both campuses.
- Study all options to add building capacity, on both existing sites and elsewhere.
- Assess different grade level configuration options.
- Ensure that current and future instructional spaces align with new high school program requirements as outlined in the Virginia Board of Education’s “Profile of a Virginia Graduate.”

High School Recommendations: Short-Term (0-5 years)

- Continue and expand alternative programs and/or partnerships with local entities to increase off-campus learning opportunities.
- Update capacity analyses, to include core spaces as proposed uses change.
- If applicable, adjust the master schedule.
- Utilize relocatables to add capacity.
- See if transition between campuses can be increased without creating a negative impact on traffic/operations.

High School Recommendations: Intermediate (6-10 years)

- If applicable, reassign grade-level pairings throughout the division.
- Build additional capacity for T.C. Williams High School at the King Street Campus, at the Minnie Howard Campus, and/or at another location within the City.

AlexEngage Survey Outcomes

Objective: **Gauge public interest and understanding** of the Long Range Educational Facilities Plan Phase II and **identify concerns** with the final recommendations.

The survey had a low response rate (20); however below are some of the concerns that were raised for Pre-K:

- Pre-K is not required and too costly.
- Concern about co-location given the capacity constraints at elementary level.
- Capacity plans should address a range of growth to provide flexibility and not a specific number.

AlexEngage Survey Outcomes

Again, the survey had a low response rate (20); however below are some of the concerns that were raised for high school:

- Disagree with splitting T.C. Williams.
- Grade level realignment will not alleviate capacity.
- Recommended efficiency rate is hard to achieve.
- Recommendations are not aggressive enough to address capacity needs.
- T.C. Williams King Street Campus building is already too large to add building space.
- Capacity plans should address a range of growth to provide flexibility and not a specific number.

Next Steps

- Staff will provide updates as desired to community groups.
- Following adoption by School Board (May 10th) and endorsement by City Council (June), ACPS and the City will use these recommendations in High School Capacity planning efforts and Joint Facilities Master Planning.
- Future capital budgets will consider these recommendations.
- Updates will be made to the entire LREFP.

Questions?

Erika Gulick
Facilities Planner/GIS Specialist
erika.gulick@acps.k12.va.us
(703) 619-8298

Katherine Carraway
Urban Planner
katherine.carraway@alexandriava.gov
(703) 746-3855

**Attachment 3
LREFP Phase II AlexEngage Survey Results**

| Type | Additional Survey Comments | Amount of Responses | | | | | | Total |
|-------------|--|---------------------|----------|---------|-------|----------------|------------|-------|
| | | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | No Opinion | |
| General | I have read and understand the addendum to Phase II of the Long Range Educational Facilities Plan (“LREFP”). | 0 | 0 | 1 | 11 | 6 | 2 | 20 |
| | I have read and understand the responsibilities of the Work Group for Phase II of the Alexandria City Public Schools/City of Alexandria Long Range Educational Facilities Plan | 0 | 1 | 3 | 12 | 3 | 1 | 20 |
| | The Work Group engaged in a transparent process. | 3 | 3 | 3 | 6 | 1 | 4 | 20 |
| High School | The recommendations identified by the LREFP Work Group address the short term (1-5 year) needs for high school capacity. | 3 | 6 | 2 | 6 | 2 | 1 | 20 |
| | The recommendations identified by the LREFP Work Group address the intermediate term (6-10 year) needs for high school capacity. | 4 | 5 | 3 | 5 | 1 | 2 | 20 |
| Pre-K | The recommendations identified by the LREFP Work Group address the short term (1-5 year) needs for pre-K capacity. | 1 | 1 | 1 | 8 | 1 | 8 | 20 |
| | The recommendations identified by the LREFP Work Group address the intermediate term (6-10 year) needs for pre-K capacity. | 1 | 1 | 2 | 7 | 1 | 8 | 20 |
| | The recommendations identified by the LREFP Work Group address the long term (11-20 year) needs for pre-K capacity. | 1 | 1 | 1 | 8 | 1 | 8 | 20 |

Attachment 3
LREFP Phase II AlexEngage Survey Results

| Type | Additional Survey Comments |
|-------------|--|
| High School | <p>Planning to add more space to TC Williams is a terrible idea. The main campus already is TOO BIG and lets students feel lost, only a number, only a face in the crowd. The "smaller learning communities" mentioned don't exist in a helpful way, it just means that students are assigned to different vice principals. The last thing we need is more bodies crammed into this space. Parking is also wholly inadequate here. Has combining campuses resulted in any measurable gains? Have scores improved in the interim? Step one should be not having hundreds of students go from Minnie to King Street every day - Minnie has much more room, it should be being used. Being overcapacity means that we can no longer have pep rallies and students can't all fit in the cafeteria - these are experiences students deserve to have that are being taken from them because the school is too big. Making an existing very large school larger is not the answer. The Minnie Howard site needs a total overhaul so that it can accommodate grades 9 and 10 and King Street can accommodate 11, 12, and the international academy and other special programs.</p> |
| | <p>Waste of time project. ACPS is just making excuses for its attempt to divide TC. Joke.</p> |
| | <p>The recommendations have been crafted so as to falsely justify a split of TC Williams High School. This split, which the School Board has been pursuing for at least two years, is entirely unjustified and egregiously needless. It will result in an extraordinary deprivation of equal educational access to the City's high school population. The school board's proposed split is also based on false claims concerning existing capacity, sufficiency, and comparability.</p> |
| | <p>The sole purpose of this exercise is to provide a false justification for the planned split of TC Williams High School. The split is being performed by School Board in an opaque and dishonest fashion. The split is unjustified and is manifestly contrary to the public interest. City Council needs to recognize that the school board has behaved dishonestly and incompetently. It's long past time to shut down their plan.</p> |
| | <p>It only seems appropriate if an additional high school is built. Attempting to find alternatives, such as grade-level pairings, does not create a strong high school experience, nor explain how this would actually look at the high school level for students, teachers and staff.</p> |
| | <p>Recommendations seem over capacity. Science is way over capacity, and has been for years. I can't fathom 85% efficiency- I already borrow principals' offices for planning and parent meetings. . I don't think pushing students to NoVA and college campuses isn't a viable strategy.</p> |
| | <p>I am unsure how a grade re-alignment would help ACPS as a whole system. While it would alleviate crowding at the high school level, the elementary schools - which are already bursting at their seams - would have to add an additional grade. The middle school likely wouldn't be affected as it would continue to host three grade levels.</p> |
| | <p>I am responding to this information: "ACPS's Ed Specs strive for an 86% efficiency rate on a regular basis. Generally this rate means rooms are used seven out of eight periods a day and teachers utilize an alternative space such as a teacher collaboration suite for their planning period." Absent from these conclusions is the acknowledgement that human beings occupy these spaces. As a teacher, I need quiet space to grade, plan, call students' homes, write/respond to emails, complete reports. A student just came out showing that open plan office space decreases efficiency. Moreover, a primary goal should be for no teachers to travel. We create our learning environments in our rooms, and that particular aspect is what appeals tremendously to teachers from abroad who visit us. I also cannot move my library of resources to every room where I teach. The review committee MUST be composed of 75% teachers, 25% every other group. Time after time I have seen schools unfortunately reconstructed with so much wasted space that every teacher would have seen immediately. Finally, scheduling for our electives places a greater burden on teachers as long as we have a split campus. Let's bring 9th grade to King Street and move the track/football field elsewhere. The neighbors opposing field lights would be ecstatic.</p> |
| | <p>there should be 3 high school</p> |
| | <p>It appears that original projections were off for prior evaluations of future enrollment. There are reasons listed why but in the new future projections we have a definitive projection again when we should be providing a range and identify the risks associated with that range so it can be followed/managed.</p> |
| | <p>The recommendations sounds okay but the recommendation for finding additional space in the city should be removed. It's going to make more sense to focus on middle college and other programs to shift kids out and to add to Minnie Howard than fight about splitting TC and build a full service high school (which might effectively segregate students). Such a fight would be a distraction and waste of resources.</p> |
| | <p>Short term recommendations not immediate enough. Kids attending there in 3 years will be in overcrowded rooms with no plans from the school</p> |
| | <p>At the end of the day, this seems to be about splitting TC and I wish that the process was more upfront about that. I don't think there is an equitable or feasible way to do that and like TC as it is. I support an expansion of Minnie Howard as a timely solution to the over crowding issue.</p> |
| Pre-K | <p>not required by state too much money</p> |
| | <p>again how are we looking to address ranges of growth and not a definitive number.</p> |
| | <p>Worry about co-location because of space deficit at elementary for several years.</p> |

NOTE: Community members taking the survey were only asked to comment if they disagreed with recommendations in the LREFP Phase II.

Date: May 10, 2018

For ACTION: _____X_____

For INFORMATION: _____X_____

Board Agenda: Yes _____X_____
No _____

FROM: Erika Gulick, Facilities Planner/GIS Specialist

THROUGH: Lois F. Berlin, Ed.D., Interim Superintendent of Schools
Mignon Anthony, Chief Operating Officer

TO: The Honorable Ramee A. Gentry, Chair, and Members of the Alexandria
City School Board

TOPIC: Long Range Educational Facilities Plan: Phase II

BACKGROUND: The LREFP reviews current capacity, projected growth and the
effectiveness of current facilities in meeting the need throughout ACPS. The first phase
of the LREFP, which determined needs and potential solutions for the elementary and
middle school levels, was finalized in the summer of 2015 and adopted and endorsed by
the School Board and City Council, respectively. ACPS and the City of Alexandria intend
to go through a similar process with the School Board and City Council this spring to
adopt the second phase of the LREFP beginning with this presentation to the School
Board. The final addendums for the LREFP were presented to the School Board on April
26, 2018.

SUMMARY: The Long Range Educational Facilities Plan (LREFP) Work Group recently
made final recommendations to address high school and pre-K capacity through its
completion of the second phase of the LREFP. During the April 26, 2018, presentation to
the School Board, clarification on the options and process was requested. Below are the
School Board's options for this action item:

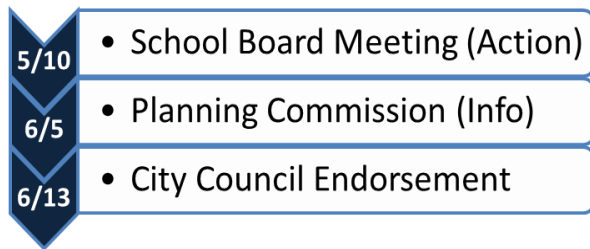
Adopt As Is: The School Board is set to vote on the final addendums during this regular
Board meeting. The School Board can choose to adopt the addendums as they are
written and proposed by the LREFP Work Group. If this option is pursued, the process
will continue as planned in the below adoption process. Adopting the LREFP will
complete the original plan for all grade levels and serve as a reference document for
current and future capacity planning.

Process Result:

- 5/10 • School Board Meeting (Action)
6/5 • Planning Commission (Info)
6/13 • City Council Endorsement

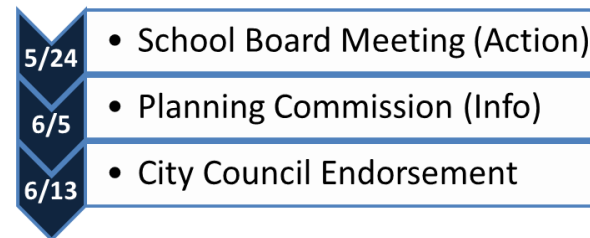
Adopt with Modifications or Comments: Similar to most other committee or work group driven recommendations, the School Board can vote to adopt the final addendums with additions, deletions and/or edits to the addendums as they have been proposed by the LREFP Work Group. Additions, deletions and/or edits would need to be determined and agreed upon during this Board meeting. If this option is pursued, the process will continue as planned in the process chart on the following page of this document. A cover letter/memo explaining the change will be included in the presentation to the Planning Commission and City Council. If City Council votes to support the LREFP addendums, it will be doing so with the adjustments made by the School Board. The final document will incorporate all changes. Again, adopting the LREFP will complete the original plan for all grade levels and serve as a reference document for current and future capacity planning.

Process Result:



Delay Adoption: The School Board may choose to delay the adoption of the addendums in order to obtain more information to inform staff of revisions. This may result in a pause the process until the School Board is prepared to adopt the addendums; the document will not be brought to the Planning Commission or City Council until the School Board adopts the addendums. The School Board may request that the Work Group reconvene; however, it was conveyed to the members of the Work Group that their charge was fulfilled.

Process Result:



Any delay in adoption beyond May 24th will result in an indeterminate delay in approval. Planning Commission and City Council meetings will need to be re-scheduled.

Reject Addendums: The School Board may choose to reject the addendums in their entirety from the LREFP Work Group. This will result in a termination of the process and project. At the School Board's direction, the project may be pursued again in the future. Rejecting the addendums may cause a credibility gap for ACPS and maintains the incomplete status of the LREFP.

RECOMMENDATION: The Superintendent recommends the School Board reviews and approves the LREFP Phase II Addendums.

CONTACT PERSON: Erika Gulick, 703-619-8298

ATTACHMENTS: Attachment 1 – LREFP Phase II Presentation
Attachment 2 – Final Draft Addendums
Attachment 3 – AlexEngage Survey Results

T.C. WILLIAMS: KING STREET CAMPUS

3330 King Street Alexandria, VA 22302

| | | |
|---|--|--|
| Year Built: 2007 | Current School Floor Area: 461,147 sq ft | Current Lot Size: 19.88 acres |
| Zoning: R20 | Floor Area Permitted by Zoning: 547,000 | Floor to Area Ratio: .51 per DSUP |
| Classroom Count: 169 | Ed Spec Capacity @ 86% Efficiency: 2,928 | Projected Utilization (2022): 125% |
| Space Adequacy: | Alignment: | Current Efficiency: |
| Exceeds Space Requirements: classrooms are greater than 110% of space requirements | 38 classrooms - 23% | <p>ACPS Target Efficiency: 86% Generally this rate means rooms are used seven out of eight periods each day. See the "Schedule Efficiency" section for additional detail.</p> <p>A-Day Schedule Average: 77% The average efficiency for A-Day is based on the following class periods: 1, 3, 5, and 7.</p> <p>B-Day Schedule Average: 78% The average efficiency for B-Day is based on the following class periods: 1, 2, 4, and 6.</p> |
| Satisfactory: classrooms are between 90% to 110% of space requirements outlined in the Ed Spec | 20 classrooms - 12% | |
| Borderline: classrooms are between 80% to 89% of space requirements | 75 classrooms - 44% | |
| Inadequate: classrooms are between 70% to 79% of space requirements | 10 classrooms - 6% | |
| Very Inadequate: classrooms are within less than 69% of space requirements | 26 classrooms - 15% | |

Student Counts:

| | FY 2017 Enrollment | FY 2022 Projected |
|--|-----------------------|----------------------|
| Student Count | 2943 | 3654 |
| Capacity | 2928 | 2928 |
| Utilization Rate (Student Count / Capacity) | 101% | 125% |

Utilization Rate Categories:

| Enrollment as % of Capacity | Definition |
|-----------------------------|------------------|
| < 89 | Underutilized |
| 90 - 110% | Ideally Utilized |
| > 111 % | Over Capacity |

BACKGROUND

T.C. Williams, Alexandria's only public high school, is a comprehensive high school comprised of two campuses: the Minnie Howard Campus and the King Street Campus. In September 2016, T.C. Williams High School had a total enrollment of 3,754 students across both campuses.

The Minnie Howard Campus serves grade 9, and the King Street Campus serves grades 10 – 12 and grade 9 students who participate in the International Academy program. Some 9th grade students from Minnie Howard travel to the King Street Campus during school hours on ACPS provided buses to attend specific class offerings, often in the afternoon.

The King Street Campus was built in 1965 and modernized in 2007 with a new facility at its present site. The modernized building is a state-of-the-art facility that provides smaller learning communities, as well as flexible academic space capable of meeting the evolving secondary school curriculum requirements. In fall 2008, the second phase of the campus modernization project was completed and included an artificial turf sports field, renovated stadium, new athletic track, new playing field, new bus driveway, and a two-story parking garage. The project received a LEED Gold rating.

ACADEMIC PROGRAM

The academic program at T.C. Williams High School includes 188 courses in reading, language arts, mathematics, social studies, and science, as well as fine arts, performing arts, physical education, and health. The school also offers the following special academic programs:

- Academy of Finance
- Advanced Placement/Honors/Dual Enrollment
- AVID
- International Academy
- Special Education/Inclusion Program
- STEM Academy
- Career and Technical Programs

The King Street and Minnie Howard campuses operate as one high school. The King Street campus serves all 10th-12th grade students and all 9th-12th grade students enrolled in the International Academy. The King Street campus serves 9th grade students from the Minnie Howard campus in instances where a course is not offered at the Minnie Howard campus. Over one-third of the Minnie Howard enrollment in 2016-2017 school year took one or multiple courses at the King Street campus, at some point during the day, typically during the afternoon. These students are provided transportation from the Minnie Howard campus to the King Street campus.

ENROLLMENT AND UTILIZATION

The King Street Campus had a September 2016 enrollment of 2,943 students. The calculated capacity of the King Street Campus is 2,928 students based on an 86% efficiency rate, yielding a utilization rate (enrollment vs. capacity) of 101% in September 2016. Enrollment projections indicate the King Street Campus school population will increase to 3,654 by the year 2022, resulting in a utilization of 125% at the King Street Campus, which equates to a gap of 726 seats if seeking 100% utilization. ACPS considers ideal utilization as a range of 90% to 110%.

KEY FINDINGS

SUMMARY

The design of the King Street Campus was informed by older standards. ACPS has since developed Educational Specifications (Ed Specs) which were approved by the School Board in January 2017 and are reflective of current program and practices and represent ACPS's ideal 21st century high school.

Only 35% of classrooms meet or exceed the 2017 board approved educational adequacy benchmarks. The remaining 65% of classrooms are smaller than the prescribed minimum size requirements set in the Ed Specs. Additionally, based on the 2016-17 course schedule, the current use of classrooms averages below the ACPS benchmark efficiency rate of 86%.

EDUCATIONAL ADEQUACY

Educational adequacy is the measure of existing educational spaces in comparison to ACPS's desired space requirements and standards set forth in the 2017 School Board-approved high school Ed Specs. The educational adequacy assessment of the school also helps to calculate the capacity of the school.

Based upon the data collected, only 35% of classrooms at the King Street Campus meet or exceed the educational adequacy benchmarks for an ideal 21st century high school. Spaces that are non-conforming to the Ed Specs impact the potential capacity of the school and utilization of space.

Of 169 total teaching spaces, only 20 spaces fall within 10% of the space requirements set forth in the Ed Specs. Despite having more room, larger spaces can only hold up to the maximize class size; therefore the 38 spaces that exceed the size requirement hold the same number of students as a standard Ed Specs classroom, as Board policy caps the class size per teacher. The remaining 111 classrooms are undersized. Per the Ed Specs, spaces that are smaller by more than 10% of the standard classroom space should hold fewer students.

SCHEDULE EFFICIENCY

Schedule efficiency examines how classroom spaces are used throughout the school day. ACPS's Ed Specs strive for an 86% efficiency rate on a regular basis. Generally this rate means rooms are used seven out of eight periods a day and teachers utilize an alternative space such as a teacher collaboration suite for their planning period.

Analysis of course scheduling and room use based on the 2016-2017 schedule reveals that T.C. Williams' instructional spaces are used slightly less than the desired rate, as shown in the Current Efficiency box. Classroom efficiency is specific to each day's schedule and can vary annually. For the purposes of this analysis, only blocks 1 through 7 were considered, as these are the core academic blocks of the school day. T.C. Williams employs a Red/Blue block schedule, which impacts the instruction within a classroom each day. A classroom may be utilized for four periods during Red Day and only three periods during Blue Day, depending on the scheduling need. Specialty classrooms, such as for culinary courses, impact the efficiency as they may not be needed for every block. The day-to-day utilization of a classroom impacts the average schedule efficiency for that day. The average efficiency of classrooms at the King Street Campus during a Red Day schedule is 77% while the average efficiency during a Blue Day schedule is 78% based on the 2016-2017 schedule. Opportunities to improve schedule efficiency should be explored.

T.C. WILLIAMS: MINNIE HOWARD CAMPUS

3801 West Braddock Road, Alexandria, VA 22302

| | | |
|--|---|---|
| Year Built: 1954 | Current School Floor Area: 130,435 sq ft | Floor Area Permitted by Zoning 146,623 sq ft |
| Zoning: R12 (031.02-02-05) POS | Lot Size (acres): 6.6 5.4 For fields adjacent to the school | Floor to Area Ratio: 0.51 Not Applicable for POS |
| Classroom Count: 47 | Ed Spec Capacity @ 86% Efficiency: 859 | Projected Utilization (2022): 122% |
| Space Adequacy: Exceeds Space Requirements: classrooms are greater than 110% of space requirements 1 classroom - 2% | Alignment: Satisfactory: classrooms are within 10% +/- of the Ed Spec space requirements 7 classrooms - 15% | Current Efficiency: ACPS Target Efficiency: 86% Generally this rate means rooms are used seven out of eight periods each day. See the "Schedule Efficiency" section for additional detail. A-Day Schedule Average: 70% The average efficiency for A-Day is based on the following class periods: 1, 3, 5, and 7. B-Day Schedule Average: 66% The average efficiency for B-Day is based on the following class periods: 1, 2, 4, and 6. |
| Borderline: classrooms are between 80% to 89% of space requirements 5 classrooms - 11% | Inadequate: classrooms are between 70% to 79% of space requirements 23 classrooms - 49% | |
| Very Inadequate: classrooms are within less than 69% of space requirements 11 classrooms - 23% | | |

Student Counts:

| | FY 2017 Enrollment | FY 2022 Projected |
|--|-----------------------|----------------------|
| Student Count | 811 | 1044 |
| Capacity | 859 | 859 |
| Utilization Rate (Student Count / Capacity) | 94% | 122% |

Utilization Rate Categories:

| Enrollment as % of Capacity | Definition |
|-----------------------------|------------------|
| < 89 | Underutilized |
| 90 - 110% | Ideally Utilized |
| > 111 % | Over Capacity |

BACKGROUND

T.C. Williams, Alexandria's only public high school, is a comprehensive high school comprised of two campuses: the Minnie Howard Campus and the King Street Campus. In September 2016, T.C. Williams High School had a

total enrollment of 3,754 students across both campuses. The Minnie Howard Campus serves grade 9 and the King Street Campus serves grades 10 – 12. A portion of 9th grade students travel to the King Street Campus during school hours on ACPS provided buses to attend specific class offerings.

The Minnie Howard School building was originally constructed in 1954 as an elementary school. There was a major classroom and gymnasium addition in 1969 when it was converted to a middle school. The facility served as the central administrative offices from 1981 to 1993, when it was again renovated and became the 9th grade center. ACPS has had several plans to modernize the campus in recent CIPs and is currently looking to assess the feasibility of the site for a new high school building.

ACADEMIC PROGRAM

The academic program at T.C. Williams High School includes 188 courses in reading, language arts, mathematics, social studies, and science, as well as fine arts, performing arts, physical education, and health. The school also offers the following special academic programs:

- Academy of Finance
- Advanced Placement/Honors
- AVID
- English Learners
- Special Education/Inclusion Program
- STEM Academy
- Career and Technical Programs

The Minnie Howard campus serves all 9th grade students except for those enrolled in the International Academy. The Minnie Howard campus does not provide all of the advanced courses 9th grade students may be eligible to take. Over one-third of the Minnie Howard enrollment in 2016-2017 school year attended the King Street campus for courses not offered at Minnie Howard at some point during the day, typically during the afternoon. These students are provided transportation from the Minnie Howard campus to the King Street campus.

ENROLLMENT AND UTILIZATION

The Minnie Howard Campus had a September 2016 enrollment of 811 students. The estimated capacity of the Campus is 859, yielding a utilization rate (enrollment vs. capacity) of 94%. Enrollment projections indicate the Minnie Howard school population will increase to 1,044 students by the year 2022, resulting in a utilization of 122%, which equates to a gap of 185 seats if seeking 100% utilization. ACPS considers ideal utilization as a range of 90 to 110%.

KEY FINDINGS

EDUCATIONAL ADEQUACY

Educational adequacy is the measure of existing educational spaces in comparison to ACPS's desired space

requirements and standards set forth in the 2017 School Board-approved high school Ed Specs. The educational adequacy assessment of the school helps to calculate its capacity, and is specific to square footage measurements.

Only 17% of classrooms meet or exceed the 2017 board approved educational adequacy benchmarks. The remaining 83% of classrooms are smaller than the sizes identified as adequate in the Ed Specs. Additionally, based on the 2016-2017 course schedule, the current use of classrooms averages below the ACPS benchmark efficiency rate of 86%.

SCHEDULE EFFICIENCY

Schedule efficiency examines how spaces are used throughout the school day. ACPS's Ed Specs strive for an 86% efficiency rate of classroom use on a regular basis. Generally this rate means teachers use their assigned rooms seven out of eight periods a day and utilize an alternative space, such as a teacher collaboration suite for their planning period.

Analysis of the 2016-2017 course scheduling and room use reveals that T.C. Williams: Minnie Howard Campus' instructional spaces are used less than the desired rate, as shown in the Current Efficiency box. As is the case with the King Street campus, classroom efficiency is specific to each day's schedule and can vary annually. For the purposes of this analysis, only blocks 1 through 7 were considered, as these are the core academic blocks of the school day. T.C. Williams employs a Red/Blue block schedule, which impacts the instruction within a classroom each day. A classroom may be utilized for four periods during Red Day and only three periods during Blue Day, depending on the scheduling need. Specialty classrooms impact the efficiency as they may not be needed for every block. The day-to-day utilization of a classroom impacts the average schedule efficiency for that day. The average efficiency of classrooms at the King Street Campus during a Red Day schedule is 70% while the average efficiency during a Blue Day schedule is 66%, based on the 2016-2017 course schedule. Opportunities to improve schedule efficiency should be explored.

RECOMMENDATIONS

The capacity of T.C. Williams High School's two campuses cannot meet the projected growth in enrollment, nor do the majority of classrooms meet the minimum recommended size requirements per the Ed Specs. Options to provide additional student capacity at one or both campuses or a new site should be explored. Work group members and stakeholders emphasized their desire that short-term recommendations, often identified as an early priority, do not become long-term recommendations for the Division. Rather, short-term recommendations should serve a specific purpose for a given timeframe. Based on the analysis of the data collected and meetings with the work group and stakeholders, the following recommendations for the King Street and Minnie Howard Campuses are provided.

These recommendations are meant to serve as a guideline for future proposed Capital Improvement Program projects and should be re-evaluated based on need and feasibility at the time of implementation. Recommendations were made to align with City Strategic plan goals and ACPS 2020 Strategic Plan goals and should be implemented in alignment with these goals.

GROUP 1 — REQUIRED PLANNING

- Conduct further analysis of the master schedule and use of space at both campuses to explore ways to maximize existing space. The analysis should include studying how to increase the number of teacher collaboration suites and/or reconfiguring existing space to improve the enrollment capacity.
- Study the potential outcomes of a shifted schedule (e.g. multiple tracks of students with alternating start and end times).
- Study the possibility of transporting 10 – 12 grade students to the Minnie Howard Campus for classes to relieve capacity constraints at T.C. Williams.
- Conduct analysis to determine if either site can accommodate additional square footage to support more students. This analysis should include the impacts to shared and core spaces such as dining.
- Conduct an analysis of adjusting grade-level pairings throughout the Division (i.e., K-6, 7-9, 10-12).
- Study the combined use of both campuses. Determine how specialty classrooms can be efficiently used across both.
- Study/evaluate options for building additional capacity.
- New high school graduation requirements within the Commonwealth of Virginia are currently in development, known as the "Profile of a Virginia Graduate." The profile is the framework for the Virginia Board of Education's revision of graduation requirements, which will go into effect for freshmen entering high school in the fall of the 2018-19 (the graduating class of 2022). The requirements will likely affect the number of required program and support spaces, as well as the types of spaces needed for high school programs. Once the requirements are approved, the division should conduct an analysis of high school spaces to ensure instructional spaces are in alignment with the new high school program requirements.

GROUP 2 — SHORT TERM RECOMMENDATIONS

- Continue and expand partnerships with local entities, such as NOVA Community College, to increase off-campus learning opportunities.
- Determine how much capacity can be provided at off-campus locations to inform future utilization of T.C. Williams.
- Ensure that future programs and priorities for the Minnie Howard Campus are in alignment with the site's capacity analysis.
- If applicable, adjust the master schedule based on analysis.
- In order to maximize capacity at both campuses, explore how students can travel between the two without significantly adding to the Division's transportation costs or local traffic levels.
- Utilize relocatables to accommodate more students as enrollment increases.
- Build additional capacity for T.C. Williams High School at the King Street Campus, at the Minnie Howard Campus, and/or at another location within the City.

GROUP 3 — INTERMEDIATE RECOMMENDATIONS

- If applicable, reassign grade-level pairings throughout the division based on analysis and ACPS priorities.
- ~~Build additional capacity for T.C. Williams High School at the King Street Campus, at the Minnie Howard Campus, and/or at another location within the City.~~

GROUP 4 — LONG TERM RECOMMENDATIONS

| |
|--|
| |
|--|

EARLY CHILDHOOD EDUCATION (PRE-K)

BACKGROUND

ACPS Early Childhood Programs consist of three components: Virginia Preschool Initiative (VPI), Preschoolers Learning Together (PLT), and Early Childhood Special Education (ECSE). ACPS also has partnerships with local early care providers such as the Campagna Center, which provides Head Start and other programs. Some of these programs occur within ACPS schools and partner locations.

VPI is provided by a State grant and local funding. The purpose of VPI is to provide quality early childhood programs for children, whom the State of Virginia defines as “at-risk four-year olds.” VPI is a program designed for families who might not otherwise be able to access quality early childhood education opportunities.

PLT is a half-day preschool program offered to eligible children ages two years and six months thru four years (by September 30). This is an opportunity for developing children from the Alexandria community to be integrated into an early childhood special education (ECSE) classroom for the purpose of providing typical role models to students with disabilities.

ECSE provides special education services to students between the ages of two to five who are identified as having a developmental delay or disability.

Head Start is provided by a federal grant and local funding through partners. Head Start, similar to VPI, provides quality early childhood education for students who meet certain socioeconomic criteria.

The City of Alexandria has an Early Care and Education Workgroup (ECEW), which is a cross-sector workgroup made up of leaders from across ACPS, city agencies, partners, and the non-profit community. The group was convened to explore how Alexandria can build an early care and early childhood education system that is high quality, culturally and financially accessible, and comprehensive (including health, education, socio-emotional, family, and community support).

| School | ACPS Enrollment | HeadStart/ Partner Enrollment | Total Enrollment | Ed Spec Pre-K Capacity | Ed Spec Pre-K Utilization |
|---------------------|-----------------|----------------------------------|------------------|------------------------|---------------------------|
| Charles Barrett | 21 | 0 | 21 | 22 | 95% |
| Cora Kelly | 3 | 36 | 39 | 45 | 88% |
| Jefferson - Houston | 49 | 78 | 127 | 116 | 109% |
| John Adams | 123 | 92 | 197 | 144 | 137% |
| Patrick Henry | 96 | 60 | 156 | 124 | 126% |
| William Ramsay | 32 | 0 | 32 | 29 | 110% |
| George Washington | 0 | 41 | 41 | 45 | 91% |
| T.C. Williams | 0 | 24 | 24 | 40 | 60% |
| Total | 324 | 331 | 637 | 565 | 113% |

As shown in Table 1, ACPS currently offers early childhood education spaces in six elementary schools, one of the middle schools and at the high school. The location of programs has been informed by available capacity. Please note that all enrollment numbers included in Table 1 are for school year 2016 - 2017.

Historically, division-wide pre-K student forecasts have not been calculated as part of student projections since ACPS is limited in the amount of space that can be offered. ACPS currently provides as much space as possible throughout the City for current programs.

The State of Virginia uses a formula to project the number of disadvantaged four-year olds, which determines the amount of VPI slots to fund for a given municipality. The formula multiplies total kindergarten enrollment by the division-wide free lunch percentage and subtracts the number of slots provided through Head Start. Using the State’s formula, ACPS estimates there are 746 disadvantaged four-year olds in the City of Alexandria. In 2017, there were 569 pre-school slots provided through VPI and Head Start, leaving a deficit of 177. Projections indicate the disadvantaged four-year old population will

increase to 790 by 2022, leaving a deficit of 209 if no additional slots are provided.

VISION FOR EARLY CHILDHOOD PROGRAMS

The City of Alexandria is committed to making pre-K accessible to all families with pre-K age students and understands that this will require ACPS and partner support. The LREFP work group sought to explore the best ways to provide the maximum amount of pre-K spaces throughout the division. Programs could be provided within existing elementary schools, at new centers, or a combination of both.

ACPS Ed Specs provide guidelines for classroom design. The standard for a pre-K room is the same for a kindergarten classroom due to the similar emphasis on play and programmatic needs in the two grade levels. The similar classroom configuration also allows for flexibility year-to-year as student enrollment and program needs change. At schools that house Head Start, classes can be held in standard pre-K or kindergarten classrooms, provided the classroom meets the licensing criteria.

ACPS developed Ed Specs for a pre-K center as part of the LREFP. The Ed Specs outline space recommendations for a pre-K classroom, and are used to evaluate current capacity within existing pre-K classrooms already being used by ACPS. There are other partners who provide pre-K throughout the City and utilize their own private facilities.

~~PRE-K WITHIN EXISTING ELEMENTARY SCHOOLS~~ FUTURE PRE-K SPACE

Currently, ACPS elementary schools have limited capacity within existing ~~space permanent classrooms to accommodate larger enrollments, whether pre-K or kindergarten; through grade five enrollment, let alone additional pre-K. For the current school year, no elementary school is being utilized at less than 90%, and nine are above 100% utilization. ACPS considers ideal utilization as a range of 90% to 110%. Elementary student enrollment is projected to grow over the next ten years by about 800 students, further constraining the use of existing classroom space for early childhood education without expansions or a new school.~~ As additional elementary capacity is added and as enrollments are updated based on boundary changes, ACPS should explore additional opportunities to provide pre-K spaces within existing elementary schools.

ACPS is committed to work with pre-K partners, the City and organizations which are active in the community to

increase pre-K capacity as much and as quickly as possible to align with available funding. Possible solutions to be explored should include:

- ACPS should work with the City to re-analyze future elementary school projects within the FY 2019-2028 CIP to determine if pre-K capacity could physically and affordably be added to projects.
- ACPS, the City and partners should establish a plan for addressing the gap in pre-K capacity within the City. This plan should consider the timing of available CIP funding and offer alternatives to address the pre-K capacity gap promptly, if additional pre-K capacity is not able to be achieved through the CIP.
- ACPS, the City and partners should make every effort to solicit space from external organizations and partners to add pre-K capacity.
- Timelines and goals need to be established and agreed upon by ACPS, the City and partners to meet the pre-K capacity need city-wide and draw down on all available pre-K funding sources (i.e. Virginia Preschool Initiative).

~~In addition to pre-K spaces within existing elementary schools, ACPS and its partners also desire to explore additional space for pre-K through centers, increased school capacity or space available in the community. Anticipated outcomes of additional centers as a model to increase services offered to families and create equity between programs will need to be explored if a pre-K center is proposed in the future. The center currently being pursued at John Adams elementary school could serve as a good example for future decision-making.~~

~~ACPS developed Ed Specs with partner input to outline space recommendations for a potential future center; however, these specifications can be used as a reference for ACPS and its partners to develop adequate pre-K spaces in other facilities.~~

The Ed Specs, developed jointly by ACPS and pre-K partners, should be used to determine the adequacy and proposed use of space for future solutions. Any solution pursued should promote joint professional development and collaboration of staff employed by ACPS and the Campagna Center (Head Start) and support the Early Care in Education Workgroup's mission of seamless points of entry for parents seeking services. Solutions should also promote joint program development and delivery within VPI, ECSE, and Head Start, while maintaining critical funding streams and other policy requirements needed for state and federal funding.

RECOMMENDATIONS

The capacity of pre-K spaces throughout Alexandria cannot serve the current or projected population of disadvantaged four-year olds. This reality is supported by the waitlists reported by partners. Because of this, access should be expanded to serve all families within the City. These recommendations are specific to pre-K within ACPS facilities. Options to provide additional pre-K capacity at individual sites and/or a new pre-K center should be explored to meet this vision. Work group members and stakeholders emphasized their desire that short-term recommendations do not become long-term solutions for the division. Rather, short-term recommendations should serve a specific purpose for a given timeframe. Based on the analysis of the data collected and meetings with the work group and stakeholders, the following considerations for early childhood spaces are recommended.

These recommendations are meant to serve as a guideline for future proposed Capital Improvement Program projects and should be re-evaluated based on need and feasibility at the time of implementation. Recommendations were made to align with City Strategic plan goals and ACPS 2020 Strategic Plan goals and should be implemented in alignment with these goals.

GROUP 1 — REQUIRED PLANNING

- Analyze the impact of new elementary schools, capacity projects, and redistricting for providing capacity at elementary schools, develop a potential distribution plan for early childhood classrooms.
- Study the available capacity within City-owned buildings for space conversion and potential co-location. If capacity exists, analyze whether spaces can be converted to meet Ed Spec standards.
- Study the availability of privately-owned buildings/institutions for space conversion and potential co-location. If capacity exists, analyze whether spaces can be converted to meet Ed Spec standards.
- Evaluate implementation of co-located pre-K center to be open in 2018 to determine if additional centers would be beneficial.
- Study the possibility of co-location on City-owned sites. Perform feasibility analysis to see if build out can occur to provide space.
- Analyze the potential for/impact of providing density increases to developers who accommodate additional building capacity within new developments. Determine if land use solutions (i.e.: parking incentives, increased density, etc.) can provide additional pre-K capacity.

GROUP 2 — SHORT TERM RECOMMENDATIONS

- Calculate pre-K projections annually
- Maintain and expand, where possible, current pre-K capacity at existing elementary schools strategically located in areas of highest need.
- Expand pre-K capacity with private partners.
- Determine the amount of additional capacity that private partners can provide.
- Promote multi-story and urban school models to optimize real estate and provide maximum pre-K spaces within elementary schools.
- Identify and analyze potential land acquisition, co-location, or leasing opportunities for pre-K .
- **Analyze the feasibility of previously identified sites for additional pre-K capacity that aligns with the Board-approved Ed Specs.**

GROUP 3 — INTERMEDIATE RECOMMENDATIONS

- ~~Analyze the feasibility of previously identified sites for additional pre-K capacity that aligns with the Board-approved Ed Specs.~~
- Explore feasibility of additional pre-K centers as a model based on the School Board-approved Ed Specs and after review and analysis of the initial co-located pre-K center.

GROUP 4 — LONG TERM RECOMMENDATIONS

- Configure spaces within existing elementary schools to meet Ed Specs for early childhood and/or incorporate into design for future capital projects.

T.C. WILLIAMS: KING STREET CAMPUS

3330 King Street Alexandria, VA 22302

| | | |
|---|--|--|
| Year Built: 2007 | Current School Floor Area: 461,147 sq ft | Current Lot Size: 19.88 acres |
| Zoning: R20 | Floor Area Permitted by Zoning: 547,000 | Floor to Area Ratio: .51 per DSUP |
| Classroom Count: 169 | Ed Spec Capacity @ 86% Efficiency: 2,928 | Projected Utilization (2022): 125% |
| Space Adequacy: | Alignment: | Current Efficiency: |
| Exceeds Space Requirements: classrooms are greater than 110% of space requirements | 38 classrooms - 23% | <p>ACPS Target Efficiency: 86% Generally this rate means rooms are used seven out of eight periods each day. See the "Schedule Efficiency" section for additional detail.</p> <p>A-Day Schedule Average: 77% The average efficiency for A-Day is based on the following class periods: 1, 3, 5, and 7.</p> <p>B-Day Schedule Average: 78% The average efficiency for B-Day is based on the following class periods: 1, 2, 4, and 6.</p> |
| Satisfactory: classrooms are between 90% to 110% of space requirements outlined in the Ed Spec | 20 classrooms - 12% | |
| Borderline: classrooms are between 80% to 89% of space requirements | 75 classrooms - 44% | |
| Inadequate: classrooms are between 70% to 79% of space requirements | 10 classrooms - 6% | |
| Very Inadequate: classrooms are within less than 69% of space requirements | 26 classrooms - 15% | |

Student Counts:

| | FY 2017 Enrollment | FY 2022 Projected |
|--|-----------------------|----------------------|
| Student Count | 2943 | 3654 |
| Capacity | 2928 | 2928 |
| Utilization Rate (Student Count / Capacity) | 101% | 125% |

Utilization Rate Categories:

| Enrollment as % of Capacity | Definition |
|-----------------------------|------------------|
| < 89 | Underutilized |
| 90 - 110% | Ideally Utilized |
| > 111 % | Over Capacity |

BACKGROUND

T.C. Williams, Alexandria's only public high school, is a comprehensive high school comprised of two campuses: the Minnie Howard Campus and the King Street Campus. In September 2016, T.C. Williams High School had a total enrollment of 3,754 students across both campuses.

The Minnie Howard Campus serves grade 9, and the King Street Campus serves grades 10 – 12 and grade 9 students who participate in the International Academy program. Some 9th grade students from Minnie Howard travel to the King Street Campus during school hours on ACPS provided buses to attend specific class offerings, often in the afternoon.

The King Street Campus was built in 1965 and modernized in 2007 with a new facility at its present site. The modernized building is a state-of-the-art facility that provides smaller learning communities, as well as flexible academic space capable of meeting the evolving secondary school curriculum requirements. In fall 2008, the second phase of the campus modernization project was completed and included an artificial turf sports field, renovated stadium, new athletic track, new playing field, new bus driveway, and a two-story parking garage. The project received a LEED Gold rating.

ACADEMIC PROGRAM

The academic program at T.C. Williams High School includes 188 courses in reading, language arts, mathematics, social studies, and science, as well as fine arts, performing arts, physical education, and health. The school also offers the following special academic programs:

- Academy of Finance
- Advanced Placement/Honors/Dual Enrollment
- AVID
- International Academy
- Special Education/Inclusion Program
- STEM Academy
- Career and Technical Programs

The King Street and Minnie Howard campuses operate as one high school. The King Street campus serves all 10th-12th grade students and all 9th-12th grade students enrolled in the International Academy. The King Street campus serves 9th grade students from the Minnie Howard campus in instances where a course is not offered at the Minnie Howard campus. Over one-third of the Minnie Howard enrollment in 2016-2017 school year took one or multiple courses at the King Street campus, at some point during the day, typically during the afternoon. These students are provided transportation from the Minnie Howard campus to the King Street campus.

ENROLLMENT AND UTILIZATION

The King Street Campus had a September 2016 enrollment of 2,943 students. The calculated capacity of the King Street Campus is 2,928 students based on an 86% efficiency rate, yielding a utilization rate (enrollment vs. capacity) of 101% in September 2016. Enrollment projections indicate the King Street Campus school population will increase to 3,654 by the year 2022, resulting in a utilization of 125% at the King Street Campus, which equates to a gap of 726 seats if seeking 100% utilization. ACPS considers ideal utilization as a range of 90% to 110%.

KEY FINDINGS

SUMMARY

The design of the King Street Campus was informed by older standards. ACPS has since developed Educational Specifications (Ed Specs) which were approved by the School Board in January 2017 and are reflective of current program and practices and represent ACPS's ideal 21st century high school.

Only 35% of classrooms meet or exceed the 2017 board approved educational adequacy benchmarks. The remaining 65% of classrooms are smaller than the prescribed minimum size requirements set in the Ed Specs. Additionally, based on the 2016-17 course schedule, the current use of classrooms averages below the ACPS benchmark efficiency rate of 86%.

EDUCATIONAL ADEQUACY

Educational adequacy is the measure of existing educational spaces in comparison to ACPS's desired space requirements and standards set forth in the 2017 School Board-approved high school Ed Specs. The educational adequacy assessment of the school also helps to calculate the capacity of the school.

Based upon the data collected, only 35% of classrooms at the King Street Campus meet or exceed the educational adequacy benchmarks for an ideal 21st century high school. Spaces that are non-conforming to the Ed Specs impact the potential capacity of the school and utilization of space.

Of 169 total teaching spaces, only 20 spaces fall within 10% of the space requirements set forth in the Ed Specs. Despite having more room, larger spaces can only hold up to the maximize class size; therefore the 38 spaces that exceed the size requirement hold the same number of students as a standard Ed Specs classroom, as Board policy caps the class size per teacher. The remaining 111 classrooms are undersized. Per the Ed Specs, spaces that are smaller by more than 10% of the standard classroom space should hold fewer students.

SCHEDULE EFFICIENCY

Schedule efficiency examines how classroom spaces are used throughout the school day. ACPS's Ed Specs strive for an 86% efficiency rate on a regular basis. Generally this rate means rooms are used seven out of eight periods a day and teachers utilize an alternative space such as a teacher collaboration suite for their planning period.

Analysis of course scheduling and room use based on the 2016-2017 schedule reveals that T.C. Williams' instructional spaces are used slightly less than the desired rate, as shown in the Current Efficiency box. Classroom efficiency is specific to each day's schedule and can vary annually. For the purposes of this analysis, only blocks 1 through 7 were considered, as these are the core academic blocks of the school day. T.C. Williams employs a Red/Blue block schedule, which impacts the instruction within a classroom each day. A classroom may be utilized for four periods during Red Day and only three periods during Blue Day, depending on the scheduling need. Specialty classrooms, such as for culinary courses, impact the efficiency as they may not be needed for every block. The day-to-day utilization of a classroom impacts the average schedule efficiency for that day. The average efficiency of classrooms at the King Street Campus during a Red Day schedule is 77% while the average efficiency during a Blue Day schedule is 78% based on the 2016-2017 schedule. Opportunities to improve schedule efficiency should be explored.

T.C. WILLIAMS: MINNIE HOWARD CAMPUS

3801 West Braddock Road, Alexandria, VA 22302

| | | |
|--|---|--|
| Year Built: 1954 | Current School Floor Area: 130,435 sq ft | Floor Area Permitted by Zoning 146,623 sq ft |
| Zoning: R12 (031.02-02-05) POS | Lot Size (acres): 6.6 5.4 For fields adjacent to the school | Floor to Area Ratio: 0.51 Not Applicable for POS |
| Classroom Count: 47 | Ed Spec Capacity @ 86% Efficiency: 859 | Projected Utilization (2022): 122% |
| Space Adequacy: | Alignment: | Current Efficiency: |
| Exceeds Space Requirements: classrooms are greater than 110% of space requirements | 1 classroom - 2% | <p>ACPS Target Efficiency: 86% Generally this rate means rooms are used seven out of eight periods each day. See the "Schedule Efficiency" section for additional detail.</p> <p>A-Day Schedule Average: 70% The average efficiency for A-Day is based on the following class periods: 1, 3, 5, and 7.</p> <p>B-Day Schedule Average: 66% The average efficiency for B-Day is based on the following class periods: 1, 2, 4, and 6.</p> |
| Satisfactory: classrooms are within 10% +/- of the Ed Spec space requirements | 7 classrooms - 15% | |
| Borderline: classrooms are between 80% to 89% of space requirements | 5 classrooms - 11% | |
| Inadequate: classrooms are between 70% to 79% of space requirements | 23 classrooms - 49% | |
| Very Inadequate: classrooms are within less than 69% of space requirements | 11 classrooms - 23% | |

Student Counts:

| | FY 2017 Enrollment | FY 2022 Projected |
|--|-----------------------|----------------------|
| Student Count | 811 | 1044 |
| Capacity | 859 | 859 |
| Utilization Rate (Student Count / Capacity) | 94% | 122% |

Utilization Rate Categories:

| Enrollment as % of Capacity | Definition |
|-----------------------------|------------------|
| < 89 | Underutilized |
| 90 - 110% | Ideally Utilized |
| > 111 % | Over Capacity |

BACKGROUND

T.C. Williams, Alexandria's only public high school, is a comprehensive high school comprised of two campuses: the Minnie Howard Campus and the King Street Campus. In September 2016, T.C. Williams High School had a

total enrollment of 3,754 students across both campuses. The Minnie Howard Campus serves grade 9 and the King Street Campus serves grades 10 – 12. A portion of 9th grade students travel to the King Street Campus during school hours on ACPS provided buses to attend specific class offerings.

The Minnie Howard School building was originally constructed in 1954 as an elementary school. There was a major classroom and gymnasium addition in 1969 when it was converted to a middle school. The facility served as the central administrative offices from 1981 to 1993, when it was again renovated and became the 9th grade center. ACPS has had several plans to modernize the campus in recent CIPs and is currently looking to assess the feasibility of the site for a new high school building.

ACADEMIC PROGRAM

The academic program at T.C. Williams High School includes 188 courses in reading, language arts, mathematics, social studies, and science, as well as fine arts, performing arts, physical education, and health. The school also offers the following special academic programs:

- Academy of Finance
- Advanced Placement/Honors
- AVID
- English Learners
- Special Education/Inclusion Program
- STEM Academy
- Career and Technical Programs

The Minnie Howard campus serves all 9th grade students except for those enrolled in the International Academy. The Minnie Howard campus does not provide all of the advanced courses 9th grade students may be eligible to take. Over one-third of the Minnie Howard enrollment in 2016-2017 school year attended the King Street campus for courses not offered at Minnie Howard at some point during the day, typically during the afternoon. These students are provided transportation from the Minnie Howard campus to the King Street campus.

ENROLLMENT AND UTILIZATION

The Minnie Howard Campus had a September 2016 enrollment of 811 students. The estimated capacity of the Campus is 859, yielding a utilization rate (enrollment vs. capacity) of 94%. Enrollment projections indicate the Minnie Howard school population will increase to 1,044 students by the year 2022, resulting in a utilization of 122%, which equates to a gap of 185 seats if seeking 100% utilization. ACPS considers ideal utilization as a range of 90 to 110%.

KEY FINDINGS

EDUCATIONAL ADEQUACY

Educational adequacy is the measure of existing educational spaces in comparison to ACPS's desired space

requirements and standards set forth in the 2017 School Board-approved high school Ed Specs. The educational adequacy assessment of the school helps to calculate its capacity, and is specific to square footage measurements.

Only 17% of classrooms meet or exceed the 2017 board approved educational adequacy benchmarks. The remaining 83% of classrooms are smaller than the sizes identified as adequate in the Ed Specs. Additionally, based on the 2016-2017 course schedule, the current use of classrooms averages below the ACPS benchmark efficiency rate of 86%.

SCHEDULE EFFICIENCY

Schedule efficiency examines how spaces are used throughout the school day. ACPS's Ed Specs strive for an 86% efficiency rate of classroom use on a regular basis. Generally this rate means teachers use their assigned rooms seven out of eight periods a day and utilize an alternative space, such as a teacher collaboration suite for their planning period.

Analysis of the 2016-2017 course scheduling and room use reveals that T.C. Williams: Minnie Howard Campus' instructional spaces are used less than the desired rate, as shown in the Current Efficiency box. As is the case with the King Street campus, classroom efficiency is specific to each day's schedule and can vary annually. For the purposes of this analysis, only blocks 1 through 7 were considered, as these are the core academic blocks of the school day. T.C. Williams employs a Red/Blue block schedule, which impacts the instruction within a classroom each day. A classroom may be utilized for four periods during Red Day and only three periods during Blue Day, depending on the scheduling need. Specialty classrooms impact the efficiency as they may not be needed for every block. The day-to-day utilization of a classroom impacts the average schedule efficiency for that day. The average efficiency of classrooms at the King Street Campus during a Red Day schedule is 70% while the average efficiency during a Blue Day schedule is 66%, based on the 2016-2017 course schedule. Opportunities to improve schedule efficiency should be explored.

RECOMMENDATIONS

The capacity of T.C. Williams High School's two campuses cannot meet the projected growth in enrollment, nor do the majority of classrooms meet the minimum recommended size requirements per the Ed Specs. Options to provide additional student capacity at one or both campuses or a new site should be explored. Work group members and stakeholders emphasized their desire that short-term recommendations, often identified as an early priority, do not become long-term recommendations for the Division. Rather, short-term recommendations should serve a specific purpose for a given timeframe. Based on the analysis of the data collected and meetings with the work group and stakeholders, the following recommendations for the King Street and Minnie Howard Campuses are provided.

These recommendations are meant to serve as a guideline for future proposed Capital Improvement Program projects and should be re-evaluated based on need and feasibility at the time of implementation. Recommendations were made to align with City Strategic plan goals and ACPS 2020 Strategic Plan goals and should be implemented in alignment with these goals.

GROUP 1 — REQUIRED PLANNING

- Conduct further analysis of the master schedule and use of space at both campuses to explore ways to maximize existing space. The analysis should include studying how to increase the number of teacher collaboration suites and/or reconfiguring existing space to improve the enrollment capacity.
- Study the potential outcomes of a shifted schedule (e.g. multiple tracks of students with alternating start and end times).
- Study the possibility of transporting 10 – 12 grade students to the Minnie Howard Campus for classes to relieve capacity constraints at T.C. Williams.
- Conduct analysis to determine if either site can accommodate additional square footage to support more students. This analysis should include the impacts to shared and core spaces such as dining.
- Conduct an analysis of adjusting grade-level pairings throughout the Division.
- Study the combined use of both campuses. Determine how specialty classrooms can be efficiently used across both.
- Study/evaluate options for building additional capacity.
- New high school graduation requirements within the Commonwealth of Virginia are currently in development, known as the "Profile of a Virginia Graduate." The profile is the framework for the Virginia Board of Education's revision of graduation requirements, which will go into effect for freshmen entering high school in the fall of the 2018-19 (the graduating class of 2022). The requirements will likely affect the number of required program and support spaces, as well as the types of spaces needed for high school programs. Once the requirements are approved, the division should conduct an analysis of high school spaces to ensure instructional spaces are in alignment with the new high school program requirements.

GROUP 2 — SHORT TERM RECOMMENDATIONS

- Continue and expand partnerships with local entities, such as NOVA Community College, to increase off-campus learning opportunities.
- Determine how much capacity can be provided at off-campus locations to inform future utilization of T.C. Williams.
- Ensure that future programs and priorities for the Minnie Howard Campus are in alignment with the site's capacity analysis.
- If applicable, adjust the master schedule based on analysis.
- In order to maximize capacity at both campuses, explore how students can travel between the two without significantly adding to the Division's transportation costs or local traffic levels.
- Utilize relocatables to accommodate more students as enrollment increases.
- Build additional capacity for T.C. Williams High School at the King Street Campus, at the Minnie Howard Campus, and/or at another location within the City.

GROUP 3 — INTERMEDIATE RECOMMENDATIONS

- If applicable, reassign grade-level pairings throughout the division based on analysis and ACPS priorities.

GROUP 4 — LONG TERM RECOMMENDATIONS

EARLY CHILDHOOD EDUCATION (PRE-K)

BACKGROUND

ACPS Early Childhood Programs consist of three components: Virginia Preschool Initiative (VPI), Preschoolers Learning Together (PLT), and Early Childhood Special Education (ECSE). ACPS also has partnerships with local early care providers such as the Campagna Center, which provides Head Start and other programs. Some of these programs occur within ACPS schools and partner locations.

VPI is provided by a State grant and local funding. The purpose of VPI is to provide quality early childhood programs for children, whom the State of Virginia defines as “at-risk four-year olds.” VPI is a program designed for families who might not otherwise be able to access quality early childhood education opportunities.

PLT is a half-day preschool program offered to eligible children ages two years and six months thru four years (by September 30). This is an opportunity for developing children from the Alexandria community to be integrated into an early childhood special education (ECSE) classroom for the purpose of providing typical role models to students with disabilities.

ECSE provides special education services to students between the ages of two to five who are identified as having a developmental delay or disability.

Head Start is provided by a federal grant and local funding through partners. Head Start, similar to VPI, provides quality early childhood education for students who meet certain socioeconomic criteria.

The City of Alexandria has an Early Care and Education Workgroup (ECEW), which is a cross-sector workgroup made up of leaders from across ACPS, city agencies, partners, and the non-profit community. The group was convened to explore how Alexandria can build an early care and early childhood education system that is high quality, culturally and financially accessible, and comprehensive (including health, education, socio-emotional, family, and community support).

| School | Table 1: 2016-2017 Pre-K in ACPS Elementary Schools | | | | |
|---------------------|---|----------------------------------|------------------|------------------------|---------------------------|
| | ACPS Enrollment | HeadStart/ Partner Enrollment | Total Enrollment | Ed Spec Pre-K Capacity | Ed Spec Pre-K Utilization |
| Charles Barrett | 21 | 0 | 21 | 22 | 95% |
| Cora Kelly | 3 | 36 | 39 | 45 | 88% |
| Jefferson - Houston | 49 | 78 | 127 | 116 | 109% |
| John Adams | 123 | 92 | 197 | 144 | 137% |
| Patrick Henry | 96 | 60 | 156 | 124 | 126% |
| William Ramsay | 32 | 0 | 32 | 29 | 110% |
| George Washington | 0 | 41 | 41 | 45 | 91% |
| T.C. Williams | 0 | 24 | 24 | 40 | 60% |
| Total | 324 | 331 | 637 | 565 | 113% |

As shown in Table 1, ACPS currently offers early childhood education spaces in six elementary schools, one of the middle schools and at the high school. The location of programs has been informed by available capacity. Please note that all enrollment numbers included in Table 1 are for school year 2016 - 2017.

Historically, division-wide pre-K student forecasts have not been calculated as part of student projections since ACPS is limited in the amount of space that can be offered. ACPS currently provides as much space as possible throughout the City for current programs.

The State of Virginia uses a formula to project the number of disadvantaged four-year olds, which determines the amount of VPI slots to fund for a given municipality. The formula multiplies total kindergarten enrollment by the division-wide free lunch percentage and subtracts the number of slots provided through Head Start. Using the State’s formula, ACPS estimates there are 746 disadvantaged four-year olds in the City of Alexandria. In 2017, there were 569 pre-school slots provided through VPI and Head Start, leaving a deficit of 177. Projections indicate the disadvantaged four-year old population will

increase to 790 by 2022, leaving a deficit of 209 if no additional slots are provided.

VISION FOR EARLY CHILDHOOD PROGRAMS

The City of Alexandria is committed to making pre-K accessible to all families with pre-K age students and understands that this will require ACPS and partner support. The LREFP work group sought to explore the best ways to provide the maximum amount of pre-K spaces throughout the division. Programs could be provided within existing elementary schools, at new centers, or a combination of both.

ACPS Ed Specs provide guidelines for classroom design. The standard for a pre-K room is the same for a kindergarten classroom due to the similar emphasis on play and programmatic needs in the two grade levels. The similar classroom configuration also allows for flexibility year-to-year as student enrollment and program needs change. At schools that house Head Start, classes can be held in standard pre-K or kindergarten classrooms, provided the classroom meets the licensing criteria.

ACPS developed Ed Specs for a pre-K center as part of the LREFP. The Ed Specs outline space recommendations for a pre-K classroom, and are used to evaluate current capacity within existing pre-K classrooms already being used by ACPS. There are other partners who provide pre-K throughout the City and utilize their own private facilities.

FUTURE PRE-K SPACE

Currently, ACPS elementary schools have limited capacity within existing space to accommodate kindergarten through grade five enrollment, let alone additional pre-K. As additional elementary capacity is added and as enrollments are updated based on boundary changes, ACPS should explore additional opportunities to provide pre-K spaces within existing elementary schools.

ACPS is committed to work with pre-K partners, the City and organizations which are active in the community to increase pre-K capacity as much and as quickly as possible to align with available funding. Possible solutions to be explored should include:

- ACPS should work with the City to re-analyze future elementary school projects within the FY 2019-2028 CIP to determine if pre-K capacity could physically and affordably be added to projects.

- ACPS, the City and partners should establish a plan for addressing the gap in pre-K capacity within the City. This plan should consider the timing of available CIP funding and offer alternatives to address the pre-K capacity gap promptly, if additional pre-K capacity is not able to be achieved through the CIP.
- ACPS, the City and partners should make every effort to solicit space from external organizations and partners to add pre-K capacity.
- Timelines and goals need to be established and agreed upon by ACPS, the City and partners to meet the pre-K capacity need city-wide and draw down on all available pre-K funding sources (i.e. Virginia Preschool Initiative).

The Ed Specs, developed jointly by ACPS and pre-K partners, should be used to determine the adequacy and proposed use of space for future solutions. Any solution pursued should promote joint professional development and collaboration of staff employed by ACPS and the Campagna Center (Head Start) and support the Early Care in Education Workgroup's mission of seamless points of entry for parents seeking services. Solutions should also promote joint program development and delivery within VPI, ECSE, and Head Start, while maintaining critical funding streams and other policy requirements needed for state and federal funding.

RECOMMENDATIONS

The capacity of pre-K spaces throughout Alexandria cannot serve the current or projected population of disadvantaged four-year olds. This reality is supported by the waitlists reported by partners. Because of this, access should be expanded to serve all families within the City. These recommendations are specific to pre-K within ACPS facilities. Options to provide additional pre-K capacity at individual sites and/or a new pre-K center should be explored to meet this vision. Work group members and stakeholders emphasized their desire that short-term recommendations do not become long-term solutions for the division. Rather, short-term recommendations should serve a specific purpose for a given timeframe. Based on the analysis of the data collected and meetings with the work group and stakeholders, the following considerations for early childhood spaces are recommended.

These recommendations are meant to serve as a guideline for future proposed Capital Improvement Program projects and should be re-evaluated based on need and feasibility at the time of implementation. Recommendations were made to align with City Strategic plan goals and ACPS 2020 Strategic Plan goals and should be implemented in alignment with these goals.

GROUP 1 — REQUIRED PLANNING

- Analyze the impact of new elementary schools, capacity projects, and redistricting for providing capacity at elementary schools, develop a potential distribution plan for early childhood classrooms.
- Study the available capacity within City-owned buildings for space conversion and potential co-location. If capacity exists, analyze whether spaces can be converted to meet Ed Spec standards.
- Study the availability of privately-owned buildings/institutions for space conversion and potential co-location. If capacity exists, analyze whether spaces can be converted to meet Ed Spec standards.
- Evaluate implementation of co-located pre-K center to be open in 2018 to determine if additional centers would be beneficial.
- Study the possibility of co-location on City-owned sites. Perform feasibility analysis to see if build out can occur to provide space.
- Analyze the potential for/impact of providing density increases to developers who accommodate additional building capacity within new developments. Determine if land use solutions (i.e.: parking incentives, increased density, etc.) can provide additional pre-K capacity.

GROUP 2 — SHORT TERM RECOMMENDATIONS

- Calculate pre-K projections annually
- Maintain and expand, where possible, current pre-K capacity at existing elementary schools strategically located in areas of highest need.
- Expand pre-K capacity with private partners.
- Determine the amount of additional capacity that private partners can provide.
- Promote multi-story and urban school models to optimize real estate and provide maximum pre-K spaces within elementary schools.
- Identify and analyze potential land acquisition, co-location, or leasing opportunities for pre-K .

GROUP 3 — INTERMEDIATE RECOMMENDATIONS

- Analyze the feasibility of previously identified sites for additional pre-K capacity that aligns with the Board-approved Ed Specs.
- Explore feasibility of additional pre-K centers as a model based on the School Board-approved Ed Specs and after review and analysis of the initial co-located pre-K center.
- Configure spaces within existing elementary schools to meet Ed Specs for early childhood and/or incorporate into design for future capital projects.

GROUP 4 — LONG TERM RECOMMENDATIONS

T.C. WILLIAMS: KING STREET CAMPUS

3330 King Street Alexandria, VA 22302

| | | |
|---|---|--|
| Year Built: 2007 | Current School Floor Area: 461,147 sq ft | Current Lot Size: 19.88 acres |
| Zoning: R20 | Floor Area Permitted by Zoning: 547,000 | Floor to Area Ratio: 0.51 per DSUP |
| Classroom Count: 169 | Ed Spec Capacity @ 86% Efficiency: 2,928 | Projected Utilization (2022): 125% |
| Space Adequacy: Satisfactory: classrooms are within 10% +/- of the Ed Spec space requirements Borderline: classrooms are between 80% to 89% of space requirements Inadequate: classrooms are between 70% to 79% of space requirements Very Inadequate: classrooms are within less than 69% of space requirements Exceeds Space Requirements: classrooms are greater than 110% of space requirements | Non-Conforming Classrooms: 20 classrooms - 12% 75 classrooms - 44% 10 classrooms - 6% 26 classrooms - 15% 38 classrooms - 23% | Current Efficiency: Red-Day Schedule Average: 77% The average efficiency for A-Day is based on the following class periods: 1, 3, 5, and 7. Blue-Day Schedule Average: 78% The average efficiency for B-Day is based on the following class periods: 1, 2, 4, and 6. |

Student Counts:

| | FY 2017 Enrollment | FY 2022 Projected |
|--|-----------------------|----------------------|
| Student Count | 2943 | 3654 |
| Capacity | 2928 | 2928 |
| Utilization Rate (Student Count / Capacity) | 101% | 125% |

Enrollment projections for 2018 current boundaries provided by ACPS. Percentage values may not aggregate to 100% due to decimal place rounding.

Utilization Rate Categories:

| Enrollment as % of Capacity | Definition |
|-----------------------------|------------------|
| < 89 | Underutilized |
| 90 - 110% | Ideally Utilized |
| > 111 % | Over Capacity |

Space Adequacy Categories:

| Non-Conforming Spaces | As a % of SF |
|----------------------------|-------------------|
| Satisfactory | Within 90 - 110% |
| Borderline | 80% - 89% |
| Inadequate | 70% - 79% |
| Very Inadequate | Less than 69% |
| Exceeds Space Requirements | Greater than 110% |

BACKGROUND

T.C. Williams, Alexandria's only high school, is a comprehensive high school comprised of two campuses: the Minnie Howard Campus and the King Street Campus. In September 2016, T.C. Williams High School had a total enrollment of 3,754 students across both campuses. The Minnie Howard Campus serves grade 9 and the King Street Campus serves grades 10 – 12 and grade 9 students who participate in the International Academy program. Some 9th grade students from Minnie Howard travel to the King Street Campus during school hours on ACPS

provided buses to attend specific class offerings, often in the afternoon.

The King Street Campus was built in 1965 and modernized in 2007 with a new facility at its present site. The modernized building is a state-of-the-art facility that provides smaller learning communities, as well as flexible academic space capable of meeting the evolving secondary school curriculum requirements. In fall 2008, the second phase of the campus modernization project was completed and included an artificial turf sports field,

renovated stadium, new athletic track, new playing field, new bus driveway and a two-story parking garage. The project received a LEED Gold rating.

The academic program at T.C. Williams High School includes 188 courses in reading, language arts, mathematics, social studies and science, as well as fine arts, performing arts, physical education and health. The school also offers the following special academic programs:

- Academy of Finance
- Advanced Placement/Honors/Dual Enrollment
- International Academy
- Special Education/Inclusion Program
- STEM Academy
- Vocational Programs

ENROLLMENT AND UTILIZATION

The King Street Campus had a September 2016 enrollment of 2,943 students. The calculated capacity of the King Street Campus is 2,928 students based on an 86% efficiency rate, yielding a utilization rate (enrollment vs. capacity) of 101% in September 2016. Enrollment projections indicate the King Street Campus school population will increase to 3,654 by the year 2022, resulting in a utilization of 125% at the King Street Campus, which equates to a gap of 726 seats if seeking 100% utilization. ACPS considers ideal utilization as a range of 90% to 110%.

KEY FINDINGS

SUMMARY

The design of the King Street Campus was informed by older standards. ACPS has since developed Educational Specifications (Ed Specs) which were approved by the School Board in January 2017 and are reflective of current program and practices and represent ACPS's ideal 21st century high school.

Only 34% of classrooms meet or exceed the 2017 board approved educational adequacy benchmarks. The remaining 66% of classrooms are smaller than the prescribed minimum size requirements set in the Ed Spec. Additionally, based on the 2016-17 course schedule, the current use of classrooms averages below the ACPS benchmark efficiency rate of 86%.

EDUCATIONAL ADEQUACY

Educational Adequacy is the measure of existing educational spaces in comparison to ACPS's desired space

requirements and standards set forth in the 2017 School Board-approved high school Ed Specs. The educational adequacy assessment of the school also helps to calculate the capacity of the school. B&D performed the analysis and assessment in support of developing draft recommendations and priorities.

Based upon the data collected through B&D's assessment, only 34% of classrooms at the King Street Campus meet or exceed the educational adequacy benchmarks for an ideal 21st century high school. Spaces that are non-conforming to the Ed Specs impact the potential capacity of the school and utilization of space.

Of 169 total teaching spaces, only 20 spaces fall within 10% of the space requirements set forth in the Ed Specs. Despite having more room, larger spaces can only hold up to the maximize class size; therefore the 38 spaces that exceed the size requirement hold the same number of students as a standard Ed Specs classroom, as Board policy caps the class size per teacher. The remaining 111 classrooms are undersized. Per the Ed Specs, spaces that are smaller by more than 10% of the standard classroom space should hold fewer students.

SCHEDULE EFFICIENCY

Schedule efficiency examines how classroom spaces are used throughout the school day. ACPS's Ed Specs strive for an 86% utilization rate on a regular basis. Generally this rate means rooms are used seven out of eight periods a day and teachers utilize an alternative space such as a teacher collaboration suite for their planning period.

B&D's analysis of current course scheduling and room use reveals that T.C. Williams' instructional spaces are used slightly less than the desired rate. Classroom efficiency is specific to each day's schedule and can vary annually. T.C. Williams employs an Red/Blue block schedule, which impacts the instruction within a classroom each day. A classroom may be utilized for seven periods during Red-Day and only six periods during Blue-Day, depending on the scheduling need. The day-to-day utilization of a classroom impacts the average schedule efficiency for that day. The current average efficiency of classrooms at the King Street Campus during an Red-Day schedule is 77% while the average efficiency during a Blue-Day schedule is 78%. Opportunities to improve schedule efficiency should be explored.

RECOMMENDATIONS

The capacity of T.C. Williams High School cannot meet the projected growth in enrollment nor do the majority of classrooms meet the minimum recommended size requirements per the Ed Specs. Options to provide additional student capacity at one or both campuses or a new site should be explored. Work Group members and stakeholders emphasized their desire that short-term solutions, often identified as an early priority, do not become long-term solutions for the Division. Rather, short-term solutions should serve a specific purpose for a given timeframe. Based on the analysis of the data collected and meetings with the Work Group and stakeholders, the following recommendations for the King Street Campus are provided.

GROUP 1 — REQUIRED PLANNING

- Conduct site analysis to determine if the site can accommodate additional square footage to support more students. This analysis should include the impacts to shared and core spaces such as dining.
- Conduct further analysis of the master schedule and use of space at the King Street Campus to explore ways to maximize existing space. The analysis should include studying how to increase the number of teacher collaboration suites and/or reconfiguring existing space to improve the enrollment capacity.
- Study the potential outcomes of a shifted schedule (e.g. multiple tracks of students with alternating start and end times).
- Study the possibility of transporting 10 – 12 grade students to the Minnie Howard Campus for classes to relieve capacity constraints at T.C. Williams.
- Conduct an analysis of adjusting grade-level pairings throughout the Division (i.e., K-6, 7-9, 10-12).

GROUP 3 — SECOND PRIORITY

- If applicable, reassign grade-level pairings throughout the Division based on analysis and ACPS priorities.
- Build additional capacity for T.C. Williams High School at the King Street Campus, at the Minnie Howard Campus, and/or at another location within the City.

GROUP 2 — FIRST PRIORITY

- Continue and expand partnerships with local entities, such as with NoVA Community College, to increase off-campus learning opportunities. Determine how much capacity can be provided at off-campus locations to inform future utilization of T.C. Williams.
- If applicable, adjust the master schedule based on analysis performed.
- In order to maximize capacity at both campuses, explore how students can travel between campuses without significantly adding to the Division's transportation costs or local traffic levels.
- Utilize trailers to accommodate more students as enrollment increases.

GROUP 4 — LONG RANGE RECOMMENDATIONS

- New high school graduation requirements within the Commonwealth of Virginia are currently in development, known as the "Profile of a Virginia Graduate." The profile is the framework for the Virginia Board of Education's revision of graduation requirements, which will go into effect for freshmen entering high school in the fall of the 2018-19 (the graduating class of 2022). The requirements will likely affect the number of required program and support spaces, as well as the types of spaces needed for high school programs. Once the requirements are approved, the Division should conduct an analysis of high school spaces to ensure instructional spaces are in alignment with the new high school program requirements.

T.C. WILLIAMS: MINNIE HOWARD CAMPUS

3801 West Braddock Road, Alexandria, VA 22302

| AT A GLANCE... | | |
|---|---|--|
| <i>Year Built</i> 1954 | <i>Current Floor Area</i> 130,435 | <i>Floor Area Permitted by Zoning (SF)</i> ACPS/COA To Confirm |
| <i>Zoning</i> R-12(031.02-02-05) | <i>Lot Size (acres)</i> 6.6 | <i>Floor Area Ratio</i> ACPS/COA To Confirm |
| POS | 5.4 | 0.0 |

BACKGROUND

T.C. Williams, Alexandria's only high school, is a comprehensive high school comprised of two campuses: the Minnie Howard Campus and the King Street Campus. In September 2016, T.C.



Williams High School had a total enrollment of 3,754 students across both campuses. The Minnie Howard Campus serves grade 9 and the King Street Campus serves grades 10 – 12. A portion of 9th grade students travel to the King Street Campus during school hours on ACPS provided buses to attend specific class offerings.

The Minnie Howard School building was originally constructed in 1954 as an elementary school. There was a major classroom and gymnasium addition in 1969 when it was converted to a middle school. The facility served as the central administrative offices from 1981 to 1993, when it was again renovated and became the ninth grade center. ACPS has had several plans to modernize the Campus in recent CIPs and is currently looking to assess the feasibility of the site for a new high school building.

The academic program at T.C. Williams High School includes 188 courses in reading, language arts, mathematics, social studies and science, as well as fine arts, performing arts, physical education and health. The school also offers the following special academic programs:

- Academy of Finance
- Advanced Placement/Honors
- English as a Second Language
- Special Education/Inclusion Program
- STEM Academy

- Vocational Programs

ENROLLMENT AND UTILIZATION

The Minnie Howard Campus had a September 2016 enrollment of 811 students. The estimated capacity of the Campus is 883, yielding a utilization rate (enrollment vs. capacity) of 92%. Enrollment projections indicate the Minnie Howard school population will increase to 1,044 students by the year 2022, resulting in a utilization of 118%, which equates to a gap of 161 seats if seeking 100% utilization. ACPS considers ideal utilization as a range of 90 to 110%.

KEY FINDINGS#

EDUCATIONAL ADEQUACY

Educational adequacy is the measure of existing educational spaces in comparison to ACPS's desired space requirements and standards set forth in the 2017 School Board-approved high school Ed Specs. The educational adequacy assessment of the school also helps to calculate its capacity.

At the time ACPS prepared the scope of work for the Phase II update of the LREFP, several modernizations of the Minnie Howard Campus had been proposed. Since some of the proposed modernization solutions included a new facility, ACPS assumed that an assessment of educational adequacy was not needed; therefore, the educational adequacy of the Campus was not assessed as part of this phase of work. This work is recommended for future planning efforts in order to determine the calculated capacity of the Campus and compare current spaces to the desired requirements and standards for spaces. Given that the school was constructed over sixty years ago and as an elementary school, it can be anticipated that some spaces at the Campus would not achieve a satisfactory rating through the educational adequacy assessment.

SCHEDULE EFFICIENCY

Schedule efficiency examines how spaces are used throughout the school day. ACPS's Ed Specs strive for an 86% utilization rate of classroom use on a regular basis. Generally this rate means teachers use their assigned rooms seven out of eight periods a day and utilize an alternative space, such as a teacher collaboration suite for their planning period.

At the time ACPS prepared the scope of work for the Phase II update of the LREFP, several modernizations of the Minnie Howard Campus had been proposed. It was assumed that an assessment of schedule efficiency was not needed until a later date; therefore, the schedule efficiency of the Campus was not assessed as part of this phase of work. This work is recommended for future planning efforts in order to understand how spaces are used during the school day and identify opportunities for improvement.

RECOMMENDATIONS

The capacity of T.C. Williams High School cannot meet the projected growth in enrollment. Options to provide additional student capacity at one or both campuses or a new site should be explored. Work Group members and stakeholders emphasized their desire that short-term solutions, often identified as an early priority, do not become long-term solutions for the Division. Rather, short-term solutions should serve a specific purpose for a given timeframe. Based on the analysis of the data collected and meetings with the Work Group and stakeholders, the following recommendations for the Minnie Howard Campus are provided.

GROUP 1 — REQUIRED PLANNING

- Conduct site analysis to determine if the site can accommodate additional square footage to support more students. This analysis should include the impacts to shared and core spaces such as dining.
- Conduct an analysis of the master schedule and use of space at the Minnie Howard Campus to explore ways to maximize existing space. This analysis should include studying how to increase the number of teacher collaboration suites and/or reconfiguring existing space to improve enrollment capacity.
- Study the possibility of transporting 10 – 12 grade students to the Minnie Howard Campus for classes in efforts to relieve capacity constraints at the King Street Campus.
- Study the potential outcomes of a shifted schedule (e.g., multiple tracks of students with alternating start and end times).
- Conduct an analysis of adjusting grade-level pairings throughout the Division (i.e., K-6, 7-9, 10-12).

GROUP 3 — SECOND PRIORITY

- If applicable, reassign grade-level pairings throughout the Division based on analysis and ACPS priorities.
- Build additional capacity for T.C. Williams High School at the King Street Campus, at the Minnie Howard campus, and/or at another location within the City.

GROUP 2 — FIRST PRIORITY

- Determine future programs and priorities for the Minnie Howard Campus in alignment with analysis of the site's capacity.
- If applicable, adjust the master schedule based on the analysis performed.
- In order to maximize capacity at both campuses, explore how students can travel between campuses without significantly adding to Division's transportation costs or local traffic levels.
- Utilize trailers to accommodate more students as enrollment increases.

GROUP 4 — LONG RANGE RECOMMENDATIONS

- New high school graduation requirements within the Commonwealth of Virginia are currently in development, known as the "Profile of a Virginia Graduate." The profile is the framework for the Virginia Board of Education's revision of graduation requirements, which will go into effect for freshmen entering high school in the fall of the 2018-19 (the graduating class of 2022). The requirements will likely affect the number of required program and support spaces, as well as the types of spaces needed for high school programs. Once the requirements are approved, the Division should conduct an analysis of high school spaces to ensure instructional spaces are in alignment with the new high school program requirements.

EARLY CHILDHOOD EDUCATION (PRE-K)

BACKGROUND

ACPS does not currently provide universal early childhood education (pre-kindergarten, pre-K, preschool) programs. ACPS Early Childhood Programs consist of three components: Virginia Preschool Initiative (VPI), Preschoolers Learning Together (PLT), and Early Childhood Special Education (ECSE).

VPI is provided by a state grant and local funding. The purpose of VPI is to provide quality early childhood programs for children, whom the state of Virginia defines as “at-risk four-year olds.” VPI is a program designed for families who might not otherwise be able to access quality early childhood education opportunities.

PLT is a half-day preschool program offered to eligible children ages two years and six months thru four years (by September 30). This is an opportunity for developing children from the Alexandria community to be integrated into an early childhood special education (ECSE) classroom for the purpose of providing typical role models to students with disabilities.

ECSE provides special education services to students between the ages of two to five who are identified as having a developmental delay or disability.

ACPS also has partnerships with local early care providers such as the Campagna Center, which provides Head Start and other programs. Some of these programs occur within ACPS schools and partner locations.

Another related entity is the Early Care and Education Workgroup (ECEW), which is a cross-sector workgroup made up of leaders from across ACPS, City agencies, funders, and the non-profit community. The group was convened to explore how Alexandria can build an early care and early childhood education system that is high quality, culturally and financially accessible, and comprehensive (including health, education, socio-emotional, family and community support).

As shown in Table 1, ACPS currently offers early childhood education spaces in six elementary schools.

| School | Table 1: Pre-K in ACPS Elementary Schools | | | | |
|-------------------|---|--------------------|------------|------------------------|---------------------------|
| | ACPS Enrollment | HeadStart Capacity | Total | Ed Spec Pre-K Capacity | Ed Spec Pre-K Utilization |
| Charles Barrett | 21 | 0 | 21 | 22 | 95% |
| Cora Kelly | 3 | 36 | 39 | 33 | 118% |
| Jefferson Houston | 49 | 78 | 127 | 116 | 109% |
| John Adams | 123 | 74 | 197 | 144 | 137% |
| Patrick Henry | 96 | 60 | 156 | 124 | 126% |
| William Ramsay | 32 | 0 | 32 | 29 | 110% |
| Total | 324 | 248 | 572 | 468 | 122% |

Historically, the location of programs has been informed by available capacity and student demand within schools. In addition, there are currently six Early Head Start classes, 1.5 Head Start classes and 0.5 VPI class offered by partners at George Washington Middle School and at T.C. Williams High School’s King Street Campus.

Historically, Division-wide pre-K student forecasts have not been calculated as part of student projections since ACPS is limited in the amount of space that can be offered. ACPS currently provides as much space as possible throughout the City for current programs.

The State of Virginia uses a formula to project the number of disadvantaged four-year olds, which determines the amount of Virginia Preschool Initiative (VPI) slots to fund for a given municipality. The formula multiplies total kindergarten enrollment by the Division-wide free lunch percentage and subtracts the number of slots provided through Head Start. Using the state's formula, ACPS estimates there are 746 disadvantaged four-year olds in the City. In 2017, there were 569 pre-school slots provided through VPI and Head Start, leaving a deficit of 177. Projections indicate the disadvantaged four-year old population will increase to 790 by 2022, leaving a deficit of 209 if no additional slots are provided.

ACPS VISION FOR EARLY CHILDHOOD PROGRAMS

ACPS's Superintendent and senior leadership desire to make universal pre-Kindergarten available to all families. The Work Group sought to explore the best ways to provide the maximum amount of pre-K spaces throughout the Division. Programs could be provided within existing elementary schools, at regional centers, or a combination of both.

ACPS Educational Specifications (Ed Specs) provide the standards for classroom design. The standard for a pre-K room is the same for a kindergarten classroom due to the similar emphasis on play and programmatic needs in the two grade levels. The similar classroom configuration also allows for flexibility year-to-year as student enrollment and program needs change. At schools that house Head Start, classes can be held in standard pre-K or kindergarten classrooms, provided the classroom meets the licensing criteria.

ACPS developed Ed Specs for pre-K as part of the second phase of the LREFP. The Ed Specs outline space needs for a pre-K classroom and is used to evaluate current capacity within existing pre-K classrooms.

PRE-K WITHIN EXISTING ELEMENTARY SCHOOLS

Currently, ACPS elementary schools have limited capacity within existing permanent classrooms to accommodate larger enrollments, whether pre-kindergarten or kindergarten through grade five. For the current school year, no elementary school is being utilized at less than 90% and nine are above 100% utilization. ACPS considers ideal utilization as a range of 90% to 110%. Elementary student enrollment is projected to grow over the next 10 years by about 800 students, further constraining the use of existing classroom space for early childhood education without expansions or a new school. As additional elementary capacity is added and as

enrollments are updated based on boundary changes, ACPS should explore additional opportunities to provide pre-K spaces within existing elementary schools.

PRE-K WITHIN REGIONAL CENTERS

In addition to pre-K spaces within existing elementary schools, ACPS and its partners also desire to establish centers to increase services offered to families and create equity between programs. Though not currently proposed, it would be ideal for pre-K centers to add early childhood education seats in the future and to maximize enrollment Division-wide.

ACPS developed Ed Specs to outline space needs for a potential future center. The center would be designed to serve approximately 360 students in 20 classrooms and offer a range of wrap-around services.

The center model will promote joint professional development and collaboration of staff employed by the schools and the Campagna Center (Head Start) and support the Early Care in Education Workgroup's mission of seamless points of entry for parents seeking services. It will also promote joint program development and delivery within VPI, ECSE and Head Start while maintaining critical funding streams and other policy requirements required for state and federal funding.

RECOMMENDATIONS

The capacity of pre-K spaces throughout ACPS cannot serve the current or projected population of disadvantaged four-year olds. This reality is supported by the waitlists reported by ACPS partners. Additionally, ACPS desires to expand access to serve all families within the City.

Options to provide additional pre-K capacity at individual sites and/or a new regional pre-K center should be explored to meet this vision. Work Group members and stakeholders emphasized their desire that short-term solutions, often identified as an early priority, do not become long-term solutions for the Division. Rather, short-term solutions should serve a specific purpose for a given timeframe. Based on the analysis of the data collected and meetings with the Work Group and stakeholders, the following considerations for early childhood spaces are recommended:

GROUP 1 — REQUIRED PLANNING

- Analyze the impact of new elementary schools, new capacity projects, and redistricting for providing capacity at existing elementary schools and develop a potential distribution plan for early childhood classrooms.
- Study the available capacity within City-owned or privately-owned buildings for space conversion and potential co-location. If capacity exists, analyze whether spaces can be converted to meet Ed Spec standards.
- Study the possibility of co-location on City-owned sites. Perform feasibility analysis to see if build out can occur to provide space.
- Analyze the potential for and the impact of providing density increases to developers who accommodate additional school building capacity within new developments. Determine if development incentives can provide additional pre-K capacity.

GROUP 3 — SECOND PRIORITY

- Analyze the feasibility of previously identified sites for a new pre-K center that aligns with the Board-approved Ed Specs.
- Identify and analyze additional land acquisition, co-location, or leasing opportunities for a new pre-K center.

GROUP 2 — FIRST PRIORITY

- Maintain and expand, where possible, current pre-K capacity at existing elementary schools.
- Expand pre-K capacity with private partners. Determine the amount of additional capacity that private partners can provide.
- Promote multi-story and urban school models to optimize real estate and provide maximum pre-K spaces within elementary schools.

GROUP 4 — LONG RANGE RECOMMENDATIONS

- Build a pre-K center at a location to be identified within the City based on the School Board-approved Ed Specs.
- Configure spaces within existing elementary schools to meet Ed Specs for early childhood and/or incorporate into design for future capital projects.



Long Range Educational Facilities Plan – Second Phase Work Group Meeting #5

LOCATION: George Washington Middle School – Library

DATE: June 12, 2017

TIME: 7:00pm – 8:30 pm

AGENDA

1. Welcome
2. Meeting Notes
3. LREFP Addenda
 - a. Review Final Recommendations
 - i. King Street Campus
 - ii. Minnie Howard Campus
 - iii. Early Childhood Education (Pre-K)
 - b. Discuss Other LREFP Sections
4. AlexEngage
5. Next Steps
 - a. September Work Group Meeting
 - b. City Council Meeting
 - c. School Board Meeting

Every Student Succeeds



Long Range Educational Facilities Plan – Second Phase Work Group Meeting 5 Notes

LOCATION: George Washington Middle School – School Library
DATE: June 12, 2017
TIME: 7:00pm – 8:30 pm

Work Group Members Present: Board Chair Ramee Gentry, Board Member Bill Campbell (On Behalf of Karen Graf), Vice Mayor Justin Wilson, Mike Burch, Joy Cameron, Kennetra Wood, Mark Eisenhower, Steve Patterson, Judy Noritake and Kathy Stenzel

Staff/Consultant Presenters: Erika Gulick (ACPS) and Kayla Anthony (B&D)

Staff/consultants guided the Work Group through the LREFP draft addenda for high school and pre-K. Specific edits requested by the Work Group were noted on a hard copy document and will be edited to reflect the changes. Broad comments regarding the document include the following:

- Edits to sections that include analysis for clarity and specificity
- Renaming groups within the recommendation section to “Short-Term,” “Intermediate” and “Long-Term”
- Combining the high school documents into one concise document with sections for each building

The Work Group indicated that no proposed edits were substantive in nature; therefore, the draft document in its current form can be provided to other work groups within the City for reference. Prior to the next meeting in fall, the Work Group desires to see the following additional analysis for the LREFP:

- Space adequacy assessment of Minnie Howard
- Site analysis of Minnie Howard

Vice Mayor Justin Wilson explained AlexEngage as a tool for surveying the community on the LREFP Phase II process. The Work Group indicated they would like to see draft questions put together by Staff and provide feedback.

Every Student Succeeds

T.C. WILLIAMS: KING STREET CAMPUS

3330 King Street Alexandria, VA 22302

| | | |
|---|---|---|
| Year Built: 2007 | Current School Floor Area: 461,147 sq ft | Current Lot Size: 19.88 acres |
| Zoning: R20 | Floor Area Permitted by Zoning: 547,000 | Floor to Area Ratio: .51 per DSUP |
| Classroom Count: 169 | Ed Spec Capacity @ 86% Efficiency: 2,928 | Projected Utilization (2022): 125% |
| Space Adequacy: Exceeds Space Requirements: classrooms are greater than 110% of space requirements Satisfactory: classrooms are within 10% +/- of the Ed Spec space requirements Borderline: classrooms are between 80% to 89% of space requirements Inadequate: classrooms are between 70% to 79% of space requirements Very Inadequate: classrooms are within less than 69% of space requirements | Non-Conforming Classrooms: 38 classrooms - 23% 20 classrooms - 12% 75 classrooms - 44% 10 classrooms - 6% 26 classrooms - 15% | Current Efficiency: ACPS Target Efficiency: 86% Generally this rate means rooms are used seven out of eight periods each day. See the "Schedule Efficiency" section for additional detail. A-Day Schedule Average: 77% The average efficiency for A-Day is based on the following class periods: 1, 3, 5, and 7. B-Day Schedule Average: 78% The average efficiency for B-Day is based on the following class periods: 1, 2, 4, and 6. |

Student Counts:

| | FY 2017 Enrollment | FY 2022 Projected |
|--|-----------------------|----------------------|
| Student Count | 2943 | 3654 |
| Capacity | 2928 | 2928 |
| Utilization Rate (Student Count / Capacity) | 101% | 125% |

Utilization Rate Categories:

| Enrollment as % of Capacity | Definition |
|-----------------------------|------------------|
| < 89 | Underutilized |
| 90 - 110% | Ideally Utilized |
| > 111 % | Over Capacity |

BACKGROUND

T.C. Williams, Alexandria's only public high school, is a comprehensive high school comprised of two campuses: the Minnie Howard Campus and the King Street Campus. In September 2016, T.C. Williams High School had a total enrollment of 3,754 students across both campuses. The

Minnie Howard Campus serves grade 9, and the King Street Campus serves grades 10 – 12 and grade 9 students who participate in the International Academy program. Some 9th grade students from Minnie Howard travel to the King Street Campus during school hours on ACPS provided buses to attend specific class offerings, often in the afternoon.

renovated stadium, new athletic track, new playing field, new bus driveway, and a two-story parking garage. The project received a LEED Gold rating.

The academic program at T.C. Williams High School includes 188 courses in reading, language arts, mathematics, social studies, and science, as well as fine arts, performing arts, physical education, and health. The school also offers the following special academic programs:

- Academy of Finance
- Advanced Placement/Honors/Dual Enrollment
- International Academy
- Special Education/Inclusion Program
- STEM Academy
- Vocational Programs

ENROLLMENT AND UTILIZATION

The King Street Campus had a September 2016 enrollment of 2,943 students. The calculated capacity of the King Street Campus is 2,928 students based on an 86% efficiency rate, yielding a utilization rate (enrollment vs. capacity) of 101% in September 2016. Enrollment projections indicate the King Street Campus school population will increase to 3,654 by the year 2022, resulting in a utilization of 125% at the King Street Campus, which equates to a gap of 726 seats if seeking 100% utilization. ACPS considers ideal utilization as a range of 90% to 110%.

KEY FINDINGS

SUMMARY

The design of the King Street Campus was informed by older standards. ACPS has since developed Educational Specifications (Ed Specs) which were approved by the School Board in January 2017 and are reflective of current program and practices and represent ACPS's ideal 21st century high school.

Only 34% of classrooms meet or exceed the 2017 board approved educational adequacy benchmarks. The remaining 66% of classrooms are smaller than the prescribed minimum size requirements set in the Ed Specs. Additionally, based on the 2016-17 course schedule, the current use of classrooms averages below the ACPS benchmark efficiency rate of 86%.

EDUCATIONAL ADEQUACY

Educational adequacy is the measure of existing educational spaces in comparison to ACPS's desired space

requirements and standards set forth in the 2017 School Board-approved high school Ed Specs. The educational adequacy assessment of the school also helps to calculate the capacity of the school.

Based upon the data collected, only 34% of classrooms at the King Street Campus meet or exceed the educational adequacy benchmarks for an ideal 21st century high school. Spaces that are non-conforming to the Ed Specs impact the potential capacity of the school and utilization of space.

Of 169 total teaching spaces, only 20 spaces fall within 10% of the space requirements set forth in the Ed Specs. Despite having more room, larger spaces can only hold up to the maximize class size; therefore the 38 spaces that exceed the size requirement hold the same number of students as a standard Ed Specs classroom, as Board policy caps the class size per teacher. The remaining 111 classrooms are undersized. Per the Ed Specs, spaces that are smaller by more than 10% of the standard classroom space should hold fewer students.

SCHEDULE EFFICIENCY

Schedule efficiency examines how classroom spaces are used throughout the school day. ACPS's Ed Specs strive for an 86% efficiency rate on a regular basis. Generally this rate means rooms are used seven out of eight periods a day and teachers utilize an alternative space such as a teacher collaboration suite for their planning period.

Analysis of current course scheduling and room use reveals that T.C. Williams' instructional spaces are used slightly less than the desired rate, as shown in the Current Efficiency box. Classroom efficiency is specific to each day's schedule and can vary annually. For the purposes of this analysis, only blocks 1 through 7 were considered, as these are the core academic blocks of the school day. T.C. Williams employs a Red/Blue block schedule, which impacts the instruction within a classroom each day. A classroom may be utilized for four periods during Red Day and only three periods during Blue Day, depending on the scheduling need. Specialty classrooms, such as for culinary courses, impact the efficiency as they may not be needed for every block. The day-to-day utilization of a classroom impacts the average schedule efficiency for that day. The current average efficiency of classrooms at the King Street Campus during an Red Day schedule is 77% while the average efficiency during a Blue Day schedule is 78%. Opportunities to improve schedule efficiency should be explored.

T.C. WILLIAMS: MINNIE HOWARD CAMPUS

3801 West Braddock Road, Alexandria, VA 22302

| | | |
|---|---|---|
| Year Built: 1954 | Current School Floor Area: 130,435 sq ft | Floor Area Permitted by Zoning 146,623 sq ft |
| Zoning: R12 (031.02-02-05) POS | Lot Size (acres): 6.6 5.4 For fields adjacent to the school | Floor to Area Ratio: 0.51 Not Applicable for POS |
| Classroom Count: 47 | Ed Spec Capacity @ 86% Efficiency: 859 | Projected Utilization (2022): 122% |
| Space Adequacy: Exceeds Space Requirements: classrooms are greater than 110% of space requirements Satisfactory: classrooms are within 10% +/- of the Ed Spec space requirements | Non-Conforming Classrooms: 1 classroom - 2% 7 classrooms - 15% | Current Efficiency: ACPS Target Efficiency: 86% Generally this rate means rooms are used seven out of eight periods each day. See the "Schedule Efficiency" section for additional detail. A-Day Schedule Average: 70% The average efficiency for A-Day is based on the following class periods: 1, 3, 5, and 7. B-Day Schedule Average: 66% The average efficiency for B-Day is based on the following class periods: 1, 2, 4, and 6. |
| Borderline: classrooms are between 80% to 89% of space requirements Inadequate: classrooms are between 70% to 79% of space requirements Very Inadequate: classrooms are within less than 69% of space requirements | 5 classrooms - 11% 23 classrooms - 49% 11 classrooms - 23% | |

In

Student Counts:

| | FY 2017 Enrollment | FY 2022 Projected |
|--|-----------------------|----------------------|
| Student Count | 811 | 1044 |
| Capacity | 859 | 859 |
| Utilization Rate (Student Count / Capacity) | 94% | 122% |

Utilization Rate Categories:

| Enrollment as % of Capacity | Definition |
|-----------------------------|------------------|
| < 89 | Underutilized |
| 90 - 110% | Ideally Utilized |
| > 111 % | Over Capacity |

BACKGROUND

T.C. Williams, Alexandria's only public high school, is a comprehensive high school comprised of two campuses: the Minnie Howard Campus and the King Street Campus.

September 2016, T.C. Williams High School had a total enrollment of 3,754 students across both campuses. The Minnie Howard Campus serves grade 9 and the King Street Campus serves grades 10 – 12. A portion of 9th grade students travel to the King Street Campus during school hours on ACPS provided buses to attend specific class offerings.

The Minnie Howard School building was originally constructed in 1954 as an elementary school. There was a major classroom and gymnasium addition in 1969 when it was converted to a middle school. The facility served as the central administrative offices from 1981 to 1993, when it was again renovated and became the 9th grade center. ACPS has had several plans to modernize the campus in recent CIPs and is currently looking to assess the feasibility of the site for a new high school building.

The academic program at T.C. Williams High School includes 188 courses in reading, language arts, mathematics, social studies, and science, as well as fine arts, performing arts, physical education, and health. The school also offers the following special academic programs:

- Academy of Finance
- Advanced Placement/Honors
- English as a Second Language
- Special Education/Inclusion Program
- STEM Academy
- Vocational Programs

ENROLLMENT AND UTILIATION

The Minnie Howard Campus had a September 2016 enrollment of 811 students. The estimated capacity of the Campus is 883, yielding a utilization rate (enrollment vs. capacity) of 92%. Enrollment projections indicate the Minnie Howard school population will increase to 1,044 students by the year 2022, resulting in a utilization of 118%, which equates to a gap of 161 seats if seeking 100% utilization. ACPS considers ideal utilization as a range of 90 to 110%.

KEY FINDINGS

EDUCATIONAL ADEQUACY

Educational adequacy is the measure of existing educational spaces in comparison to ACPS's desired space requirements and standards set forth in the 2017 School Board-approved high school Ed Specs. The educational adequacy assessment of the school helps to calculate its capacity, and is specific to square footage measurements.

At the time ACPS prepared the scope of work for the Phase II update of the LREFP, several modernizations of the Minnie Howard Campus had been proposed. Since some of the proposed modernization solutions included a new facility, ACPS assumed that an assessment of educational adequacy was not needed; therefore, the educational adequacy of the campus was not assessed as

part of this phase of work. This work is recommended for future planning efforts in order to determine the calculated capacity of the campus and compare current spaces to the desired requirements and standards for spaces. Given that the school was constructed over 60 years ago and as an elementary school, it can be anticipated that some spaces at the campus would not achieve a satisfactory rating through the educational adequacy assessment.

SCHEDULE EFFICIENCY

Schedule efficiency examines how spaces are used throughout the school day. ACPS's Ed Specs strive for an 86% efficiency rate of classroom use on a regular basis. Generally this rate means teachers use their assigned rooms seven out of eight periods a day and utilize an alternative space, such as a teacher collaboration suite for their planning period.

Analysis of current course scheduling and room use reveals that T.C. Williams: Minnie Howard Campus' instructional spaces are used less than the desired rate, as shown in the Current Efficiency box. As is the case with the King Street campus, classroom efficiency is specific to each day's schedule and can vary annually. For the purposes of this analysis, only blocks 1 through 7 were considered, as these are the core academic blocks of the school day. T.C. Williams employs a Red/Blue block schedule, which impacts the instruction within a classroom each day. A classroom may be utilized for four periods during Red Day and only three periods during Blue Day, depending on the scheduling need. Specialty classrooms impact the efficiency as they may not be needed for every block. The day-to-day utilization of a classroom impacts the average schedule efficiency for that day. The current average efficiency of classrooms at the King Street Campus during an Red Day schedule is 70% while the average efficiency during a Blue Day schedule is 66%. Opportunities to improve schedule efficiency should be explored.

RECOMMENDATIONS

The capacity of T.C. Williams High School's two campuses cannot meet the projected growth in enrollment, nor do the majority of classrooms meet the minimum recommended size requirements per the Ed Specs. Options to provide additional student capacity at one or both campuses or a new site should be explored. Work group members and stakeholders emphasized their desire that short-term recommendations, often identified as an early priority, do not become long-term recommendations for the Division. Rather, short-term recommendations should serve a specific purpose for a given timeframe. Based on the analysis of the data collected and meetings with the work group and stakeholders, the following recommendations for the King Street and Minnie Howard Campuses are provided.

GROUP 1 — REQUIRED PLANNING

- Conduct site analysis to determine if the site can accommodate additional square footage to support more students. This analysis should include the impacts to shared and core spaces such as dining.
- Conduct further analysis of the master schedule and use of space at both campuses to explore ways to maximize existing space. The analysis should include studying how to increase the number of teacher collaboration suites and/or reconfiguring existing space to improve the enrollment capacity.
- Study the potential outcomes of a shifted schedule (e.g. multiple tracks of students with alternating start and end times).
- Study the possibility of transporting 10 – 12 grade students to the Minnie Howard Campus for classes to relieve capacity constraints at T.C. Williams.
- Conduct an analysis of adjusting grade-level pairings throughout the Division (i.e., K-6, 7-9, 10-12).
- Study both campuses together to determine best uses both properties, and efficient use of specialty classrooms.

GROUP 3 — INTERMEDIATE RECOMMENDATIONS

- If applicable, reassign grade-level pairings throughout the division based on analysis and ACPS priorities.
- Build additional capacity for T.C. Williams High School at the King Street Campus, at the Minnie Howard Campus, and/or at another location within the City.

GROUP 2 — SHORT TERM RECOMMENDATIONS

- Continue and expand partnerships with local entities, such as NOVA Community College, to increase off-campus learning opportunities.
- Determine how much capacity can be provided at off-campus locations to inform future utilization of T.C. Williams.
- Determine that future programs and priorities for the Minnie Howard Campus are in alignment with the site's capacity analysis.
- If applicable, adjust the master schedule based on analysis.
- In order to maximize capacity at both campuses, explore how students can travel between the two without significantly adding to the Division's transportation costs or local traffic levels.
- Utilize relocatables to accommodate more students as enrollment increases.

GROUP 4 — LONG TERM RECOMMENDATIONS

- New high school graduation requirements within the Commonwealth of Virginia are currently in development, known as the "Profile of a Virginia Graduate." The profile is the framework for the Virginia Board of Education's revision of graduation requirements, which will go into effect for freshmen entering high school in the fall of the 2018-19 (the graduating class of 2022). The requirements will likely affect the number of required program and support spaces, as well as the types of spaces needed for high school programs. Once the requirements are approved, the division should conduct an analysis of high school spaces to ensure instructional spaces are in alignment with the new high school program requirements.

EARLY CHILDHOOD EDUCATION (PRE-K)

BACKGROUND

ACPS Early Childhood Programs consist of three components: Virginia Preschool Initiative (VPI), Preschoolers Learning Together (PLT), and Early Childhood Special Education (ECSE). ACPS also has partnerships with local early care providers such as the Campagna Center, which provides Head Start and other programs. Some of these programs occur within ACPS schools and partner locations.

VPI is provided by a state grant and local funding. The purpose of VPI is to provide quality early childhood programs for children, whom the state of Virginia defines as “at-risk four-year olds.” VPI is a program designed for families who might not otherwise be able to access quality early childhood education opportunities.

PLT is a half-day preschool program offered to eligible children ages two years and six months thru four years (by September 30). This is an opportunity for developing children from the Alexandria community to be integrated into an early childhood special education (ECSE) classroom for the purpose of providing typical role models to students with disabilities.

ECSE provides special education services to students between the ages of two to five who are identified as having a developmental delay or disability.

Head Start is provided by a federal grant and local funding.. Head Start, similar to VPI provides quality early childhood education for students who meet certain socioeconomic criteria.

The City of Alexandria has an Early Care and Education Workgroup (ECEW), which is a cross-sector workgroup made up of leaders from across ACPS, city agencies, partners, and the non-profit community. The group was convened to explore how Alexandria can build an early care and early childhood education system that is high quality, culturally and financially accessible, and

| School | ACPS Enrollment | HeadStart/ Partner Enrollment* | Total Enrollment | Ed Spec Pre-K Capacity | Ed Spec Pre-K Utilization |
|---------------------|-----------------|--------------------------------|------------------|------------------------|---------------------------|
| Charles Barrett | 21 | 0 | 21 | 22 | 95% |
| Cora Kelly | 3 | 54 | 57 | 45 | 128% |
| Jefferson - Houston | 49 | 78 | 127 | 116 | 109% |
| John Adams | 123 | 74 | 197 | 144 | 137% |
| Patrick Henry | 96 | 60 | 156 | 124 | 126% |
| William Ramsay | 32 | 0 | 32 | 29 | 110% |
| George Washington | 0 | 56 | 56 | 45 | 124% |
| T.C. Williams | 0 | 24 | 24 | 40 | 60% |
| Total | 324 | 346 | 670 | 565 | 119% |

* Head Start and partner pre-K enrollment is based on class caps, not actual enrollment figures.

comprehensive (including health, education, socio-emotional, family, and community support).

As shown in Table 1, ACPS currently offers early childhood education spaces in six elementary schools, one of the middle schools and at the high school. The location of programs has been informed by available capacity. Please note that all enrollment numbers included in Table 1 are for school year 2016 - 2017.

Historically, division-wide pre-K student forecasts have not been calculated as part of student projections since ACPS is limited in the amount of space that can be offered. ACPS currently provides as much space as possible throughout the City for current programs.

The State of Virginia uses a formula to project the number of disadvantaged four-year olds, which determines the amount of VPI slots to fund for a given municipality. The formula multiplies total kindergarten enrollment by the division-wide free lunch percentage and subtracts the number of slots provided through Head Start. Using the state’s formula, ACPS estimates there are 746 disadvantaged four-year olds in the City of Alexandria. In 2017, there were 569 pre-school slots provided through VPI and Head Start, leaving a deficit of 177. Projections indicate the disadvantaged four-year old population will

VISION FOR EARLY CHILDHOOD PROGRAMS

The City of Alexandria is committed to making pre-K accessible to all families and understands that this will require ACPS and partner support. The LREFP work group sought to explore the best ways to provide the maximum amount of pre-K spaces throughout the division. Programs could be provided within existing elementary schools, at new centers, or a combination of both.

ACPS Ed Specs provide guidelines for classroom design. The standard for a pre-K room is the same for a kindergarten classroom due to the similar emphasis on play and programmatic needs in the two grade levels. The similar classroom configuration also allows for flexibility year-to-year as student enrollment and program needs change. At schools that house Head Start, classes can be held in standard pre-K or kindergarten classrooms, provided the classroom meets the licensing criteria.

ACPS developed Ed Specs for pre-K as part of the second phase of the LREFP. The Ed Specs outline space recommendations for a pre-K classroom, and are used to evaluate current capacity within existing pre-K classrooms already being used by ACPS. There are other partners who provide pre-K throughout the City and utilize their own private facilities.

PRE-K WITHIN EXISTING ELEMENTARY SCHOOLS

Currently, ACPS elementary schools have limited capacity within existing, permanent classrooms to accommodate larger enrollments, whether pre-K or kindergarten, through grade five. For the current school year, no elementary school is being utilized at less than 90%, and nine are above 100% utilization. ACPS considers ideal utilization as a range of 90% to 110%. Elementary student enrollment is projected to grow over the next ten years by about 800 students, further constraining the use of existing classroom space for early childhood education without expansions or a new school. As additional elementary capacity is added and as enrollments are updated based on boundary changes, ACPS should explore additional opportunities to provide pre-K spaces within existing elementary schools.

PRE-K WITHIN NEW CENTERS

In addition to pre-K spaces within existing elementary schools, ACPS and its partners also desire to establish centers to increase services offered to families and create equity between programs. Though not currently proposed,

it would be ideal for pre-K centers to add early childhood education seats in the future and to maximize enrollment division-wide.

ACPS developed Ed Specs with partner input to outline space recommendations for a potential future center. The center would be designed to serve approximately 360 students in 20 classrooms and offer a range of wrap-around services.

The center model will promote joint professional development and collaboration of staff employed by the schools and the Campagna Center (Head Start) and support the Early Care in Education Workgroup's mission of seamless points of entry for parents seeking services. It will also promote joint program development and delivery within VPI, ECSE, and Head Start; while maintaining critical funding streams and other policy requirements needed for state and federal funding.

RECOMMENDATIONS

The capacity of pre-K spaces throughout Alexandria cannot serve the current or projected population of disadvantaged four-year olds. This reality is supported by the waitlists reported by partners. Because of this, access should be expanded to serve all families within the City. These recommendations are specific to pre-K within ACPS facilities.

Options to provide additional pre-K capacity at individual sites and/or a new pre-K center should be explored to meet this vision. Work group members and stakeholders emphasized their desire that short-term recommendations do not become long-term solutions for the division. Rather, short-term recommendations should serve a specific purpose for a given timeframe. Based on the analysis of the data collected and meetings with the work group and stakeholders, the following considerations for early childhood spaces are recommended:

GROUP 1 — REQUIRED PLANNING

- Analyze the impact of new elementary schools, capacity projects, and redistricting for providing capacity at elementary schools, develop a potential distribution plan for early childhood classrooms.
- Study the available capacity within City-owned buildings for space conversion and potential co-location. If capacity exists, analyze whether spaces can be converted to meet Ed Spec standards.
- Study the availability of privately-owned buildings/institutions for space conversion and potential co-location. If capacity exists, analyze whether spaces can be converted to meet Ed Spec standards.
- Study the possibility of co-location on City-owned sites. Perform feasibility analysis to see if build out can occur to provide space.
- Analyze the potential for/impact of providing density increases to developers who accommodate additional building capacity within new developments. Determine if land use solutions (i.e.: parking incentives, increased density, etc.) can provide additional pre-K capacity.

GROUP 3 — INTERMEDIATE RECOMMENDATIONS

- Analyze the feasibility of previously identified sites for a new pre-K center that aligns with the Board-approved Ed Specs.
- Identify and analyze additional land acquisition, co-location, or leasing opportunities for a new pre-K center.

GROUP 2 — SHORT TERM RECOMMENDATIONS

- Calculate pre-K projections annually
- Maintain and expand, where possible, current pre-K capacity at existing elementary schools strategically located in areas of highest need.
- Expand pre-K capacity with private partners.
- Determine the amount of additional capacity that private partners can provide.
- Promote multi-story and urban school models to optimize real estate and provide maximum pre-K spaces within elementary schools.

GROUP 4 — LONG TERM RECOMMENDATIONS

- Build a pre-K center at a location to be identified within the City based on the School Board-approved Ed Specs.
- Configure spaces within existing elementary schools to meet Ed Specs for early childhood and/or incorporate into design for future capital projects.



Long Range Educational Facilities Plan – Second Phase Work Group Meeting 5 Notes

LOCATION: John Adams Elementary School – School Library
DATE: September 21, 2017
TIME: 7:00pm – 8:30 pm

Work Group Members Present: Board Chair Ramee Gentry, Board Member Bill Campbell (On Behalf of Karen Graf), Vice Mayor Justin Wilson, Cynthia Skinner, Lori Quill, John Lennon and Joy Cameron

Staff/Consultants Presenting: Erika Gulick (ACPS), Katherine Carraway (CoA), Kayla Anthony (B&D)

Staff/consultants provided a summary of changes to the high school and pre-K addendums based on previous comments from the work group. ACPS presented additional analysis on the Minnie Howard Campus that was conducted over the summer. The updated document was available for review by the Work Group prior to the meeting and members prepared comments for clarification of content.

Regarding the high school addendum, Work Group members recommended changes to the chart for each campus. Subheadings were recommended for the narrative in addendum for the Minnie Howard Campus. Additionally, members indicated the recommendations section for high school should be re-organized and bullets within each box should be re-ordered for clarification.

For the pre-K addendum, Work Group members recommended similar changes for the chart. The Work Group clarified that the pre-K centers model should be evaluated after the first is opened in 2018.

The Work Group discussed additional information they desire to see in the larger LREFP document. First, members indicated they would like the LREFP to explain how it connects to the Capital Improvement Planning (“CIP”) process. Second, the Work Group desires to directly reference the Strategic Plan in the LREFP. Lastly, members would like to add language to the LREFP that describes how all ACPS documents interact with others.

Every Student Succeeds



The Work Group requested that the updated addendums be emailed for review. At that time, the Work Group will determine if it wishes to host an additional meeting.

June 2015

Joint Alexandria City Public Schools/City of Alexandria

Long Range Educational Facilities Plan



*Endorsed by City Council, June 23, 2015
Adopted by ACPS School Board, June 11, 2015*

PREPARED BY:

CITY OF ALEXANDRIA, DEPARTMENT OF PLANNING AND ZONING
ALEXANDRIA CITY PUBIC SCHOOLS, EDUCATIONAL FACILITIES

IN COORDINATION WITH:

CITY OF ALEXANDRIA, OFFICE OF MANAGEMENT AND BUDGET

SPECIAL THANKS TO:

NOREEN O'BRIEN

ACKNOWLEDGEMENTS

CITY COUNCIL

William D. Euille, *Mayor*
Allison Silberberg, *Vice Mayor*
John T. Chapman
Timothy B. Lovain
Redella S. 'Del' Pepper
Paul C. Smedberg
Justin Wilson

ACPS SCHOOL BOARD

Karen A. Graf, *Chair*
Christopher J. Lewis, *Vice Chair*
Kelly C. Booz
William E. Campbell
Ronnie Campbell
Patricia Ann Hennig
Stephanie A. Kapsis
Justin P. Keating
Marc Williams

LREFP WORK GROUP MEMBERS

School Board

Ronnie Campbell
Karen A. Graf
Justin P. Keating

City Council

Mayor William D. Euille
Councilman Justin Wilson

Campagna Center

Dr. Tammy L. Mann

PTA Council

Yvonne Folkerts
Julie Rocchio
Melynda Wilcox

Community Members

Herb Berg
Ken Billingsley
Mark Eisenhour
Chris Hartman
Judy Noritake

ACPS/City Staff

Debra Collins, *Deputy City Manager, Alexandria*
Dr. Alvin Crawley, *Superintendent*
Tammy Ignacio, *Chief of Staff, ACPS*
Dr. Morton Sherman, *Superintendent (2008-2013)*

PROJECT STAFF

ACPS

Elijah Gross, *Director, Planning, Design & Construction*
Laurel Hammig, *Facilities Planner/GIS Specialist*
Clarence Stukes, *Chief Operations Officer*
Andrea Feniak, *Director, Planning Design & Construction (2013-2014)*
William Finn, *Director, Facilities (2012-2014)*
Dr. William Holley, *Director, Facilities (2014)*

City of Alexandria

Mark Jinks, *City Manager*
Karl Moritz, *Director, Planning and Zoning*
Susan Eddy, *Deputy Director, Planning and Zoning*
Chris Bever, *Assistant Director, Office of Management & Budget*
Steve Chozick, *Division Chief, Information Technology Services*
Ron Kagawa, *Division Chief, Recreation, Parks & Cultural Activities*
James Bryant, *GIS Analyst, Information Technology Services*
Katherine Carraway, *Planner, Planning and Zoning*
Nathan Imm, *Planner, Planning and Zoning*
Pat Mann, *Planner, Planning and Zoning*
Ryan Price, *Planner, Planning and Zoning*
Dana Wedeles, *Planner, Recreation, Parks & Cultural Activities*
Amber Wheeler, *Planner, Planning and Zoning (2012-2014)*

CONSULTANTS

Brailsford & Dunlavey
Studio Twenty Seven Architecture

TABLE OF CONTENTS

| | |
|---|------------|
| EXECUTIVE SUMMARY | ES |
| Rapid Enrollment Growth | ES1 |
| Inadequate Existing School Facilities | ES1 |
| Sites for New Facilities | ES2 |
| Recommendations | ES2 |
| | |
| CHAPTER 1 — PLANNING AND IMPLEMENTATION POLICIES | 1.1 |
| City of Alexandria Master Plan | 1.1 |
| City of Alexandria Development Review Process | 1.3 |
| Transportation Demand Management | 1.4 |
| Long Range Educational Facilities Plan Annual Implementation Process | 1.5 |
| | |
| CHAPTER 2 — ENROLLMENT TRENDS AND FORECASTING | 2.1 |
| Background | 2.1 |
| Forecasting Future Enrollment | 2.2 |
| Long Term Enrollment Forecast Scenarios | 2.4 |
| Background for Forecasting | 2.7 |
| | |
| CHAPTER 3 — GUIDELINES FOR 21ST CENTURY EDUCATIONAL FACILITIES | 3.1 |
| Introduction | 3.1 |
| National Trends in Educational Facilities Planning | 3.3 |
| Program Area Summaries | 3.6 |
| Urban School Models | 3.11 |
| Open Space Goals & Guidelines | 3.12 |
| Design Principles | 3.15 |
| Elementary and Middle School Prototypes | 3.16 |
| | |
| CHAPTER 4 — MINI MASTER PLANS | 4.1 |
| Educational Adequacy Assessment | 4.1 |
| Mini Master Plan Organization | 4.4 |
| Charles Barrett Elementary School | 4.5 |
| Cora Kelly Elementary School | 4.10 |
| Douglas MacArthur Elementary School | 4.15 |
| George Mason Elementary School | 4.19 |
| James K. Polk Elementary School | 4.25 |
| Jefferson-Houston School | 4.30 |
| John Adams Elementary School | 4.31 |
| Lyles-Crouch Traditional Academy | 4.36 |
| Matthew Maury Elementary School | 4.40 |
| Mount Vernon Community School | 4.45 |
| Patrick Henry Elementary School | 4.51 |
| Samuel W. Tucker Elementary School | 4.52 |
| William Ramsay Elementary School | 4.56 |
| Francis C. Hammond Middle School | 4.62 |
| George Washington Middle School | 4.67 |
| T.C. Williams: King Street Campus | 4.72 |
| T.C. Williams: Minnie Howard Campus | 4.73 |
| | |
| CHAPTER 5 — FISCAL CHALLENGES | 5.1 |
| | |
| CHAPTER 6 — CONCLUSION | 6.1 |

TABLE OF CONTENTS *CONTINUED*

APPENDICES

| | |
|---|----------|
| Appendix A—LREFP Background Information | A |
| LREFP Plan Process Overview | |
| Work Group Members | |
| Joint COA/ACPS Work Program | |
| LREFP Work Program Supplement | |
| LREFP Update - October 15, 2012 | |
| LREFP Work Program Schedule | |
| | |
| Appendix B—Educational Specifications | B |
| Educational Specifications Development Workflow | |
| ACPS Elementary School Educational Specifications | |
| ACPS Middle School Educational Specifications | |
| | |
| Appendix C—Educational Adequacy Assessments | C |
| | |
| Appendix D—Enrollment and Forecasting Background Information | D |
| Draft Long Term Enrollment Forecast Description | |
| ACPS Enrollment History Graph | |
| Historic Regional Public School Enrollment Charts | |
| Alexandria Birth Rate Trends | |
| | |
| Appendix E—Debt Service Ratios | E |
| | |
| Appendix F—Reference Maps | F |
| Zoning maps for all existing schools | |

EXECUTIVE SUMMARY

The Long Range Educational Facilities Plan (LREFP) outlines options for providing educational facilities to meet its new educational specifications. The plan was developed in a joint effort between Alexandria City Public Schools (ACPS) and the City of Alexandria to forecast changes in student enrollment, to identify the types of facilities that can best meet educational needs over the next 25 years, and to identify options to make those facilities available when they are needed as enrollment changes over time.

RAPID ENROLLMENT GROWTH

Since 2007, ACPS has faced rapid increases in enrollment, averaging nearly 4% per year from 2007 through 2014. This is a 35% growth in K-12 enrollment from a low of 10,246 in 2006 to the 2014 fall enrollment of 13,847, a level not previously exceeded since 1975. (Figure 1.1)

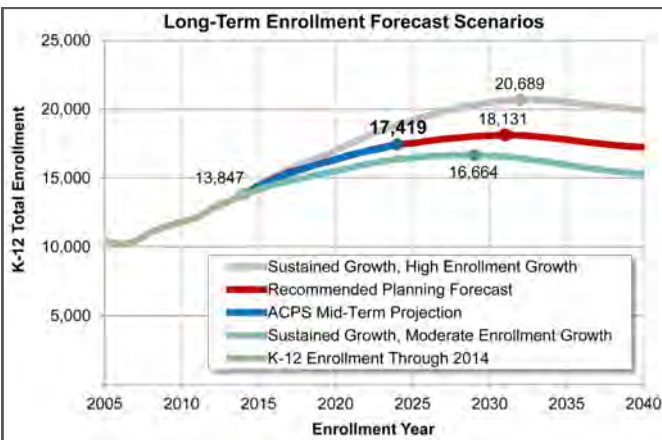


Figure 1.1

The engine of this enrollment growth was not new development. Nearly all recent growth in enrollment came from an increase in the number of students living in housing that had been built prior to the enrollment spurt. While much of this enrollment growth seems to have resulted from temporary economic conditions, many of the families whose children now attend Alexandria public schools because of those conditions are expected to keep them there through graduation.

Over the longer term, the increase in senior citizens as a share of population, and a nationwide trend to lower birth rates among those ethnic and racial groups that currently have the highest birth rates, are expected to bring the city's enrollment growth rate down to 1% per year or less by 2030, and ultimately to a slow decline in enrollment

each year. While the first wave of this growth was absorbed by growing into space that had been underutilized during the enrollment decline from 2000 to 2006, the increase has required construction of additional classrooms at some schools. Class size targets were also increased by two students per classroom, which added to the nominal capacity of the system for students.



INADEQUATE EXISTING SCHOOL FACILITIES

Most of the City's public schools were constructed prior to 1960 and currently require a relatively high level of maintenance and repair expenses just to keep basic systems operating and structures safe and sound.

In order to identify the scale of the problem, an analysis of the ability of existing school facilities to meet newly defined educational specifications was conducted. Based on the anticipated 2020 enrollment forecast for each school, the analysis determined that meeting those standards would require substantial additional investment at many of these schools even without increases in enrollment beyond 2020. Mini-Master Plans were prepared for each school to illustrate a means of meeting these standards and accommodating the mid-range increase in enrollment anticipated on the current school sites.

ACPS is pursuing a modernization plan in order to address capacity and building conditions. In some cases, replacement may be a better long-term option than expanding or reconstructing existing buildings. Because space is tight in a nearly fully built-out city such as Alexandria, reconstruction on some school sites is likely to require temporarily housing students at other locations while buildings are rebuilt.

While some schools can be enlarged to provide more capacity, some of the City's schools have already grown well beyond the size considered optimal for the grade levels they serve, and more are expected to have

enrollment above that number by 2020. **New sites, or construction of additional schools on existing or expanded school sites, will be needed if recommended school size is to be maintained.**

SITES FOR NEW FACILITIES

Other than two small sites set aside in North Potomac Yard and near Simpson Stadium Park, there are no designated sites for new schools in Alexandria. A combination of new school sites, enlargement of existing schools, and construction of additional schools on some existing school sites is likely to be required. The plan includes recommendations for the best locations to pursue each of these options and provides guidelines for adapting schools to the smaller sites likely to be available for urban schools.



RECOMMENDATIONS

This plan provides a range of options for providing educational facilities that meet the needs of future enrollment in 21st century learning environments. While the recommendations are fiscally unconstrained, the fiscal challenges are clearly documented in Chapter 5. The Plan is intended to be used for both long range planning and for making short term decisions as part of the annual Capital Improvement Program process. It is also intended that the plan be updated with new enrollment data and revised enrollment forecasts on a yearly basis.

ACPS and the City of Alexandria have determined the following eleven items as overall recommendations:

1. **Set maximum school size**
 - a. Elementary schools - 850 students for new schools with School Board flexibility for expanding an existing facility beyond 850 students
 - b. Middle Schools - 1200 students for new schools with School Board flexibility for expanding an existing facility beyond 1200 students
2. **Locate a new elementary school on the west side of the city** as four of the elementary schools on the west side are expected to exceed 850 by 2020. A second new elementary school should be considered if growth continues to increase and in absence of pursuing other options to address capacity.
3. **Locate a new middle school in the city** as Francis C. Hammond is expected to exceed 1,500 students in 2020 and George Washington will be over 1,400 students in 2020.
4. **Consider options for new school sites:**
 - a. On the east side of city –
 - Retain two existing elementary sites for future determination – one near Simpson Stadium Park and one in North Potomac Yard.

This plan does not call for a school on either site in the near-term. This Plan supports the continued use of the Simpson Stadium Park site as open space utilized for active recreation purposes.
 - b. On the west side of city –
 - Reserve a site in the Eisenhower West Small Area Plan
 - Consider the Lower Hammond site
 - c. Consider retrofitting an existing commercial building and continue to consider a K-8 model as a facility solution when the programmatic instruction is appropriate
 - d. New schools should consider an urban school model
5. **Renovate and/or replace Douglas MacArthur Elementary School** to alleviate failing infrastructure and capacity issues, allowing the new building to house up to 850 students as the zoning, site and educational program allows. Additional information can be found in Chapter 4.
6. **Renovate interior East side schools to meet the Educational Specifications (Ed Specs) and allow Cora Kelly and Jefferson-Houston Schools to absorb overages from Matthew Maury and Mount Vernon schools.** Short and mid-term recommendations are shown, by site, in Chapter 4.

-
7. **Continue to renovate all schools to meet the Ed Specs through the Capital Improvement Plan.** Short and mid-term recommendations are shown, by site, in Chapter 4.
 8. **Recalculate enrollment projections and capacity utilization annually.** Schools that are projected to be at or above 120% utilization within three years should be considered for portable classrooms, a capacity project and/or a boundary study or other policy considerations.
 9. **Consider schools in future small area planning efforts** as outlined in Chapter 1.
 10. **Consider schools in the development review process** as outlined in Chapter 1.
 11. **Implement a joint City/Schools Transportation Demand Management Program** to encourage use of alternative modes of transportation as outlined in Chapter 1.
 12. **Explore options to address high school capacity challenges and fiscal impact** given projected student enrollment data that indicated the need for instructional spaces to accommodate 4,558 students by 2024. This number represents an increase of 1,035 students from 2014.

NEXT STEPS

Discussions between the City and ACPS should continue regarding the delivery of Pre-K instruction. Programs housed in neighborhood schools and centralized locations impact future educational facilities and capacity.

PLANNING AND IMPLEMENTATION POLICIES

CITY OF ALEXANDRIA MASTER PLAN

The City of Alexandria’s comprehensive Master Plan is comprised of individual Small Area Plans developed for neighborhoods throughout the City and contains chapters on topics of citywide relevancy including Transportation and Open Space (See Figure 1.1).

The Alexandria Master Plan was first adopted by the City Council on June 13, 1992. Chapters within the document are updated on a regular basis with new chapters added as needed through Master Plan amendments. Many Small Area Plans, such as Taylor Run/Duke Street, Seminary Hill/Strawberry Hill and North Ridge/Rosemont are still based largely on the 1992 Plan with few amendments (Figure 1.1). Since 1992, a few areas have been divided with new plans prepared, including Beauregard and Eisenhower East. In addition, many overlay plans, which are supplemental plans and amendments to existing Small Area Plans, have been adopted over the years. Examples of overlay plans include the Landmark/Van Dorn Corridor Plan, the Arlandria Neighborhood Plan, and the Hunting Creek Area Plan.

While the 1992 Small Area Plans clearly documented locations of both public and private schools, they

contained little guidance on the subject of future school needs and facilities. Recently prepared Small Area Plans have more carefully evaluated educational needs and facilities:

- *The Beauregard Small Area Plan* includes an analysis of existing schools in that area and projections of future students based on redevelopment. Redevelopment within the Beauregard area is expected to reduce the number of public school students. Housing units that are newer with higher density, and/or are more expensive, generate fewer students than older housing units that are less dense and/or are more affordable. While it did not propose a new school in the area, the Beauregard Plan did propose active recreation improvements at William Ramsay Elementary School and recommended open space improvements to the adjoining schools and parks. Additionally, the Plan recommended that the open space within the Adams neighborhood be designed to potentially accommodate school use.
- *The Landmark/Van Dorn Corridor Plan* estimated that total development potential over the 20 year Plan build-out could generate the need for elementary school space by eight to twelve classrooms—about four

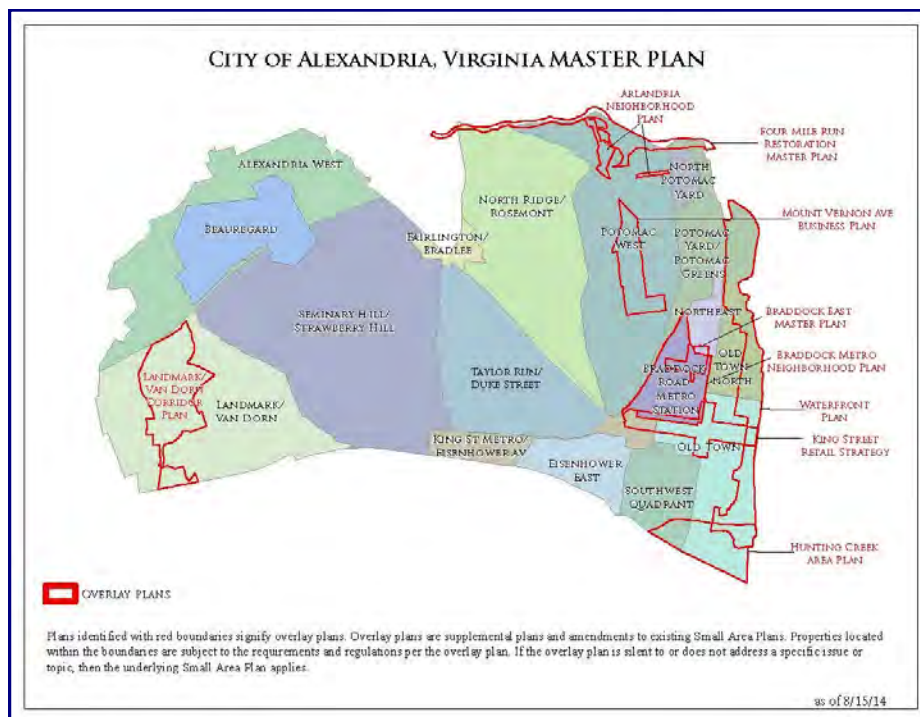


Figure 1.1

elementary school students for every 100 units. The Plan did not identify a school site, but recommended that as the City reviews development applications for major parcels in the area, the Alexandria City Public Schools (ACPS) be involved in evaluating the potential for that project to include a school site or contribute to school facilities. While projects in the catalyst phase of the Plan implementation will have limited ability to contribute to school facilities, for later phases the City will request a pro-rata share of capacity costs to mitigate the impact of new development on school facilities and will allocate those funds for school facilities.

- *The North Potomac Yard Small Area Plan* includes a thorough analysis of potential future students and educational needs in North Potomac Yard. The Plan reserves Block 4 for a possible school site in an urban form (*Figure 1.2*). An update of the North Potomac Yard Small Area Plan is scheduled to begin in 2016. As part of that Small Area Plan update, Block 4 as well as other sites in North Potomac Yard will be carefully evaluated for a future school location. The North Potomac Yard Small Area Plan also contemplates construction, expansion or reconstruction of a new school at an off-site location. For example, Cora Kelly STEM School could be expanded to accommodate additional students.

NORTH POTOMAC YARD SMALL AREA PLAN
Block Plan



Figure 1.2

For new Small Area Plans, the City of Alexandria’s Department of Planning and Zoning is committed to including information and guidance on existing and future schools. The Long Range Educational Facilities Plan will form the basis for this analysis. The public will be actively

engaged in all aspects of the planning process including the exploration of new and expanded school sites. Planning and Zoning staff will work closely with ACPS staff on planning for schools in Small Area Plans. New Small Area Plans will analyze the overall city-wide demand for schools, the existing demand for schools in the area, and the demand for schools as a result of new development proposed in the plan. Potential sites for a school in the Small Area will be evaluated and the Small Area Plans will include a strategy for funding school acquisitions and construction, potentially through developer contributions as described below.

In order to determine the demand for school seats as a result of new development, City staff will use the number of students generated from each type of new housing unit as summarized in *Figure 1.3* and further detailed on *Figures 2.4* and *2.11*.

ACPS K-12 STUDENT GENERATION BY HOUSING TYPE

| Type of Unit | Students per Unit |
|---|-------------------|
| Single-Family Detached (market rate) | 0.2 |
| Townhouse/Duplex (market rate) | 0.1 |
| Low-Rise Apt./Condo (market rate) | 0.03 |
| Midrise Apt./Condo (market rate) | 0.03 |
| Highrise Apt./Condo (market rate) | 0.03 |
| Public Housing* | 1.0 |
| Other Income-Restricted Housing* (verify) | 0.6 |

*Excludes senior housing

Figure 1.3

(These student generation factors will be regularly updated [see the timeline in *Figure 1.5*] so that they reflect current enrollment patterns.)

As part of their implementation measures, recent Small Area Plans have acknowledged that when the new development proposed in the Small Area Plan takes place, public improvements will likely need to be provided to mitigate the impacts of the new development. These public improvements typically include street and pedestrian improvements, enhanced landscaping, parks, and affordable housing. Developers, who cause the need for new facilities and improvements through their

developments, are asked to mitigate the impacts by making contributions towards these public improvements. Developer contributions can be financial contributions or contributions of land.

One successful example of this approach was the establishment of the Braddock Metro Neighborhood Plan Open Space Fund and the Community Amenities Fund. Developer contributions in the Braddock area are used to fund the acquisition and construction of a new park, and for streetscape improvements on plan-identified walking streets.

In the Beauregard Plan, developer contributions are targeted toward a variety of public improvements including construction of a new Fire and EMS Station at North Beauregard and Sanger and construction of the Ellipse to replace the Seminary and North Beauregard Intersection.

New Small Area Plans will include schools among the public facilities to be evaluated. Each plan will identify the public infrastructure needs in the plan area due to increased development and prioritize them through the planning process. Identified needs and projects will then become the focus of developer contributions. In future Small Area Plans, where, due to increased development, there is an identified need for a new school, a school addition, or a school improvement, the plan could direct developer contributions toward funding for these school facilities.

At this time, the City of Alexandria is actively preparing a plan for the Eisenhower West Area. This will be a new plan for a portion of the Landmark/Van Dorn Small Area Plan (Figure 1.4).

EISENHOWER WEST SMALL AREA PLAN

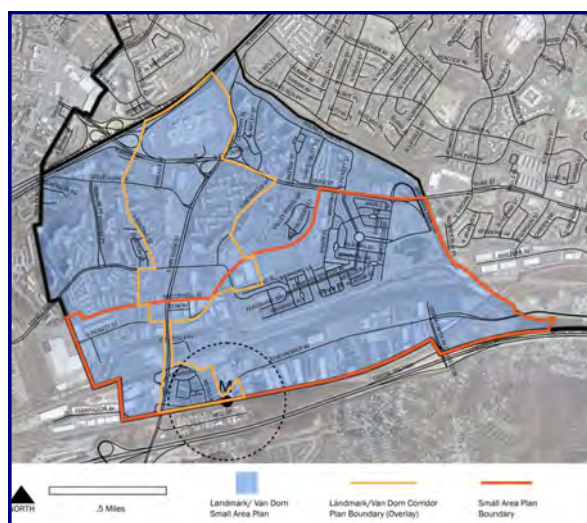


Figure 1.4

The west end of Alexandria already has a great need for elementary school seats (*See Executive Summary*) and the enhanced development currently being promoted in this small area plan will likely create a greater need for school seats. This Small Area Plan process represents a unique opportunity for the City to secure a school site where it is most needed. As described above, City staff will work closely with ACPS staff to analyze current school needs in the area and future needs due to development proposed in the plan. The Plan will provide criteria for identifying potential school sites in Eisenhower West and will include the school as a public improvement to be funded by developer contributions.

CITY OF ALEXANDRIA DEVELOPMENT REVIEW PROCESS

All major development projects in the City of Alexandria go through a rigorous review process led by the Department of Planning and Zoning. This process incorporates a high degree of public outreach with active participation from residents and civic groups. Planning and Zoning staff ensure that development proposals are consistent with the Master Plan and Zoning Ordinance, consist of the highest quality building design, urban design and site planning, and provide an overall public benefit.

Developments requiring a Rezoning or a Development Special Use Permit with Site Plan (DSUP), receive the highest level of scrutiny, which includes discretionary review standards. The Planning Commission hears requests for Rezoning and DSUPs during public hearings before forwarding its recommendation to the City Council. The City Council holds an additional public hearing on these applications prior to taking final action.

Much of the new development proposed in the City is supported by Small Area Plans (*Figure 1.1*). The more recent Small Area Plans include an evaluation of educational needs. When a relevant Small Area Plan directly addresses educational needs, it becomes part of the evaluation of future development application. For example, for the Landmark/Van Dorn Corridor Plan, and more specifically, projects in later phases, the City will be requesting a pro-rata share of school capacity costs as developer contributions to mitigate the impacts of the new development, and allocating these funds for school facilities.

In cases where major development projects are proposed in areas where the Small Area Plan does not include a review of educational needs, Planning and Zoning staff will first quantify the effects of any proposed residential development on school facilities, examining the number of students generated (*see Figure 1.3*) and the capital costs per student for school facilities. City Staff will work with

ACPS staff to review the recommendations of the Long Range Educational Facilities Plan, specifically any improvements proposed in the area of the proposed development. The City may seek a proportional share of the costs to mitigate the impacts of the new development, balancing these against other community improvements needed in the area.

In limited situations, development applications have directly provided educational facilities, as in the case of the Coordinated Development District (CDD) for Potomac Yards/Greens CDD #10. In this CDD, a portion of the Potomac Yard Park, not to exceed three acres, was reserved and made available for the construction of a new public school. Depending on future needs, up to two acres of adjacent land will be made available for this new school. Although this Long Range Educational Facilities Plan does not call for a school on this site (Simpson Stadium Park) at present, it may be needed in the future. This Plan supports the continued use of the site as open space utilized for active recreation purposes. CDD #10 also provided improvements to Braddock Fields, which includes land that is part of George Washington Middle School.

ZONING

The City of Alexandria Zoning Ordinance divides the City into zoning districts and regulates the use, density, height, setbacks, floor area ratio (FAR) and other building and site characteristics of all properties in the City. As part of the process of creating the Mini-Master Plans, the ACPS school sites were analyzed for conformance with the Zoning Ordinance. A number of zoning issues were revealed and these are highlighted below:

- The following schools exceed their allowable FAR per their existing zoning district and site. Any additions or significant renovations will require either an exception to the requirements of the Zoning Ordinance or a rezoning to a different zoning district:
 - *Mount Vernon*
 - *John Adams*
 - *Samuel Tucker*
- The following schools would likely exceed their allowable FAR should an expansion or addition be considered:
 - *Douglas MacArthur* – the size of the proposed new/renovated school shown in the Mini-Master Plan would significantly exceed the allowable FAR.
 - *William Ramsay*

- *Matthew Maury* – exceeding the allowable FAR may be offset by consolidating lots owned by ACPS. Further study would be required.

- The following school building currently overlaps an adjacent property that is in the Public Open Space (POS) zone:
 - *Cora Kelly*
- *George Washington* – a portion of the existing eastern recreational field is within the Coordinated Development District (CDD) #10 for Potomac Yard - an upcoming dedication and rezoning action may be required.

The individual school solutions in the Mini-Master Plans have been provided at a very conceptual level. As planning and design work continues, addition or renovation projects may exceed the allowable FAR at a later stage in the process. Evaluating the projects for compliance with the zoning requirements will be necessary.

Options for addressing these zoning issues include: individual zoning district map amendments for each school site to be considered at the same time as the Development Special Use Permit (DSUP) for that school improvement, one or more zoning ordinance text amendments to make existing zones more accommodating to school expansions, or the creation of a new zone in the zoning ordinance specifically for public schools. A new zone specifically for public schools would provide for appropriate attention to neighborhood issues while also providing flexibility not available in the various zoning districts in which the schools are currently located.

TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) is a set of low cost policies, strategies, or programs that promote the more efficient use of existing transportation systems (i.e. roadways, bridges) and have an ultimate goal of reducing drive alone travel. Alexandria has a long-range city-wide TDM Plan with a broad set of strategies to reduce the number of cars on the City's roads.

ESTABLISHING TDM PLANS WITHIN ALEXANDRIA CITY PUBLIC SCHOOLS

ACPS and the City share the same vision of creating a transportation system that encourage use of alternative modes of transportation, thus reducing dependence on the private automobile. This system will lead to the

establishment of transit-oriented, pedestrian-friendly village centers, focused on neighborhood preservation and increased community cohesion, forming a more urban, vibrant and sustainable Alexandria.

The City promotes a balance between travel efficiency and quality of life, providing Alexandrians with transportation choice, continued economic growth and a healthy environment. TDM programs are an important tool for implementing this vision, and ACPS facilities would benefit greatly from reducing single occupancy vehicle (SOV) travel in terms of parking capacity and congestion. As such, TDM initiatives are an integral component of this long range facility planning effort, and ACPS seeks to collaborate with the City’s *Local Motion* initiative to advance these programs in Alexandria’s schools. This partnership between ACPS and *Local Motion* aims to promote existing TDM programs offered in the City and the Region, and expand their presence throughout the school system.



The establishment of TDM programs in Alexandria school facilities will occur on a rolling basis, and ACPS will create a process to identify which schools are in need of these programs. Items that may warrant the creation of a TDM program include, but are not limited to:

- An increase in staff or student enrollment
- Identified parking or circulation issues
- Changes in parking capacity

Once a school has been identified as needing a TDM program, ACPS will work with the City’s Transportation & Environmental Services Department (T&ES) to tailor program options specific to that particular school. A wide-range of TDM program options exist. Some examples that could be implemented at Alexandria schools include, but are not limited to:

- Safe Routes to School initiatives
- Incentives and prizes for walking, biking, or using transit
- Marketing local or regional commuting programs

LREFP ANNUAL IMPLEMENTATION PROCESS

The timeline in *Figure 1.5* summarizes the proposed annual implementation process for the Long Range Educational Facilities Plan.

| | |
|----------------------------|---|
| September — January | City creates long-term, population and housing forecasts which input into new development projections. Demographic data also informs long range forecast. |
| October | ACPS enrollment numbers received. |
| October—January | ACPS develops short- and mid-term projections (informed by City data on development). City/ACPS staff works on long-term enrollment forecast based on city’s population changes and new development data. |
| December | New birth data received. |
| December—January | City/ACPS staff meet to review/analyze data as it relates to enrollment. |
| February | Work group (and/or City/ACPS Subcommittee) meets with staff to determine any adjustments, at which time ACPS can report on other issues with facilities that relate to the LREFP. City updates student generation factors for future development projects and small area plans based on September enrollment and updated building data if needed. Recommendations can inform ACPS and City CIP processes. |
| March | ACPS March enrollment figures are released. Staff and work groups can monitor as they may be a precursor to upcoming fall enrollment. |

Figure 1.5

-
- Transit fare subsidies
 - Walk/bike to work subsidy program
 - Information dissemination
 - TDM/Environmental integration into curriculum

A TDM program coordinator will be assigned to each school by ACPS. The coordinator will be responsible for administration and execution of the TDM programs at the school, and will serve as the point of contact for students, employees, and parents on questions related to those programs. The coordinator will produce annual reports and transportation surveys in collaboration with T&ES to track progress and collect information on which programs are in demand.

The transportation surveys are an important tool that can provide valuable information relating to the commuting behaviors of employees, parents, and students. These surveys will help inform the TDM program selection and also facilitate ride-matching and car-pooling opportunities. T&ES will provide the survey questions, access to the platform (software), and analyze the results. ACPS will be responsible for distribution of the surveys within the schools.

ENROLLMENT TRENDS AND FORECASTING

BACKGROUND

CURRENT RAPID GROWTH IN ENROLLMENT

Enrollment in Alexandria City Public Schools (ACPS) is currently in a period of rapid growth of approximately 4% per year that began in 2006 and has produced a 35% increase in enrollment over eight years. This growth was preceded by a period of slowly declining enrollment at all grade levels from 2000 to 2006. Growth began when the crisis in housing finance in 2006 abruptly reduced the ability of growing families to move to new housing with more space in the outer suburbs. Although this bump in births and enrollment will gradually work its way through to graduation, a share of this growth is expected to be supported and sustained by more families choosing to live in smaller housing units at higher densities in inner suburbs

and central cities. Anecdotal evidence supports the idea that families are choosing urban living for its convenience, cultural richness and lower transportation cost compared to more distant suburbs.

LONG-TERM ENROLLMENT FORECAST

Three potential long-term enrollment scenarios, together with the 2014 ACPS mid-term enrollment projection are shown in Figure 2.1 below. The scenario recommended for use in long-range planning is termed the Recommended Planning Forecast. All three scenarios are based on the city's and the region's current population growth assumptions of the regional cooperative forecasting program through 2040. The birth rate and other assumptions of the recommended planning forecast result in a decline from the recent rapid enrollment

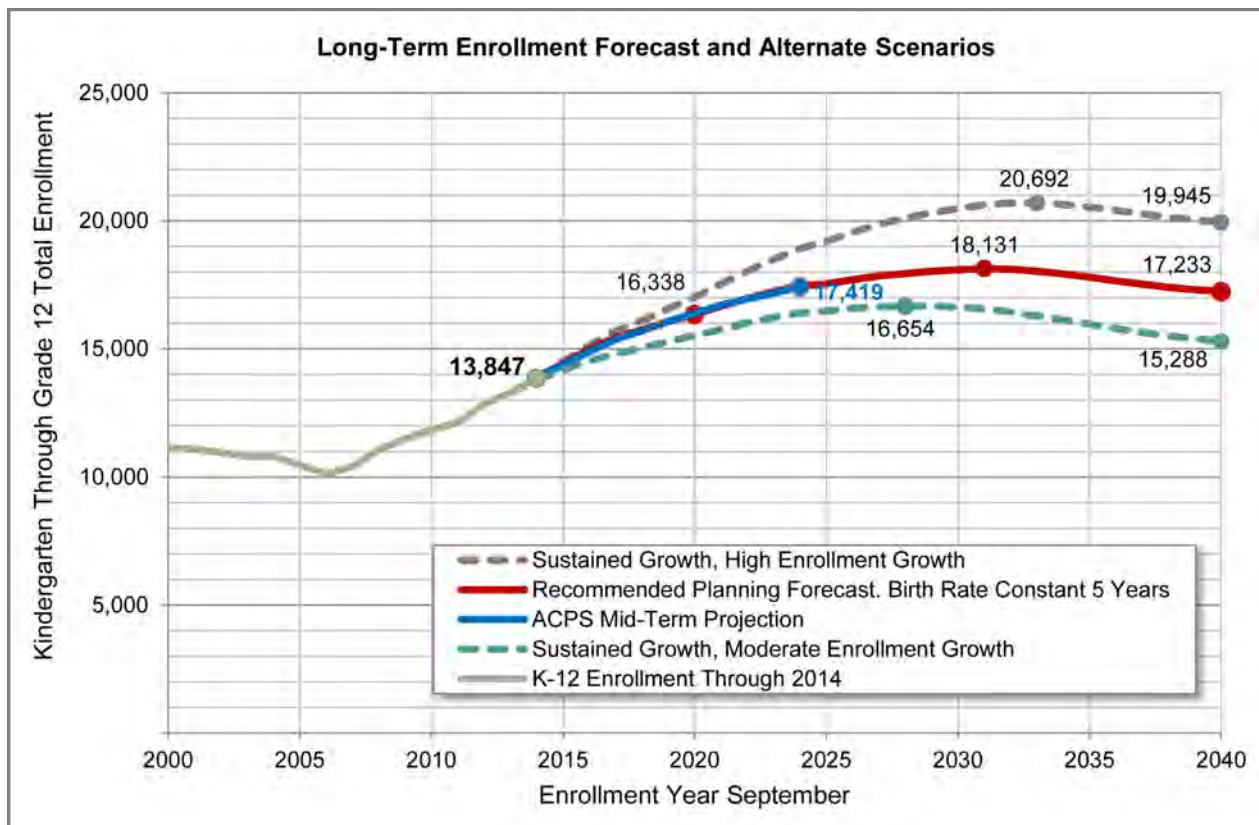


Figure 2.1. Three long-term enrollment scenarios are shown with the 2014 ACPS mid-term enrollment projection. The recommended forecast for use in long-range planning is shown in red.

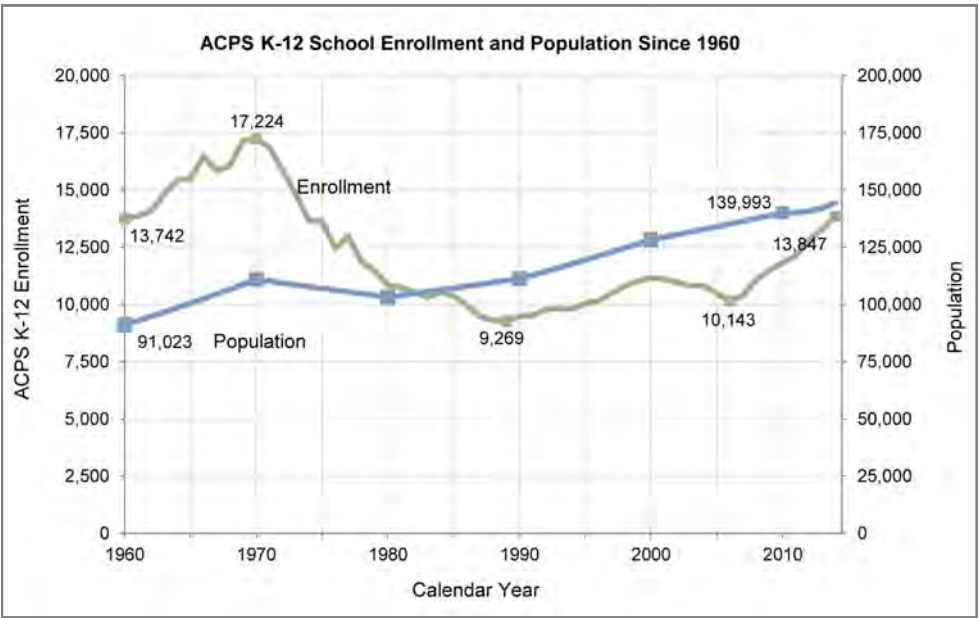


Figure 2.2. Alexandria population and public school enrollment since 1960. School enrollment peaked at over 17,000 students in 1970 as the last of the baby boomers enrolled in first grade.

growth rate over the next 10 to 15 years to a rate that approximates the 1% per year growth of the city’s population as a whole. Enrollment is then expected to fall below the city’s growth rate, and potentially to decline in absolute numbers slightly each year. In spite of the expected slowing rate of enrollment growth, enrollment is expected to continue to rise to peak at between 18,000 and 19,000 ACPS students in the next 15 to 20 years before declining.

The remainder of this chapter provides background on the history of enrollment in ACPS, the key contributing factors that determine ACPS enrollment each year, and how ACPS short-term projections and the long-term forecasts used to estimate future facilities needs were developed.

ACPS ENROLLMENT HISTORY

Figure 2.2 above shows ACPS enrollment since 1960 together with city population. School enrollment peaked in 1970 as the last of the baby boomers reached school age and the earliest baby boomers had recently graduated from college. In spite of a 15% increase in the number of households from 1970 to 1980, the city’s population fell that decade by 7%, and enrollment in city schools dropped by nearly 37% as Alexandria’s households sent their children off into the world. Some came back to fill a rapidly

growing inventory of new apartments in the city, convenient to serve the offices and industries of the region. The city’s average household size declined from 2.57 in 1970 to 2.07 in 1980, 2.04 in 1990, and 2.03 people per household in 2000 and 2010, among the lowest of all cities in the U.S.

FORECASTING FUTURE ENROLLMENT
ENROLLMENT DYNAMICS

The basic mechanism by which births in Alexandria become students in school, and how those students

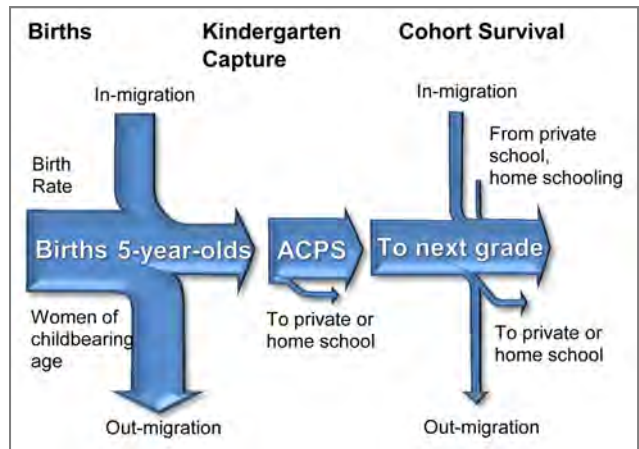


Figure 2.3. Enrollment factors. Because of substantial and variable migration by young families in and out of Alexandria, kindergarten capture is difficult to predict reliably. Once children are in ACPS schools, migration effects are generally lower than between birth and age 5.

progress through the grades is illustrated in Figure 2.3. Enrollment forecasting involves modeling this process mathematically, beginning with the recorded number of births each year. Information on in-migration and out-migration is poor in Alexandria, so these numbers are not modeled directly. Instead, the kindergarten capture rate (the number of kindergarten students each year per birth five years before) is used, with that figure averaged to smooth out random variations from year to year to estimate the future capture rate. Since 1975, that rate has averaged 56% per year, indicating a net loss to out-migration of about 7% to 8% of children born in Alexandria each year before they reach kindergarten. While census data indicates that about 15% to 18% of Alexandria's school-age children attend private school or are home schooled, compared to 9% to 12% in other Northern Virginia jurisdictions, net out-migration plays a much larger role in the low rate of kindergarten capture.

Similarly, the ratio of the number of students enrolled in each grade to the number enrolled the prior year in the earlier grade, termed the cohort survival rate, is used to estimate the enrollment in each grade in the future. Net loss grade-to-grade currently varies significantly by grade, but averages 2% to 3% per grade over all grades. Ninth and 10th grades gain students shifting from private school to ACPS, and show a cohort survival rate of greater than 100%.

Outside factors such as the recent housing market crisis, job prospects, transportation costs, and changes in public perception of the quality of local schools can all change people's decisions on where to live, public vs. private school, and whether or not to have children from year to year. Modeling based on past trends in kindergarten capture and cohort survival does not anticipate such changes. Such modeling also does not reflect changes in the rate or type of new development. In Alexandria's enrollment forecasts, a separate calculation is made of where changes in enrollment are expected based on expected new units to be constructed and existing units to be demolished.

The year 2014-15 enrollment statistics indicate that the total ACPS student enrollment has increased

4.4% compared to school year 2013-14. The average annual growth between September 2006 (FY 2007) and September 2014 (FY 2015) for the division is 4.13%. The highest percentage increase is seen in middle school at 6%, followed by high school at 5.8% and elementary school at 3.2%. The lower rate of increase in elementary enrollment is a change from the initial years of the recent enrollment increase, and is seen as a confirmation that the recent growth in enrollment is likely to slow over the next few years, first presaged by a 6.5% drop in kindergarten enrollment in 2013.

UNCERTAINTY IN ENROLLMENT FORECASTING

Alexandria's close-in urban location, demographics and housing stock combine to make future changes in enrollment difficult to anticipate. Of the current population of the city, more than 15% has moved into the city in the past year, and about 15% of those who lived here a year ago have moved out. This high rate of geographic mobility each year is more than double the national average of 6.1%. When high mobility is combined with the city's small share of the regional population (less than 3%), small changes in regional or national economic factors can be magnified into big swings in Alexandria's school enrollment.

The drop in enrollment from 2000 to 2006 was not anticipated by school planners, and while the effects of the housing finance crisis and recession on delaying families' moving plans could have been expected, the depth and duration of the economic disruptions resulted in a more significant and longer term effect than was initially foreseen.

In addition, there is at least anecdotal evidence that more families are choosing an urban environment in which to bring up their children, and walkable places like Alexandria with good public



transportation and a wide range of local cultural activities and nearby jobs are the kinds of places many of them seek. Sorting this effect out from recession effects will take more time.

School enrollment statistics are very accurate data, and a leading indicator often used to estimate how population is changing. There are no comparably complete, reliable predictive data that can be used to anticipate changes in direction of school enrollment trends with the precision needed to identify school needs 3 to 4 years in advance, the minimum notice needed to design and build new permanent school facilities.

While the number of births five years ago is used to predict kindergarten enrollment each year, the share of births that become kindergarten students varies widely from year to year in Alexandria because of the high mobility of couples and families throughout the region and the dependence of this mobility on economic conditions. Data on geographic mobility that would be useful in anticipating enrollment is available from the Census Bureau as a 1% sample survey with a large margin of error; however, even that data is not available until approximately one year after the families surveyed have already enrolled their children in school.

LONG-TERM ENROLLMENT FORECAST SCENARIOS

While we can have some confidence that this growth spurt will not last forever, estimating precisely when the turnaround will take place remains difficult. For this reason, multiple scenarios with different birth rate, cohort survival and kindergarten capture assumptions over time were used to help guide the long-range plan. All the scenarios assume the same background of sustained economic growth in the city and the region over the long term. Scenarios assuming different economic conditions could result in a wider range of enrollment outcomes.

RECOMMENDED PLANNING FORECAST SCENARIO

In the recommended planning forecast scenario we assume that the birth rate in the city will remain at its 2012 level for five years and then begin to decline at 0.3 percentage points per year to the sustained rate that was experienced over the 10

years before the recent rapid increase. Once the birth rate reaches that previous rate, it is assumed to decline more slowly, at the same rate the national birth rate is projected to decline. The kindergarten capture rate and cohort survival rate are assumed to fall slightly each year from their current 2-year or 3-year average rates. The birth rate per 1,000 residents fell in 2013 for the first time since 2006, so the initial year of data is a first indication that the birth rate may have peaked.

HIGH ENROLLMENT GROWTH SCENARIO

The high enrollment growth scenario assumes that the birth rate will continue to rise to peak in 2017, then begin to decline at 0.3 percentage points per year until it reaches the previous sustained rate, followed by slower decline at the rate the national rate declines. Kindergarten capture and cohort survival are assumed to continue at relatively high rates, but lower than the rates experienced from 2006 to 2010.

MODERATE ENROLLMENT GROWTH SCENARIO

The moderate enrollment growth scenario assumes the birth rate scenario of the recommended forecast, with a constant birth rate for five years, but assumes the kindergarten capture rate and cohort survival rate will fall faster than in the recommended planning forecast scenario.



From Kindergarten to Senior Year in ACPS

Each birth rate assumption in the three principal scenarios is combined with slightly different kindergarten capture and cohort survival assumptions that increase the differences between the scenarios that would result from the birth rate

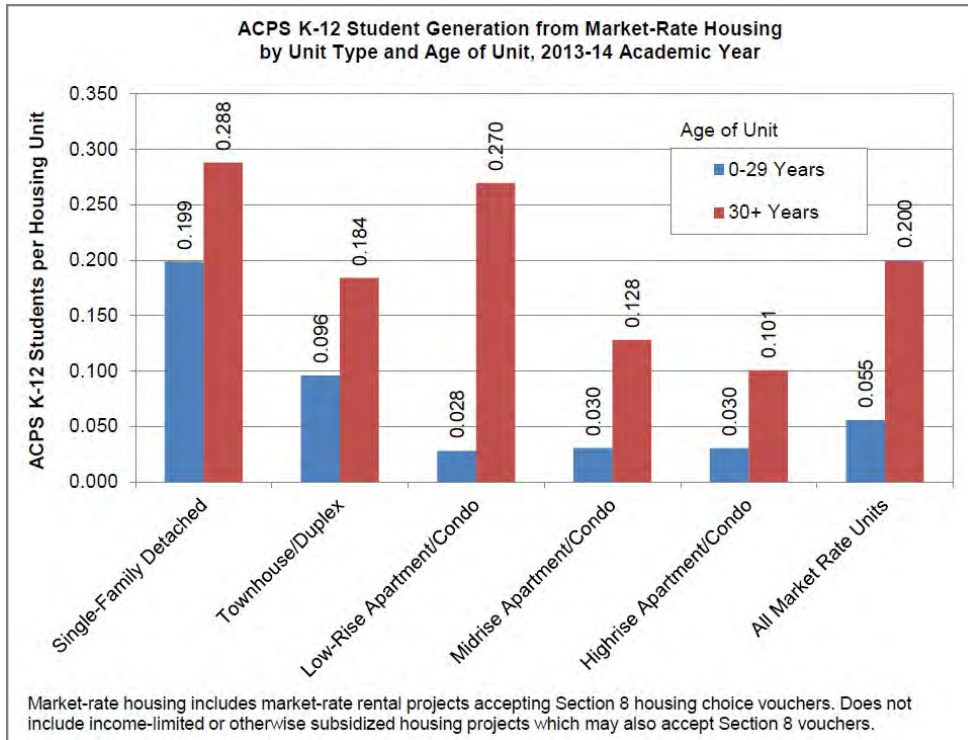


Figure 2.4. Student generation by unit type and age of unit for market-rate housing units Older units generate more students per unit regardless of the type of housing. New single-family detached homes have the most students per dwelling unit, but very few additional single-family detached homes are likely to be built in Alexandria. For older units, single-family homes generated only slightly more students per unit than the city’s many low-rise or garden apartments. New apartments and condominiums generate fewer than one student per 30 units until they reach 30

assumptions alone. The kindergarten capture rate in the two lower enrollment cases is assumed to fall to the historic average rate of 56% and not below. The cohort survival rate is assumed to remain relatively high, on the assumption that students who enter the Alexandria schools will tend to stay in them at a higher rate than they did during the decline in enrollment from 2000 to 2006, but at a lower rate than that experienced from 2006 to 2010.

LONG-TERM ENROLLMENT FORECAST ASSUMPTIONS

The forces expected to turn around the recent spurt in enrollment growth include local limitations on the ability of Alexandria’s housing stock to meet family needs given other choices in the region, and expected national demographic changes. Alexandria’s housing stock is dominated by multifamily units with fewer rooms than housing in

most surrounding areas, and this stock is not expected to continue to turn over to growing families without running into limits in competition with singles and childless couples. Some growth can be expected to continue through turnover to more families in neighborhoods that fed the baby boom in the 1960s.

The first and most important national demographic factor driving this long-term decline is an expected continued decline in birth rates among all population groups, particularly among those groups with high current birth rates, including recent immigrants and the Hispanic population (*Methodology and Assumptions for the 2012 National Projections*, U.S. Census Bureau, undated). The strength of this effect will depend to some extent on the rate of growth in the Hispanic population in the city. The growth in the Hispanic

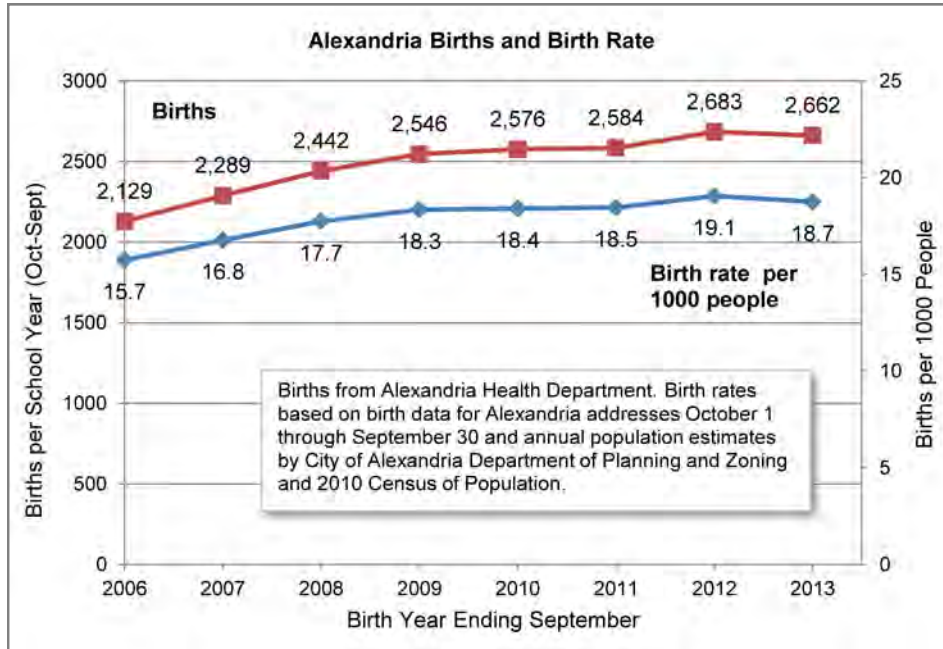


Figure 2.5. Alexandria Births and Birth Rate. After a 10-year period of relatively constant birth rate averaging 16.3 per 1000 people from 1996 to 2006, Alexandria's birth rate began to rise substantially in 2007, reaching 19.1 per 1,000 people in 2012. In 2013 the number of births fell slightly from 2012, resulting in a 1.6% decline in the birth rate. It will take at least a year or two of additional observations to determine whether this is a fundamental change in direction or a temporary variation.

population could outweigh a drop in birth rate in generating ACPS students.

The second factor is the approximate doubling of seniors as a proportion of the total population that will take place between 2015 and 2040 as all those in the baby boom generation pass age 75, and the oldest of them replace those in the low birth years of 1925 to 1940 as the oldest members of the population.

ENROLLMENT FROM NEW DEVELOPMENT AND RE-DEVELOPMENT

In the current COG Round 8.4 long-term development forecast, the city estimates that the number of housing units in the city will increase by about 25% between 2015 and 2040. While most of this increase is in apartments and condominiums, a significant growth in the number of townhouses is also expected. New townhouses generate approximately three times as many students per unit as new apartments or condominiums in the same age range.

The enrollment forecast includes an estimate of student enrollment from new development as well as reductions in enrollment that may result from demolition of existing housing units. Because new development each year is typically on the order of 1% of the number of existing housing units, and

because most new units result in a smaller number of students per unit than older housing, new development has a relatively small impact on enrollment each year. However, new development can have a disproportionate effect on specific schools as major projects such as Potomac Yard and the Beauregard Small Area Plan areas develop over a number of years, so new development is an important consideration in developing the long-term forecast by geographic area of the city. Including new or rehabilitated income-restricted or subsidized affordable family housing in new development can result in substantially more students per unit than market-rate housing.

The current average number of students per unit by type of housing and age of unit for market-rate housing is shown in Figure 2.4 above. New single-family detached housing units currently average about one student for every five units. For townhouses, it's one student for every 10 units. For apartments and condominiums, the number is one student for every 30 units or more for new units, while older units have three to 10 times as many students per unit depending on the type of housing.

Some of the current housing stock that currently produces students at these low rates will age past the 30-year mark during the forecast period, and is assumed in the forecast to produce ACPS students

at the rate of these older buildings. The age effect observed in the current housing stock is closely linked to affordability of older units. As the current housing stock ages, it will be important to track whether this aging effect on student generation remains the same for the current generation of housing.

BACKGROUND FOR FORECASTING

This section briefly summarizes data reviewed by staff and the Demographics and Forecasting Subcommittee in developing assumptions for the long-term enrollment forecast.

BIRTHS AND BIRTH RATES

Births recorded to Alexandria mothers each year are the first data element needed to anticipate future enrollment. Birth data is one of very few statistics available well in advance of the time students appear at fall registration. Changes in the number of births, and the ratio of births to population, can provide early warning of possible future changes in enrollment. Alexandria's birth rate increased significantly from 2006 to 2009 when the housing market placed substantial constraints on people's ability to move, and grew much more slowly from 2009 to 2012. In 2013, the number of births grew only slightly from 2012, and the birth rate fell for the first time since 2006.

Analysis of birth rates included comparing Alexandria's birth rate trend to that of neighboring jurisdictions and the nation as a whole. Potential factors possibly impacting the number of births and the size of the school-aged population were considered including changes in the:

- Crude birth rate (births per 1,000 population);
- Total fertility rate (average number of births a woman has in her lifetime);
- Age composition affecting the relative size of the female population 15 to 44 years of age; and
- Racial and ethnic composition of the population of women of child-bearing age in the city.

BIRTH RATE FINDINGS

While the crude birth rate for the U.S. as a whole is declining and is expected to continue to do so for the next 30-40 years, Alexandria's birth rate has recently been increasing until a moderate drop in 2013. From 2006 to 2012, the City of Alexandria's number of births increased 26%, substantially faster than its population as a whole, which grew by an estimated 4.1% over the same period.

Alexandria's birth rate is higher than that of Northern Virginia and the nation as a whole.

On a national scale, the aging of the population will result in a reduction in the percentage of childbearing-aged women, consequently, reducing the crude birth rate. Alexandria, however, has an unusually large proportion of residents aged 20-35 years (prime family-forming and childbearing years), and a somewhat smaller proportion of seniors. As a result, the effect of the aging population in reducing the crude birth rate is expected to be less in the city than in the nation.

Birth rates vary widely in the U.S. among racial and ethnic groups because of differences in age distribution and cultural factors. Nationally, birth rates of racial and ethnic groups currently above the average rate are decreasing. Alexandria's population is comprised of many racial and ethnic groups. The Hispanic population in the U.S. has a relatively high birth rate, and Alexandria has a growing Hispanic population with many young families.

Virginia Department of Education data shows that the Hispanic share of ACPS students has increased from 26.8% in 2002 to 34.6% in 2014, making Hispanic students the largest single racial or ethnic group of students in the division. Over the same



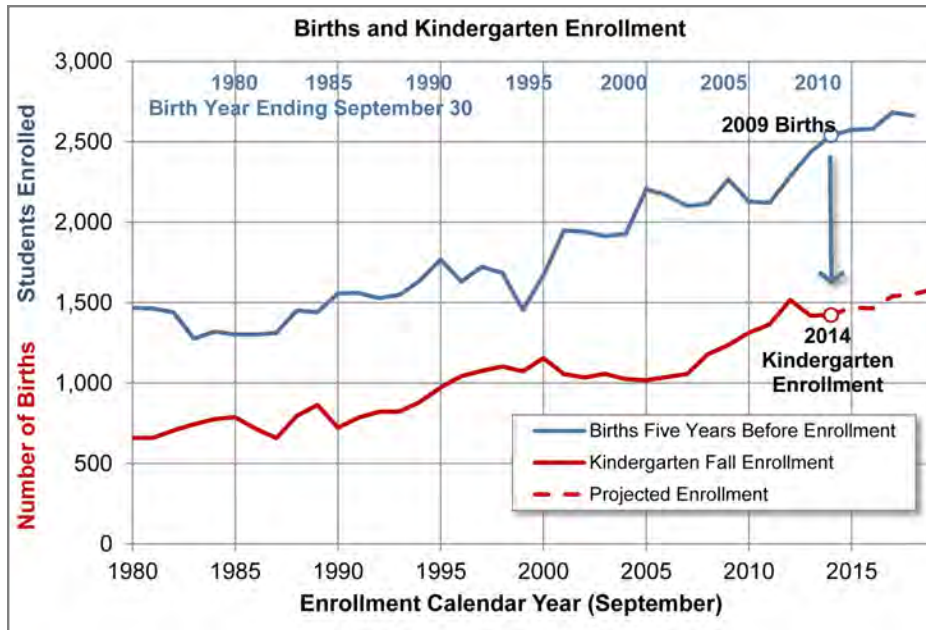


Figure 2.6. Births and kindergarten enrollment. This graph illustrates the concept of kindergarten capture rate showing the kindergarten enrollment since 1980 in Alexandria plotted against the number of births 5 years earlier that would be eligible to enroll in kindergarten that year. Alexandria has an unusually low kindergarten capture rate, based primarily on the age structure of its population, which includes only about 60% as many 5-year-olds as those less than one year old according to 2000 and 2010 Census data.

period, the non-Hispanic White share of students rose from 22.9% to 26.8% of all students, and the Black or African American share fell from 43.6% to 31.0%. Asians and other or mixed-race students make up the remainder of the student body with shares less than 5% each.

The increasing share of the population in Alexandria that is Hispanic, and the declining birth rate among Hispanics, work in opposite directions to change long-term enrollment, so tracking this factor over time will be important in updating the long-range enrollment forecast.

BIRTH RATE SUMMARY

Based on the findings, the long-term assumption is that declining national birth rate trends could be somewhat offset in Alexandria by its unique urban profile with a smaller share of seniors, an unusually large proportion of residents of prime childbearing age (20-35 years), and an increasing Hispanic population. The current assumption in all scenarios is that the city's birth rate will ultimately stop increasing and then drop below its current level, resulting in a declining rate of growth in kindergarten enrollment in the long term.

KINDERGARTEN CAPTURE RATE

Kindergarten capture rate refers to the share of births that become Alexandria City Public Schools (ACPS) kindergarten students five years later. As part of its work to forecast the future enrollment of ACPS, the subcommittee analyzed Alexandria's kindergarten capture rate and evaluated how this rate could inform the both ACPS short-term projections and the long-term enrollment forecast.

KINDERGARTEN CAPTURE BACKGROUND

In Alexandria, the capture rate for ACPS kindergarten students since 2008 has ranged between 54.3% in 2009 and 66.2% in 2012. As we move away from the years affected by the housing finance crisis which substantially altered people's ability to move, the rate has started to fall, and long-term kindergarten capture rate on the order of 55% to 60% seems likely based on historic data. A large increase in kindergarten capture for one year has a big effect on kindergarten enrollment for that year and on that class over the following years, but the effect of such a one-year event on total enrollment is small. If the increase in kindergarten capture is sustained over time, total enrollment will ultimately increase by the percentage increase in kindergarten capture by the time that class reaches 12th grade in 13 years.

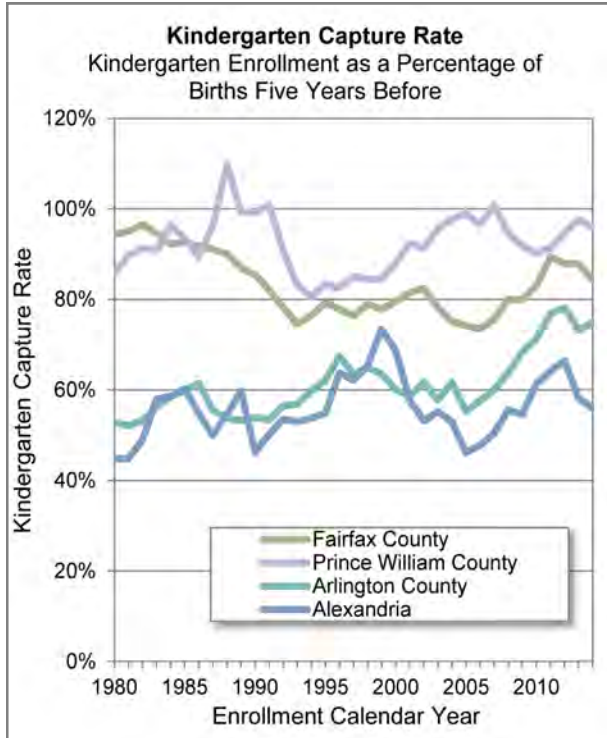


Figure 2.7. Kindergarten capture rate for Alexandria compared to that of other northern Virginia public school systems. Alexandria’s capture rate is lower than the others in

A long-term trend of families choosing urban living could increase this rate. The rate is carefully monitored by ACPS, and the expected future rate is adjusted each year based on the immediate prior years in making school enrollment projections.

METHODOLOGY

Analysis included comparing kindergarten capture rate over time within Alexandria and neighboring districts using data from the Virginia Department of Health-Division of Health Statistics and data obtained directly from other school districts.

Alexandria has traditionally had a lower kindergarten capture rate than neighboring jurisdictions. In an effort to understand why families may or may not chose to stay in Alexandria – and if they do, enroll their 5-year old children in ACPS – the subcommittee explored potential factors that could influence parents’ enrollment decisions including ACPS facility condition and reputation; availability of preferred alternatives; economic factors impacting migration

patterns; the city’s available housing stock; and household demographics.

FINDINGS

From 2005 to 2012, the ACPS kindergarten capture rate rose substantially, indicating that more families were remaining in Alexandria until their children reached kindergarten age and chose to enroll in their kindergarten-aged children in ACPS. From 2012 to 2014, the rate fell substantially, and in 2014 fell to the estimated 30-year average of 56%.

While it is difficult to analyze and quantify why families move in and out of Alexandria, it appears that ACPS reputation, economic factors, and Alexandria’s housing stock (smaller percentage attractive to families as compared to surrounding jurisdictions) have each played a role, the effects of which can be seen in the capture rate and its changes over time.

SUMMARY

While the data cannot prove a cause-and-effect relationship, it is reasonable to connect the housing bubble that collapsed in 2006 with an outmigration of families with children from Alexandria that resulted in a reduction in student enrollment in ACPS from 2000 to 2006. During this period, many families chose, enabled and encouraged by rapidly rising prices and equity in their homes, to find larger units in the suburbs before they were priced out of the market. Easy access to loans further facilitated such moves. Conversely, the housing finance crisis of 2006-2009 meant that many families were unable to move to larger units as they had expected to as their children grew older and they had more children, pushing enrollments up

| Grade | 2010 | | 2011 | | Average Cohort Survival | | |
|--|------|------|------|------|-------------------------|--------|-------|
| | 2010 | 2011 | 2010 | 2011 | Elem. | Middle | High |
| K | 118 | 121 | | | | | |
| 1 | 110 | 116 | | | | | |
| Cohort survival from kindergarten to 1 st grade | | | | | 98% | | |
| Pre-2007 | | | | | 93.2% | 93.5% | 95.1% |
| Post-2007 | | | | | 97.8% | 97.6% | 99.8% |
| Difference | | | | | +4.6% | +4.0% | +4.7% |

Figure 2.8. Cohort survival diagram. This figure shows the concept of cohort survival. In the illustration, 116 first-grade students in 2011 are compared to 118 kindergarten students in 2010, a cohort survival rate of 98.3%.

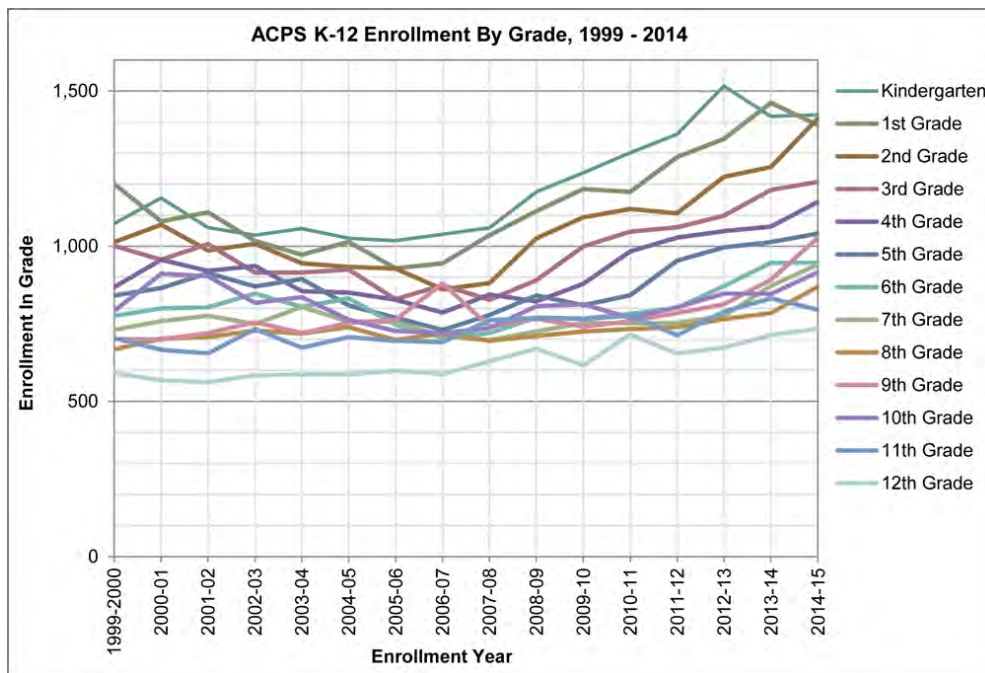


Figure 2.9. ACPS Enrollment by Grade, 1999 through 2014. Kindergarten enrollment grew by nearly 50% from 2006 to its peak in 2012. This increase in kindergarten enrollment has passed to each succeeding grade in turn, and reached 8th grade September, 2014.

from 2007 through 2014 at a rate much higher than the rate of increase in housing stock in the city. Once children enter into ACPS for kindergarten, they are more likely to stay within the system.

COHORT SURVIVAL RATE

BACKGROUND

The cohort survival rate, as the term is used in enrollment forecasting, is the share of students moving from one grade to the next in each grade. In the example in Figure 2.8 below, a school has 118 kindergarten students in 2010. In 2011, 116 students enter first grade, a cohort survival rate of 98% of the previous year's kindergarten class. A rate less than 100% means that more students are leaving Alexandria City Public Schools (ACPS) than coming to ACPS to transition to that next grade. A percent greater than 100% means more are joining APCS than are leaving. During the years of enrollment decline from 2000 to 2006, the average cohort survival rate in primary grades fell from about 96% in 2000 to just over 90% in 2006. If a 90% rate is sustained from second through eighth grade, it means that eighth-grade enrollment will be about 48% of first-grade enrollment. After 2006, the cohort survival rate for primary grades

increased to over 100% in 2008, but has since stabilized at about 96% to 97% for lower grades. If sustained at 96.5%, this rate would result in an eighth-grade enrollment about 78% of first-grade enrollment, and about 42% higher overall enrollment in the division as a whole (assuming similar cohort survival ratios for high school) than a 90% cohort survival rate. ACPS typically has a cohort survival rate of greater than 100% into 9th and 10th grades, since many private schools do not continue to high school, and parents move their children to public school at this level. The lowest cohort survival rate of all grades is going into 12th grade. Averaging about 85% historically, this rate has moved closer to 90% in the last three years, and includes factors such as seniors graduating earlier than planned.

A one-percentage-point increase in average cohort survival in all grades from 95% to 96% each year means a little more than a 1% increase in overall enrollment in the first year, but translates to 13% more 12th-graders, and nearly 6% greater total K-12 enrollment if sustained for 12 years until all grades graduate.

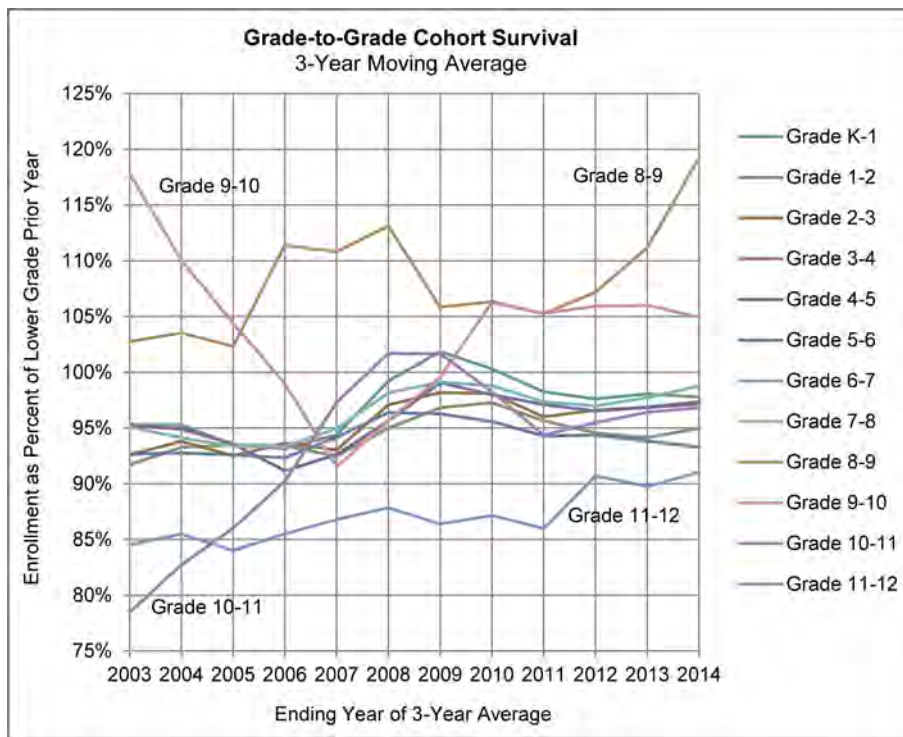


Figure 2.10. Cohort Survival by Grade. This graph shows the changes in the 3-year average of cohort survival from grade to grade from 2003 to 2014. Grades 9, 10 and 12 have unusual cohort survival rates as many students enter ACPS from private schools in 9th grade, and 12th grade enrollment is historically low compared to 11th grade. Most grades are clustered near the center of the graph, with rates between 90 and 95% before 2007 and between 95% and 98% from 2011 to 2014.



The cohort survival rates derived from enrollment statistics include all sources of new students. These rates ignore whether changes in enrollment are due to new development, demolitions of existing housing, change in occupancy of existing housing, or choices between public and private school. Separate analysis of new development, including the type of unit, is conducted in order to anticipate changes in the rate of student generation as rates of new development change, and to anticipate which schools are likely to see enrollment changes from new development.

The graph above shows ACPS enrollment by grade during the years of declining enrollment from 2000 to 2006, and the recent rapid increases in enrollment since 2007. Enrollment in first grade began a rapid rise in 2007, followed by second grade in 2008, third grade in 2009 and so

on. This pattern shows the effect of cohort survival from increases in the early grades pushing up enrollment throughout the system over time.

METHODOLOGY

ACPS and the City of Alexandria determined the historic cohort survival rate at which students move from one grade to the next, by grade level, by year, by attending school, by neighborhood school and by individual student. In addition, staff analyzed contributing factors to this variable including established trends, new programmatic initiatives, and neighborhood schools. Unlike the dropout rate, which is based on records of individual students, cohort survival tracks aggregate numbers of students.

FINDINGS

Alexandria's cohort survival rate for elementary and middle school grades is almost always less than 100%, reflecting smaller populations in each age cohort in the city through high school age. In high school, cohort survival rates for 9th and 10th grades are typically higher than 100%, reflecting students entering public school from private schools. The decline in student population by grade is generally considered to be a result of the market demand for Alexandria's housing stock, which is further

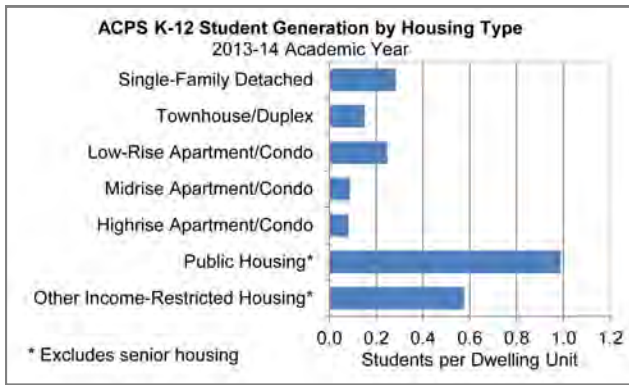


Figure 2.11. Student Generation by Housing Type. Single-family detached, townhouse and low-rise apartment and condo units have the highest student generation rates among market-rate housing units. While public housing and other subsidized or income-limited units have high student generation rates per unit, students from these units make up a small share of total

described in the kindergarten capture and student generation rate summaries.

The graph above shows the 3-year moving average of cohort survival rates for all grades since 2003, reflecting the average of rates since 2001. The cohort survival rate for most grades reached a recent minimum in 2005 or 2006, reached historic

highs in most grades from 2007 to 2009, and has stabilized at levels somewhat lower than these peaks from 2010 through 2014. The low cohort survival rate reached in 2006 of approximately 92% for elementary grades means a loss of 8% of students at each grade level, resulting in a 9th grade enrollment about half that of a kindergarten enrollment. The recent cohort survival rates of closer to 97% mean in the long term a 9th grade closer to three-quarters the size of the entering kindergarten class each year.

These recent changes can be attributed to the same factors that resulted in similar changes in the kindergarten capture rate over the same period. The combination of the increase in the cohort survival rate, city birth rates, and the kindergarten capture rate has resulted in enrollment growth that is substantially outpacing overall growth in population and housing units in the city.

SUMMARY

After analyzing both the historical student cohort survival rate and the other influencing variables, a 3-year average cohort survival rate was used for the short term enrollment projection. Expectations for

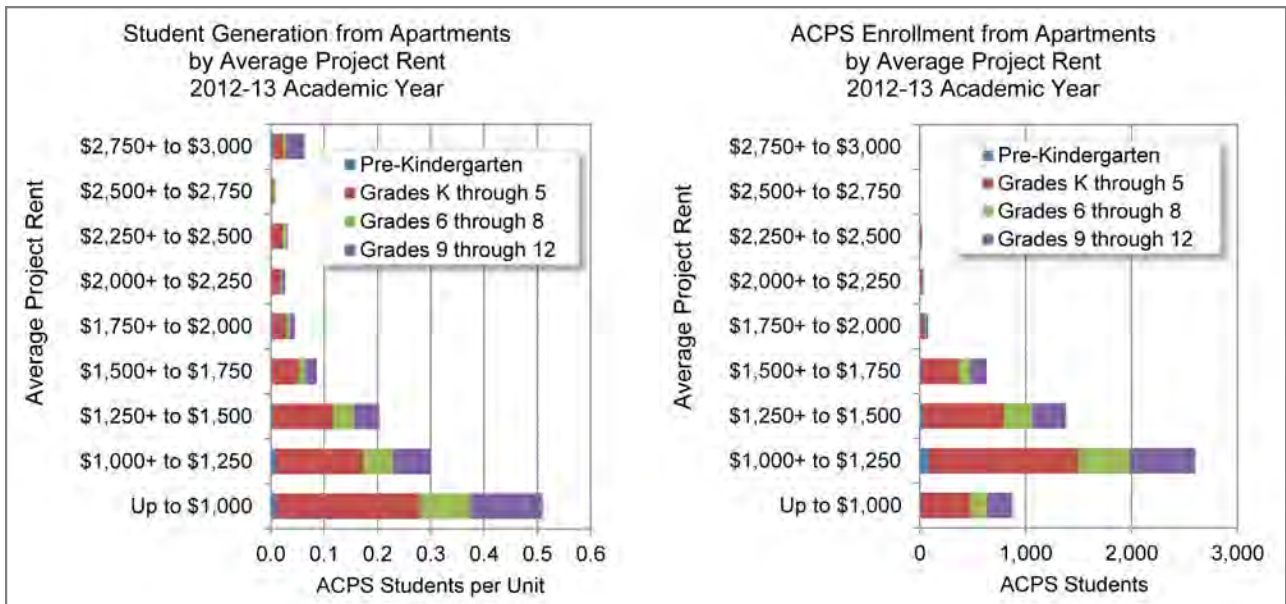


Figure 2.12. Student Generation and ACPS Enrollment by Average Project Rent. This analysis, conducted for the 2012-13 academic year, shows differences in student generation and total enrollment as a function of monthly rent. The graphs are based on rents reported in the Alexandria Office of Housing's annual apartment survey. The survey is limited to apartments of more than 8 units, and participation is voluntary, so not all apartment buildings are included in the survey. Some of the apartments, particularly in the lower rental ranges, are limited to low or moderate-income households. Public housing units are not included in the graphs.

cohort survival will also inform the long range forecast model.

STUDENT GENERATION RATES

BACKGROUND

The Alexandria City Public Schools (ACPS) student generation rate is the ratio of the number of students enrolled in ACPS to the total number of dwelling units in the city. The City has identified specific generation rates for various types and affordability classes of housing, and the effect on generation rates for a variety of housing characteristics including building type (single vs. multi-family, low-rise vs. mid-rise and high-rise), tenure (owner or rental), building age, value and rent, whether rent-subsidized or income-restricted, and whether units are restricted to seniors. The generation rate patterns for various types of housing units and unit characteristics assist in predicting future enrollment for the short- and long-term planning horizon as forecasts of demolition and new construction change the expected mix of types of housing in the city over time.

METHODOLOGY

Using the address of every ACPS student, staff was able to map nearly all students from Alexandria to a

housing type for the 2012 and 2013 school years and analyze generation rates for various types of housing by type, age and affordability class. (Approximately 2% to 3% of students each year cannot be assigned to a specific city residence address and housing type because of insufficient address information or an address that is clearly outside the city.)

In conjunction with this data, staff analyzed multiple factors that might affect student generation based on characteristics including: housing type, housing affordability programs, market affordability, age of housing stock, and home sales.

FINDINGS

The 2013-14 student generation by housing type (Figure 2.11) indicates that detached single family dwelling units, garden apartments, garden cooperatives, and townhomes are the largest student generators by type. Today’s snapshot of the mix of housing types in relation to student generation assists in projecting future student enrollment.

Affordability was found to be a key determinant of student generation for most housing types. For market-rate housing, student generation is highest

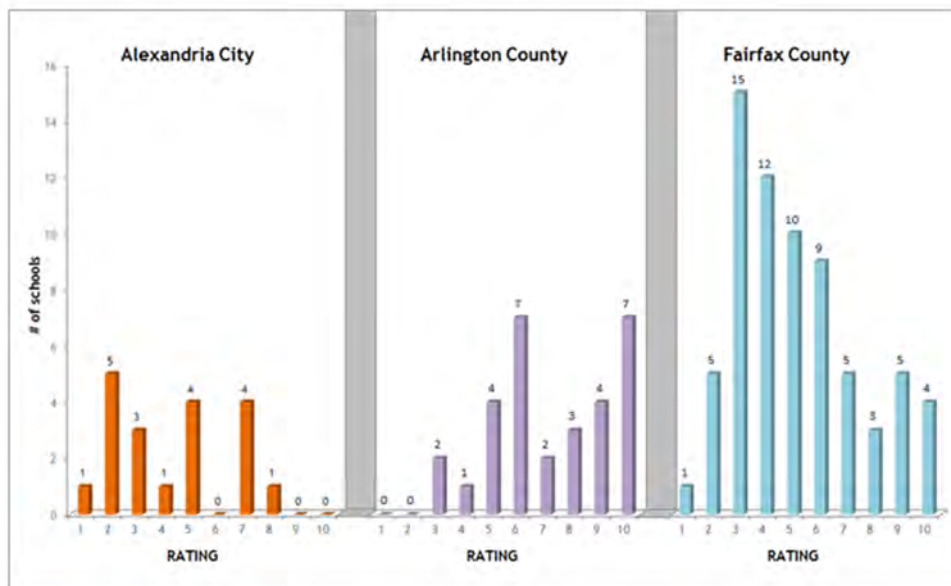


Figure 2.13. School Ratings In and Near Alexandria. These graphs show the number of public schools with various greatschools.org ratings in Alexandria and within 10 miles of Alexandria in Arlington County and Fairfax County. 1 is the lowest rating and 10 is the highest on this scale.

for housing with the lowest values and rents as reflected in the ACPS Student Generation by Average Project Rent column graph at the top of the following page. This applies to both programmed affordable housing (subsidized and income-restricted) and market-rate dwellings. The findings from this analysis indicate that future student generation may depend in part on changes in the affordability of the city's housing stock over time. To the extent that less expensive housing is eliminated through redevelopment, rehabilitation, or price or rent increases, households with school-age students are likely to choose housing in other areas. As the existing housing stock and newly developed housing becomes more affordable as it ages, the city will continue to provide housing that families find affordable and will see student growth parallel population growth. To the extent that the city continues to support income-limited and subsidized housing and encourages such housing to be provided in new developments or through voluntary affordable housing contributions, the share of students from such units will remain similar to that today with the growth in housing units and population.

The ACPS Enrollment by Average Project Rent graph at right above shows the total ACPS enrollment from rental units with various average rents listed in the Office of Housing's annual apartment survey. (Average rent in the analysis was based on a single number for each project and not based on individual unit rents. Average project rent was based on the weighted average of the midpoints of the range of rents for efficiencies, 1-bedroom, 2-bedroom and 3-or-more-bedroom units in each project.)

Rental units with rents averaging \$1,750 per month or more generated less than 0.05 students per dwelling unit. At rents up to \$1,500 per month, rental units generated an average of 0.2 students per dwelling unit or more.

Condominiums, even at low assessed value, generate substantially fewer students per unit than single-family attached (townhouses), detached or duplex units. At valuations greater than \$200,000 per unit, condominiums generated

less than 0.05 students per unit (1 student per 20 dwelling units). All other ownership units combined generated more than 0.15 students per dwelling unit up to a valuation of \$1.5 million. All condominium units are classified as ownership units in the analysis, whether or not the individual condominium unit is rented.

Townhouses with values above \$450,000 generate 0.1 students per unit or less except for a very few high-value townhomes. This is substantially fewer students per unit than single-family detached housing units, which generate more than 0.2 students per unit up to an assessed value of \$1.5 million.

Income-limited and subsidized housing units, public housing units, and cooperative apartments generate the highest number of students per dwelling unit in the city, in part because such limits and subsidies are often focused on housing affordability problems of families with children. Public housing family units were found to generate nearly one student per dwelling unit, while subsidized and income-limited apartments were found to generate approximately 0.65 students per dwelling unit.

Based on analysis conducted by ACPS and the City of Alexandria, comparing new students and real estate data on home sales, whether a home had been recently purchased did not directly influence student generation.

Student generation varies depending on the area of the city because of the variation in housing type and rent. Redevelopment planned in the West End is



expected to result in a reduction of students because the housing to be demolished has a relatively high student generation. The new units are expected to generate at a much lower rate for many years. New development in Potomac Yard will generate new students to the division since no units will be demolished. The net effect across the city was determined to be approximately neutral in the 2012 short-term enrollment projection. However, since reductions were expected in some parts of the city balanced by increases in other areas, it is important for projections of school enrollment to use individual school enrollment areas as the level of analysis.

SUMMARY

As the mix of housing types evolves within the City, such as through the conversion of garden apartments to mid-rise or high-rise units, and the overall increase of multifamily units, ACPS and the City of Alexandria can utilize updated generation rate calculations to track and forecast division-wide and site-specific changes in the student population.

Changes in kindergarten capture and cohort survival affect the generation rates of all units over time, but may change generation rates in some types of units more than others.

SCHOOL REPUTATION INFLUENCE ON STUDENT ENROLLMENT

SCHOOL REPUTATION BACKGROUND

This research element provides a qualitative snapshot of the perception of school quality in Alexandria. It's important to note that the information presented does not in any way assess the actual quality of the school system, but rather is provided to highlight some of the perceptions that residents and potential residents have about Alexandria City Public Schools (ACPS), and how those perceptions could impact school enrollment in the future.

METHODOLOGY

The City of Alexandria's planning staff conducted two focus group sessions, in early 2014, with Alexandria-based real estate professionals from McEneaney & Associates, and Long & Foster. The

topics of discussion ranged from housing choice trends of families buying and selling in Alexandria, to the role and weight of school reputation in the residential real estate market. The discussions were limited to the home ownership market, so the findings do not reflect trends in the rental market. In addition to the focus groups, planning staff researched school ratings from greatschools.org to gauge public perception of all Virginia public schools within a 10-mile radius of Alexandria.

FINDINGS

There were four key takeaways from the focus group discussions and online research:

Growing urban preference

There is a growing interest in urban lifestyle for families with children. Alexandria's urban profile and amenities are a major draw for this demographic. Many areas within the city are in a position to capture some of this demand along with other inner-suburban and inner-core neighborhoods in the region.

Importance of school reputation

Despite this urban preference, school reputation often plays a larger role in real estate decisions of families, and currently, this is working against Alexandria. In general, families perceive schools to be better in neighboring jurisdictions, and many are choosing not to buy a home in Alexandria, or are selling their existing home in Alexandria, to move to other jurisdictions based on these perceptions. There are a few exceptions within ACPS, particularly among the elementary schools. The real estate group noted that families are willing to pay a premium, as much as \$100,000 to \$150,000 more, to live in the more desirable school attendance areas within Alexandria.

Perceptions

The real estate professionals noted that most of their clients with children rely on various websites that rate individual schools. The website greatschools.org was one in particular that is widely used (their ratings are displayed on zillow.com). Interestingly, the rating system used by greatschools.org puts a heavy emphasis on



individual student test scores. Communities like Alexandria, which have a diverse population, and high level of mobility, are at a disadvantage under this rating system because many students who are just starting to learn English do not perform as well on the standardized tests. In addition, the real estate professionals felt that there are many positive aspects of ACPS that are not widely known, and that the school system could improve promoting this message to the community.

Comparisons with other jurisdictions

An examination of greatschool.org ratings supports real estate professionals' observations about the perception of Alexandria schools. Recently, ACPS has jumped from having no schools with ranking of 6 or better, (two years ago) on a scale of 1 to 10, to now reflecting 5 with rankings of 6 or better on greatschools.org. Figure 2.13 illustrates how Alexandria schools are perceived relative to schools in neighboring Arlington County and Fairfax County. The fact that there are so many options for highly regarded schools proximate to Alexandria but outside of its borders will likely have a dampening effect on school enrollment. An improvement to the reputation could shift this trend and put upward pressure on enrollment. However, even with a better school reputation, there is a limit to the number of families Alexandria could capture because the proportion of single-family homes is much lower than in neighboring jurisdictions, and is not likely to increase.

CHAPTER 3

GUIDELINES FOR 21ST CENTURY EDUCATIONAL FACILITIES

INTRODUCTION

Three components guide ACPS and the City of Alexandria toward 21st century educational facilities —

1. **Educational Specifications (Ed Specs).** Elementary and Middle School Ed Specs were developed under the guidance of the Long Range Educational Facilities Plan Work Group and adopted by the School Board on January 29, 2015. Prek-8 Ed Specs were developed prior to the planning of the Jefferson-Houston School and were adopted by the School Board on January 5, 2012.
2. **Guidelines surrounding the consideration of open space** (see page 3.12).
3. **Urban School Model.** It is recommended that the planning of all new schools consider the urban school model.

EDUCATIONAL SPECIFICATIONS PURPOSE

Ed Specs were developed to serve as the benchmark for future school renovations and new construction projects. The purpose of the Ed Spec is to define the programmatic, functional, spatial, and environmental requirements for educational facilities, whether new or remodeled.

In essence, an Ed Spec tells the story of the school facility and how the built environment will support the academic program and vision of school leadership. These generic Elementary and Middle School Ed Specs are primarily intended for use as planning guides by architects and project planners, but are also intended to serve as a communication and benchmarking tool for all project stakeholders.

The general concept embodied in the specifications is to provide adequate details for proposed spaces while leaving ample flexibility for creativity and options in design by the architects. Each Ed Spec is meant to be a living document—developed and amended over time.

During the planning phase of a specific project, the Ed Spec is utilized to understand and develop project scopes of work and budgets, while clearly communicating the intent of a project to vendors and thus providing well informed responses to meet actual project needs. Unique site locations of new schools may necessitate floor plan

modifications and the program and space requirements should be modified within the parameters of this document.

A detailed discussion of Urban School Models, used as a tool within the planning phase, is provided on page 3.11.

During the implementation phase, the Ed Spec will be reviewed for quality control allowing Alexandria City Public Schools (ACPS) to measure project deliverables against the stated benchmarks and standards within the Ed Specs. Design deliverables will also be examined for compliance within the standards with a goal of meeting those benchmarks within 15 percent. Additionally, the Ed Spec will help provide foundational support for project decisions.

The Ed Spec serves as a valuable aid for facility and staff. These are user-friendly documents that allow those outside of design and construction professions to understand the building and intent of its spaces.

Planning a state-of-the-art school requires consideration of several influencing factors including historical and community context, the current and future learning pedagogy and curricular goals, technical expertise of faculty and administrators, national and regional trends and benchmarks, as well as strategic goals and objectives.

For school planning, Ed Specs guide the cooperative efforts of facility specialists, administrators, faculty, and instructional consultants, in addition to the careful involvement of outside partners and community stakeholders. In order to create the best possible learning environment for children, efforts have been made to incorporate the best ideas from existing plans and facilities, as well as to anticipate future needs for educating Alexandria’s children.

PROCESS

The overall workflow for the development of the Ed Specs is shown in Appendix B. The process began with a series of discussions devoted to aligning the Ed Spec with the strategic objectives and vision for future schools, followed by several weeks of interviews with technical experts, building users, and other stakeholders.

The Project Planning Team was comprised of ACPS and City staff, Studio 27 Architecture and Brailsford and Dunlavey. The Team solicited community and student input at key intervals to ensure the document considers all perspectives related to facility needs, adjacencies, and space prioritizations. Input from specialists in technology, facility planning, other school divisions, and elementary school pedagogy has been added to the basic plan to ensure quality facilities well into the twenty-first century.

STRATEGIC VISION

ACPS staff was guided through a series of visioning sessions with educators, administrators, and community members that challenged them to clarify their expectations related to facility operations, sustainability, architectural quality, space priorities, and the community context. The visioning sessions focused on identifying gaps between ACPS' future goals and their current realities. The following narrative summarizes the areas of greatest need and formulates the concept for the construction and operation of a school of the future in Alexandria.

Building Concept and Priorities of Spaces. The desire to teach whenever and wherever drives the need for future facilities to implement a spatial organization that provides both formal and informal learning spaces and maximizes collaboration and interaction between students and faculty.



School designs should focus on creating collaborative and adaptable learning spaces supported by a robust and seamless integration of technology and flexible and ergonomic furniture. Incorporating an overall organization of small learning communities with breakout spaces in hallways, collaborative spaces in classrooms, and spaces that facilitate chance interactions throughout the school will allow teachers to collaborate across disciplines and tailor learning objectives and lessons to students' individual needs.

Providing multifunctional spaces for third party partner and community programs that extend educational and extra-curricular services to students, families and the community is a priority. The facility should operate as one organism that can be segmented into different functions and zones depending on the time of day and use.

Community Context. ACPS school facilities should serve as neighborhood assets and centers for parent, family and community interaction and engagement. Parental and family support plays a critical role in the success of students. ACPS students and families come from diverse backgrounds and schools should be welcoming and inviting places that include dedicated space for parent and family engagement as well as spaces available for community and partnership use.

Each school community is unique and designers should consider what spaces best support the community's needs; however, all schools and their sites should be planned and designed to support community use during non-school hours. Implementing a secure separation between the academic core and the shared use spaces along with the careful application of active and passive design strategies will create safe and secure learning environments. The site also adds opportunities for extended outdoor learning and becomes a neighborhood asset outside of school hours.

Organizational and Operational Paradigm. ACPS believes an integrated, interdisciplinary team approach increases student achievement and faculty collaboration by enhancing the overall learning experience. A collaborative team approach is best facilitated with small learning communities, extended learning environments, and a departmental organization of spaces. Media Centers should be seen as the "learning commons" and be utilized regularly as an extension of teacher's classrooms and workspaces.

ACPS desires to increase inter-student collaboration and group learning and activities. To support this, flexible and adaptable informal and formal teaching spaces are required. Emphasis will be on spaces and configurations that support critical thinking and project-based learning ideally within groups of four students with the ability to break out of formal learning environments. Utilizing a push-in and team teaching approach, special education students will learn in the same collaborative learning environment as their peers.

Architectural and Construction Quality. ACPS has a strong belief that high-quality architecture has a positive influence on student success and faculty retention and is committed to delivering high-quality, state-of-the-art, and sustainable facilities to students, faculty, and the community. This belief applies to both external and internal qualities of the facility. The school facility and grounds are considered a learning tool and creativity in design and architecture is a priority.

Quality of design and engineering should focus attention on areas that most impact the learning environment with a particular emphasis on incorporating researched-based facility elements, such as enhanced natural lighting, acoustics, air quality, climate control and technology, that directly impact student achievement and educator effectiveness. Externally, the architecture must be respectful of the historical and cultural context of the community while simultaneously inspiring students and the public.



Materials and system selections should consider extended life cycles. Building systems, materials, and finishes must be resilient, easy to maintain, and create a positive, aesthetically pleasing learning environment. Life cycle of materials should balance quality and potential for future costs in an effort to ensure appropriate use of public funds is achieved.

The complete Elementary and Middle School Educational Specifications, including further information on planning concepts, design principles, and spaces can be found in Appendix B of this document.

NATIONAL TRENDS IN EDUCATIONAL FACILITY PLANNING

21ST CENTURY LEARNERS

Learning environments should be planned and designed with all types of learners in mind including auditory, tactual, kinesthetic, and visual.

Individual learning styles impact the way in which individual students:

- Concentrate in one's immediate surroundings
- Process information
- Make decisions and solve problems
- Complete tasks and assignments
- Interact with others
- Retain new information

Today's learners are technologically savvy and are accustomed to having information at their disposal. Today, learning occurs any time, any place, any path, and

at any pace. Classrooms are transitioning from environments focused on teacher-directed whole-group instruction to learner-centered workplaces that support a collaborative culture of students at work.

While schools and homes continue to be important places for learning and with the knowledge and understanding that students also learn in ways not bounded by classroom walls nor the schedule of the school day, these "other" areas of learning become a critical component in planning and designing innovative, inspirational, and thriving educational environments.

STUDENT FOCUS GROUP

The Planning Team held a focus group with students from George Washington Middle School to discuss current and future learning environments and help inform the plan. The prevailing theme centered on students wanting the opportunity to have choices for how and when they learn throughout each class period, as well as throughout the day.

They generally understood that each student has a unique style of learning and recognized the importance of providing appropriate environments and opportunities for each learning style.

Additional student discussion points captured generally accepted evidence based design elements as well as other trends in modern educational environments including:

- Exciting, engaging and varying learning spaces
- Access to natural daylight and climate control
- Ability to control acoustics and ambient noise
- Furniture options, adaptability, convertibility, and ergonomics
- Ability to work alone and/or in groups
- Space to move around and work within classrooms
- Informal break-out spaces within corridors
- Healthy eating options and improved dining facilities
- Use of the media center for multiple activities (quiet and noisy)
- Access to deliberate outdoor learning spaces
- After-school access to spaces such as the Media Center and fitness spaces

CLASSROOMS & TECHNOLOGY

The "classroom of the future" should be more personalized, student-directed, collaborative, interdisciplinary, and hands-on than those of even 10

years ago. As the focus of education moves away from the transmitting of information to developing creative problem solving and communication skills, the classroom setting is morphing into a beehive of activity – a learning studio.

At different times, students work alone, in pairs, or in groups:

- Working alone - reading, writing, interacting with the computer, or just thinking.
- Working together in pairs or groups - dissecting problems or reading and reacting to one another's written work, role-playing, or sharing ideas, opinions, and experiences.
- Interacting with the teacher and the whole class- listening, making presentations, asking questions or brainstorming ideas.

In addition, teaching methods address a variety of learning styles. Children with disabilities are educated alongside their non-disabled peers in their neighborhood school.

The classroom of the future should no longer be one- directional with rows of desks facing the front of the room. There should be a variety of focal points with mobile resources to support learning, flexible furniture, and robust technology. Rooms should range in size and purpose from small incubator and assessment spaces to large seminar and presentation areas. Corridors and informal learning spaces should create a seamless and extended learning environment. Technology is infused seamlessly into the education program and physical building. Wireless connectivity allows for learning to occur at all times.



MEDIA CENTERS AND STUDENT COMMONS

The 21st Century school media centers are changing from the quiet book-lined storage spaces for research and reading to multi-media, interactive studios of social collaboration for faculty and students. They are seen as a learning commons—an extension of the classroom that serve as the social and technological heart of the school.

New media centers are more than 50 percent digital and offer learning and gathering spaces as well as production areas. The ideal media center may move from noisy to

quiet - through a café and mobile computing environment, to small, AV-enhanced, group study conference areas, to individual study carrels or a media production room that allows students to communicate and learn via various aspects of today's multi-media technology.

Multi-media technology is what this generation of students understands and uses. They communicate and learn through on-line devices, but also publish and perform. The media center may include a computer lab for research, a publications room for the school newspaper and yearbook, a video production and editing lab for film, a distance learning lab, and a variety of display venues.



National standards for media centers call for 4-6 square feet per student. Even at this size, most learning commons cannot offer a full range of media options. Multimedia satellites instead are infused throughout the school, complementing core curricular activities. Many learning commons also offer virtual space with internet, bringing together a generation that grew up on social media.

BUILDING & SITE

The school building itself is considered a learning tool and community asset. There is a sense of identity and the quality of architecture instills a sense of place and pride. The architecture considers learning opportunities over the entire campus, including school grounds and landscaping.

Transparency of spaces also helps foster an internal sense of community and excitement about the learning activities that are occurring within. Use of glass allows for visual connections externally and internally. Front entrances are inviting and welcoming for all community members – parents, families, and neighbors. The school is a hub of activity before and after school. Health services and other non-educational support are often provided.

In addition, ACPS decisions regarding buildings and grounds should consider recommendations from the City with regard to open space on school sites — including a goal of no net loss of usable open space. A more detailed discussion of open space guidelines is presented later in this chapter.

EVIDENCE-BASED ENVIRONMENTAL ELEMENTS

Evidenced-based design is the consideration of credible research findings in the planning and design process with a goal of achieving positive outcomes. Researchers have presented findings that link measurable outcomes such as student attendance, academic performance, faculty retention, and disciplinary actions. More specifically, the following four design elements have been connected to these outcomes: lighting quality, indoor air quality, acoustics, and furniture design.

Lighting Quality. The Heschong Mahone Group found statistical correlations between the amount of daylight in an elementary school classroom and the performance of students on standardized math and reading tests in 1999. *Goal: Improve natural and artificial lighting in classrooms.*

Environmental / Air Quality. According to the U.S. Centers for Disease Control and Prevention, American children miss approximately fourteen million school days each year due to asthma. Controlling environmental factors such as dust, pollen, and carbon dioxide could help prevent more than 65 percent of asthma cases of elementary school-age students according to the American Journal of Respiratory and Critical Care Medicine. *Goal: To ensure comfortable rooms, address temperature control, ventilation, air filtration, carbon dioxide levels, and HVAC background noise.*

Acoustics. Research links the importance of maintaining appropriate acoustic conditions for student learning. This relates to noise from external sources and reverberation in the classroom and is linked to academic achievement, behavior, attention, and academic concentration. Acoustics are also important for teacher wellness and avoiding straining vocal cords while attempting to speak over noise. *Goal: Limiting reverberation and background noise and improving sound isolation.*

Ergonomics. A 2007 study compared adjustable furniture in schools to traditional fixed furniture. Students using adjustable furniture were found to have higher grades than those in the control group using traditional school furniture. Characteristics of furniture that promote good posture should be considered as well as adjustable desks and chairs to allow students of varying sizes and body types to improve their comfort levels when sitting for long periods of time. Research studies continue to explore this issue. *Goal: Continue research exploring adjustable furniture to ensure comfortable experiences for students that enhance their learning.*

In summary, these national trends provide an important context for many of the ideas that ACPS is working to implement and how those concepts are articulated within this document.

ACPS LEARNING AND TEACHING MODEL

Learning and teaching in ACPS is a well-executed balance between a rigorous curriculum, proven instructional strategies (pedagogy) and relationships with students that communicate high expectations and commitment to student success.



ACPS developed and uses a 21st century curriculum focused on helping students become critical thinkers and problem solvers. In addition to helping students acquire declarative and procedural knowledge, each unit has a focus on higher-order thinking skills to ensure students are developing critical thinking skills needed for post-secondary success: reading complex text, writing at a post-secondary level, analyzing and interpreting data and participating in discourse across the disciplines.

INSTRUCTIONAL METHODS

Instructional methods vary with grade level, but maintain continuity from early childhood through the primary, intermediate, and middle grades. Predominant elements include:

- Integrated learning, where content areas cross disciplines
- Flexible groupings (In primary grades, regrouping stays within the classroom.)
- Mentoring of older to younger students
- Extended day learning opportunities
- Parent involvement and volunteer activities

ACPS offers ‘What to Expect’ brochures for every grade level available on its web site, and the full program of studies is available for middle and high school. These documents should be referenced by architects to better understand program offerings and curriculum goals.

PLANNING CONCEPTS

The following section provides executive summary level descriptions of the capacity analysis and planning concepts of each program space within an ACPS school facility.

Every school project begins with establishing the number of students that will be served when the project is complete or the “capacity.” Capacity is the primary driver in determining the number, type, and size of the spaces in the new or modernized building.



While there is no ideal school size, schools in ACPS range from ~350 students to ~900 students at the elementary level and typically between ~1100 and ~1300 at the middle level. Additionally, the middle school’s Ed Spec is based on a capacity of 1200 students due to the current and projected sizes of the middle schools. Ideally, elementary capacities would range between 450 students and 800 students, and this prototype is based on 700 students for illustration only. Nationally, the average elementary school size is 600 (540 in Virginia) with smaller schools in urban cores.

The Division has been provided with an active, editable spreadsheet that allows planners and architects to develop facilities lists for a range of schools based on the capacity and unique program needs in real time.

Simply defined, school capacity is a product of the number of classrooms at a school and the number of student stations assigned to each room type. Only classrooms that are 600 square feet or more with a teacher and students regularly assigned to the space are counted toward full time capacity. For elementary schools, small instructional spaces and specialized labs including art, music, or resource are not part of the capacity calculation. It is possible for a school’s capacity to change from year to year based on average class sizes (determined by the budget) or changes in the number and type of programs.

By applying actual school staffing to enrollment, it can be determined that for most ACPS elementary schools, class sizes will range from 20 to 24 in grades kindergarten

through 5th grade, while middle school ranges fall between 20 students for core classes and 25 students in the encore (art, vocal music, library, and physical education) classes.

Currently, for elementary grades, ACPS budgeted class size caps range from 22 in kindergarten to 26 in 5th grade, but the average class size in ACPS is lower. The classroom size limits enunciated by the ACPS School Board are generally in line with the regional averages and in keeping with the division’s long range policies and goals. It is important to size all classrooms to accommodate the maximum number of students even if the average is used for capacity planning.

At the middle school level, ACPS has become more concerned about the size of these schools. All middle school buildings function in a grade level multi-team environment. In this setting, teams of teachers (English, Social Studies, Math, and Science) together teach the same group of students (100-110). The team usually has the same planning period so they can collaborate and create and interdisciplinary curriculum customized to their students’ needs. This strategy makes it difficult to “float” teachers. However, since teachers usually teach 5 out of 7 periods, the overall utilization of the building in any given period is 71-80%. For this Ed Spec, maximum capacity will be factored at 80% utilization.

Once a capacity is proposed, many other areas of the building are sized to support the enrollment. The number of small group rooms, art and music labs, and support staff offices are based on staffing formulas. The size of the core areas such as media center, dining and food services, physical education facilities, and site amenities are based on local and national benchmarks related to size.

Tables 4.1 and 4.2 summarize the breakdown of the proposed capacity for both a prototype 700 student elementary school and prototype 1200 student middle school.

Per the Guidelines for School Facilities in Virginia’s Public School, the goal of the optional guidelines developed by the Virginia Department of Education is

“... to provide recommendations that will help local school divisions ensure that their school sites and facilities support the principles of good teaching and learning and promote sound educational programs.”

The guidelines included in the Ed Specs respond to or exceed Virginia State guidelines and recommendations.

PROGRAM AREA SUMMARIES

700 Prototype Capacity Diagram

| Grade | Number of Classrooms | Capacity | Total |
|--------------|----------------------|----------|------------|
| Pre-K/Pre-S | 5 | 18 | 90 |
| Kindergarten | 5 | 20 | 100 |
| Grade 1 | 5 | 22 | 110 |
| Grade 2 | 5 | 22 | 110 |
| Grade 3 | 4 | 25 | 100 |
| Grade 4 | 4 | 25 | 100 |
| Grade 5 | 4 | 25 | 100 |
| Total | 32 | | 710 |

Table 4.1

1200 Prototype Capacity Diagram

| Grade | Number of Classrooms | Capacity | Total |
|--|----------------------|----------|----------------------|
| Academic Classrooms (4 teams / grade) | 36 | 20 | 720 |
| Science | 12 | 20 | 240 |
| Foreign Language/ Electives | 7 | 20 | 140 |
| CTE | 3 | 20 | 60 |
| Visual Arts | 1 | 25 | 25 |
| Performing Arts (Music/Drama) | 4 | 25 | 100 |
| Physical Ed | 7 | 25 | 175 |
| Special/Alternative (Reading, ELL) | 3 | 15 | 45 |
| Total @ 80% utilization | 73 | | 1505 1208 |

Table 4.2

The following section provides executive level narrative summaries of the core program space areas.

Supporting figures for each of the following items can be found in the appendix of this document.

Main Office-Reception, Administration, and Student Services. As students, families and other visitors enter an ACPS building, it is important that they are greeted with an inviting and well organized front office suite.

Elementary schools should also have their main offices located at the primary entrance. The architect should consider security when designing the main spaces while office space should be organized to provide direct visual access to the entrance doors. Architects should also provide appropriately sized office spaces with an adjoining shared conference room and adjacent staff restroom.

Occupational and Physical Therapy services as provided by ACPS consist of staff traveling between multiple school locations. Within the main office, provide an appropriately sized space that includes itinerant work stations and storage. Near or adjoining the main office, provide the Family and Community Engagement center.

Other administrative functions can be dispersed throughout the school via grade level suites to encourage maximum student collaboration and connection.

For middle schools, the primary administrative office, guidance services, and adult restrooms should be located in a centralized area near the main entrance to the school. A digital kiosk in the lobby may provide real-time information on school's administrative and building operations.

Visitor parking should be located by the front door. Signage and building design should clearly indicate the school entrance. Immediately upon entry, visitors should be directed to the Welcome Center/main office. For security reasons, no visitor should be able to enter the classroom areas without being checked through the reception area.

Health Services. Health Services should be located near the main entrance to the school. Health Services is responsible for providing health related amenities to all

students and staff. The space should be organized to provide appropriate space for:

- health screenings
- illness or injury treatment
- meetings and trainings
- prescription medication storage and distribution
- secure records keeping
- private consultations
- rest and recovery units
- waiting area



In addition, it is possible that a facility in the future will provide (location dependent) community partner/provider operated wellness centers. These centers will require additional spaces accommodating such amenities such as:

- full medical evaluations
- full laboratory services
- dental services
- radiology services
- pharmaceutical services

If the school division elects to provide a school based health center (SBHC), the architect should work with officials to ensure full space programming requirements are met according to federal regulatory standards. This center should be adjacent to the school clinic but implementation of a full SBHC will require significant advance coordination by ACPS.

Core Instructional Spaces. The basic organizational structure of the school should reflect a cluster concept and should consist of general purpose classrooms, commons space for informal instruction, a small group room, two and three dimensional display areas, and a teacher work center. Each cluster should also contain a resource classroom used by support educators and an extended learning area to facilitate collaborative teaching and learning. At the elementary level, student restrooms should be located within all classrooms or shared by two adjoining classrooms.

Classrooms. Elementary and middle school classrooms should utilize flexible, easy to arrange and store furniture. Student arrangements should reflect small collaborative groupings over individual desk arrangements. Many elementary classrooms are designed around discovery-based learning centers. Provide teaching and learning surfaces on two walls to include touch screen interactive boards, magnetic white boards and tackable surfaces at student height. The provision of an itinerant or hoteling space for drop-in or special needs instructors is a unique feature that should be included in each classroom. Restrooms should adjoin classrooms at every grade level to increase flexibility for conversion to younger grades if necessary. Each classroom should include a sink and a water bubbler.

Extended learning areas (ELA) should be incorporated into designs as additional teaching spaces learning areas that occur adjacent to each academic cluster. ELAs are open spaces off the corridor that are meant to facilitate break out instruction, small group and project-based work in addition to multi-class collaboration and joint teaching initiatives. ELAs vary in size based upon the individual needs of the school and the academic cluster and should be designed and equipped to accommodate a variety of furniture arrangements to optimize flexibility.



Science. Each elementary-level classroom should be designed to support science activities and simple lab components. Schools should supplement the in-classroom sinks by providing a portable science demonstration cart for each academic cluster. Additionally the provision of an outdoor classroom, a garden area, and/or a food lab should also be considered in order to support elementary level science instruction. If a food lab is provided, it should be located off the main dining area and equipped as a dual purpose warming and cooking studio for both teaching and extracurricular activity support.

Middle school science classroom should be designed to support combined science lectures and hands-on lab activities. Integrate technology to support wireless one-to-one device connectivity and Bluetooth precision



measurement device connectivity. Science classrooms should be integrated into the grade-level academic clusters. Additionally, the provision of an outdoor classroom, a garden area, bio-retention pond, greenhouse, water collection observatory, and/or a food lab should also be considered in order to support science instruction.

Career Technical Education.

At middle school, space should be provided for: (1) Business, (2) Family & Consumer Sciences (FACS), and (3) Technology programs. FACS courses require access to kitchen studios while business courses require a standard flexible classroom. Technology course space requires a dedicated multipurpose technology lab that allows for flexibility to shift from between various course topics supported with portable furniture and equipment. Programs taught at the middle school level build foundations for more specialized high school program offerings.



Special Education. Special education facilities should be integrated throughout the school to support the concepts of inclusion and the specialized requirements for the students. Currently, more than 70 percent of all students with disabilities are included in standard learning environments for 80 percent of each day. In all schools, provide at least one resource space for every two grades or at least three spaces per school to support individualized learning needs and/or speech therapy. Typical occupancy of a pullout space is approximately four to five people.

A dedicated, programmatically-sized classroom may be necessary on a location-by-location basis to support City-wide programs and would be identified at the time of individual site planning. Special education facilities should be integrated throughout the school to support the concepts of inclusion. Special attention should be given to accessibility of all facilities and an integrated learning program.

English Language Learning (ELL). ELL instruction occurs at every elementary school in the division but enrollment can vary from as little as 5% of the school's total student population to over 50%. The majority of ELL instruction is pushed-in to the general education classrooms with an itinerant instructor floating into classes as needed. Elementary schools also provide an English Language Development (ELD) break out class which can typically be accommodated in one of the resource classrooms; however, in schools with a large ELL population, such as Ramsey ES, it is possible that a

dedicated classroom will be required.

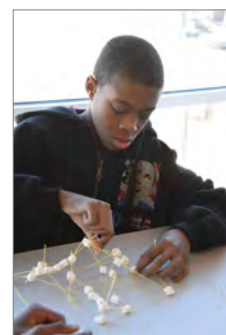
Middle schools also provide English for Academic Purposes (EAP) break out classes to help students with specific needs. These break-out classes can typically be accommodated in the larger resource classrooms. It should be noted that beginning in the 2015 school year a new *International Academy* program, modeled after that which exists at T.C.

Williams, will be implemented at Hammond MS. Designers should be careful to inquire about the site-specific requirements.



Talented and Gifted (TAG). A TAG program exists at every school in the division, although enrollment varies widely from school to school. At the elementary level, staffing levels are based upon enrollment but at most schools there is one full time TAG teacher. For grades K – 3, TAG curriculum is ‘pushed in’ to the standard classrooms and is managed by the elementary teachers. At the 4th and 5th grade levels the same strategy is utilized for social studies and science curriculum; however, mathematics and language arts TAG course work is ‘pulled out’ into a separate classroom. Typical class size for these TAG classes is about 15-20 students, warranting the provision of an assigned, standard classroom. Additionally, TAG curriculum emphasizes project-based learning which may occasionally require use of ELA space or resource rooms along with the provision of storage for student projects.

At the middle school level, honors (TAG) classes are taught by the subject area teachers as part of their normal daily schedule and student enrollment varies from 10 to 20 percent of the total student population. Therefore, separate, individual TAG classrooms are not necessary. The TAG program does, however, include a TAG resource teacher who provides curriculum guidance and instructional support to the individual subject area teachers. The TAG resource teacher may ‘float’ from class to class occasionally requiring the use of itinerant desk space in the classroom and, because of the emphasis on project-based learning, the TAG resource teacher may occasionally work with a small group of students in an ELA space or a resource room.



URBAN SCHOOL MODELS

As Alexandria becomes more urban, there are fewer vacant sites or sites developed at a low intensity that could potentially be used for school sites. In this changing environment, the City and ACPS are exploring urban school models. For purposes of this plan, urban school means a smaller school site than is the norm in Alexandria with a school building that is taller (3+ stories) than the norm in Alexandria. While an urban school can often serve as the center of a community through the co-location of other uses, such as a library, recreation facilities or senior center, such co-locations can occur on traditional school sites as well; co-location is examined in further detail in applicable sections of this document.

An urban school can also include completely separate uses within the same building. A school might occupy the first few floors of a building with offices or residences above, or a school might occupy a separate wing of a mixed use building. A school which included preschool or elementary grades would need to be on the lowest occupy-able floors, with consideration given to having the youngest students on the ground floor. In a mixed-use building, the portion devoted to the school would need its own entrances, and would likely require separate elevators and stairwells for security purposes. Separate alarms and HVAC systems would also be required.

The Educational Specifications that are part of this plan were developed with a traditional school in mind. With an urban school model, most of the specifications would remain the same. Given the limited size of an urban school site, however, some of the Educational Specifications might need to be provided in a non-traditional manner. Nearby community and private facilities could in certain circumstances be used to meet the specifications. Providing play space in an adjacent park is one case in point.

Table 4.3 lists Elementary and Middle School Educational Specifications that might be accommodated in a non-traditional manner in an urban school. In all cases, any nearby spaces or facilities would need to be within ¼ mile walking distance and the walk would need to be on a safe, continuous sidewalk or trail, through open space or along a roadway categorized as a primary collector, residential collector or local street. Students would not be allowed to cross or walk along Controlled Access Facilities/Expressways¹ such as I-395 or Arterials such as Duke Street, King Street or Route 1.

Considerable public input would be required at the early planning stages of an urban school to determine which of the educational specifications could be provided in an alternative manner or in an alternative location.

Note: (1) Street classifications may change as a result of the update to the Pedestrian and Bicycle Master Plan and the development of the Complete Streets Design Guidelines. The intent would still be to keep children away from high capacity roads.

| SPECIFICATION | POTENTIAL ALTERNATE PROVISION |
|---|--|
| Gymnasium | <ul style="list-style-type: none"> ▪ Less than full size ▪ Use of nearby public or private gym |
| Auditorium | <ul style="list-style-type: none"> ▪ Use of nearby theater/ performance space |
| Cafeteria | <ul style="list-style-type: none"> ▪ Distributed eating throughout school ▪ Lunch in classrooms ▪ Use of private catering company ▪ Use of nearby restaurant/cafeteria |
| Media Center | <ul style="list-style-type: none"> ▪ Use of nearby library ▪ Mobile library |
| Art | <ul style="list-style-type: none"> ▪ Mobile art lab |
| Administrative Offices | <ul style="list-style-type: none"> ▪ Distributed throughout school |
| Health Services | <ul style="list-style-type: none"> ▪ Use of nearby public health clinic ▪ Partnership with a nearby private clinic (ex. Minute Clinic) ▪ Mobile health unit |
| Early childhood (Pre-K) | <ul style="list-style-type: none"> ▪ Located in a nearby facility |
| Aftercare | <ul style="list-style-type: none"> ▪ Located in a nearby facility |
| Outdoor playspace (hard and soft surface) | <ul style="list-style-type: none"> ▪ Rooftop ▪ Use of nearby facility (must be fenced) |
| Bus | <ul style="list-style-type: none"> ▪ Bus drop-off location required ▪ Use of Bus Rapid Transit lanes for school buses |
| Kiss and Ride | <ul style="list-style-type: none"> ▪ Dedicated on-street parking spaces |
| Parking | <ul style="list-style-type: none"> ▪ Less parking if near Metrorail or Metroway (Bus Rapid Transit) ▪ Use of shared parking |

Table 4.3

Early Childhood. ACPS does not currently provide universal pre-kindergarten programs and, at some schools, early childhood education is provided either through a state funded grant (*Virginia Preschool Initiative*) or federally funded grant such as Head Start (provided by a community partner, The Campagna Center). In accordance with



national trends toward earlier schooling, ACPS desires to implement universal prekindergarten at every school. For planning purposes, this document allocates classrooms for early childhood at every school at 80 to 90 percent of the planned kindergarten classrooms. At schools that house Head Start, classes can be held in standard PreK/K classrooms described in this document.

Advancement Via Individual Determination (AVID). AVID is an elective course that targets students in the academic middle who have a desire to attend college.

CASE STUDY — Bailey’s Upper Elementary School for the Arts & Sciences, Falls Church, VA

This school for grades 3-5 is the first mid-rise elementary school in Fairfax County. Fairfax County Public Schools purchased the vacant, five story office building in December 2013 and retrofitted it to a school in time for a September 2014 opening. Approximately 600 students attended the school in 2014.



The school is located in the Seven Corners Area, 1.6 miles from Bailey’s Lower Elementary School for the Arts & Sciences, which houses grades Pre K-2.

The center of the L-shaped building is the “main circulation spine” and includes a large stairwell. The common rooms are located close to the center with the classrooms on the far ends of the building. Some uses such as small auditorium spaces and the media center span two floors and provide their own separate connections between floors. There are three or four classrooms per floor, organized into learning communities and connected by new stairways to classrooms above or below. All of the classrooms have exterior windows. About half of the classrooms have bathrooms, while the other bathrooms are near the elevators. Students do not use the elevators on a regular basis; the elevators are primarily used by students and staff with disabilities.



The school also has a black box theater, a story pit in the library, a cafeteria with small tables giving it a café feel, science labs, a TV studio room and art rooms. Three wood-floored rooms with padded walls provide indoor space for physical-education class. The school does not have a playground. A second construction phase could add a playspace in what is now an asphalt parking lot, and possibly an enclosed field house.

The entrance was moved to the back of the building to meet ADA accessibility requirements and to better accommodate a bus dropoff and kiss and ride area.

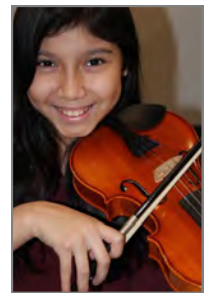


Enrollment in AVID varies year to year and from school to school, but approximately 10 to 15 percent of middle school students currently take the course, which amounts to about 25-30 students per class period throughout the school day. The AVID academic week includes two days of traditional classroom-based instruction, two days of small group tutoring, and one day of team building activities or guest speakers.



Accommodating all of these activities in one space requires a larger than average classroom that can be partitioned into two smaller rooms to minimize noise and maximize available whiteboard space during tutoring sessions. On tutoring days the class is divided into four smaller groups at a ratio of about seven students to one tutor. Several small tables should be utilized to maximize flexibility and all furniture should be on casters due to daily rearrangement. It is suggested that a small adjacent room be added to accommodate hoteling space for tutors and storage for student work files. The AVID room should be placed in a centralized location at an equitable distance to all grade levels, with a suggested adjacency to the media center.

Visual and Performing Arts. ACPS has a strong arts focus in the elementary and middle grades. Well-designed spaces need to support a vigorous curriculum and creative presentations. Art, music, and multi-purpose classrooms should be shared by all grade levels for general class and small group instruction. The location and access to these rooms should promote orderly transitions.



Larger ACPS elementary schools often have more than one art teacher (but less than two). The main art instructor assigned to the school will own the main art classroom and ancillary spaces. Optimal location for the art room is on the ground floor with a northern day lighting orientation. Access to an outside patio or seating area should offer additional work space, display spaces, and performance spaces. The itinerant art instructor assigned to the school will function out of the Early Childhood Dining/ELA space where a separate art

OPEN SPACE GOALS & GUIDELINES

storage location is provided. This location provides the opportunity for push-in art assembly or the ability to program the adjacent ELA as a full-size classroom when needed.

Additionally, larger elementary schools also often have one music teacher each for choral, band and orchestra – not all full time. Large practice and performance spaces are not provided for part-time programs and so the stage may be used part of the day for practice for orchestra or one of the other classes. If possible the music suite should be located near the stage and instrument storage shared between the band and orchestra. Chair and music stand storage can be provided on or under the stage.

For middle school, art rooms should support 2D and 3D instruction. The optimal location for the art room is on the ground floor with a northern day lighting orientation. Access to an outside patio or seating area will offer additional work space, display spaces, and performance spaces. Display areas in the corridor should allow for 2D and 3D projects.

A multi-purpose performance venue (auditorium), at the middle school level, will also act as a drama classroom (stage), a practice room, a large group gathering space, and a community meeting space.

The room should have a flat floor with flexible seating options and may have telescoping seating for some portion of the room. Appropriate acoustics, sound and lighting systems are critical to the room's flexibility and functionality. If possible, the music suite should be located near the auditorium. Locate dedicated small group practice rooms within the music suite along with storage areas.

Media Center. The media center serves a dual role – its traditional role as a gathering place for research and learning and a new role as a technological information base and learning hub. In this new role, the media center may house a wireless voice/video/data network, which runs throughout the entire building. This network enables the transmission of media services to the desktops of teachers and students without physically entering the media center. The new library will utilize digital technology to enhance voice, video, and data communications within the school, among division facilities, and with distant learning resources.

Physical Education. To support the elementary and middle school physical education program, a variety of indoor and outdoor areas are required. Outdoor physical education teaching areas should be located near the indoor gymnasium. Physical education facilities should be

1. The City recommends establishing policies on zoning with regard to open space on school sites, including a goal of no net loss of usable open space. The 2002 Open Space Master Plan Goal #7 calls to “maximize use of public school open space areas.” This is an important goal as the City is increasingly dense and school sites provide some of the largest open spaces on public land in Alexandria. The open space at school sites contributes to the performance measure the City has to maintain of 7.3 acres of open space per 1,000 residents. A loss of open space on existing school sites would reverse the efforts to maintain this ratio. In order to preserve this open space, the City recommends:

Existing schools sites renovations

- School sites shall avoid any net loss of open space on the property and seek to improve the quality of the open space on existing sites.
- If open space is zoned Public Open Space (POS) it cannot be built on. However, if the building renovation or addition is best situated on existing POS then there must be a rezoning that results in the equivalent amount of new POS elsewhere on the site for recreation or natural area purposes—ensuring that the City does not lose open space acreage (as occurred with the Jefferson Houston School redevelopment project).

New schools sites

- Given the densification and urbanization of the City, there will be a need to design and build for “urban model” facilities to accommodate enrollment projections. As with many urban schools in other jurisdictions, there may not be opportunity to incorporate the outdoor recreational and nature area spaces suggested in the educational specifications.
- However, it is developmentally important for students to recreate, have access to explore nature, and learn in an outdoor classroom, as advocated in many recent initiatives including the First Lady's Let's Move campaign, the City of Alexandria Eco-City Charter (2008), and the Partnership for Healthier Alexandria's Playspace Policy (2013).
- In order to provide recreational and outdoor spaces for new urban schools, the City recommends the following three strategies:
 - Build multi-story schools to maximize the availability of outdoor space on the site
 - Explore creative options for urban recreational space, such as rooftop courts or partnerships with private gyms
 - If no open space is available on site, ensure that the school is located within 0.25 miles (a child's walking distance) of an existing park that has safe access and connections. The Park shall be able to accommodate outdoor educational classes and be enhanced, as necessary, to manage increased use.

2. Meet the Guidelines for School Facilities in Virginia's Public Schools (2010) standards for school sites, including the acreage of outdoor play area space per pupil. Recent studies have shown that ensuring access to play, whether

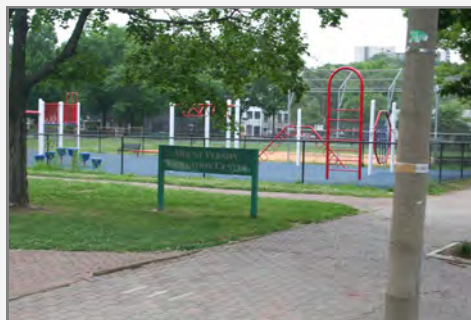
active recreation or exploration in nature, have positive impacts on both physical and mental health. The Summary of Facility Space Requirements on page 39 in the Educational Specifications provides guidance of recreational play space, per the Guidelines for School Facilities in Virginia's Public Schools. Including these standards in any school site project ensures that students receive the benefit of recreational opportunities. The State guidelines do not include specific size per pupil standards for natural areas, however, the City encourages opportunities to connect children to nature. Moreover, the 2013 Parks and Recreation Needs Assessment showed that 67% of Alexandria residents have a need for natural areas and 81% have a need for walking trails, furthering the desire to incorporate accessible nature into school sites that are open to the public after school hours and for after school activities.

3. Maximize community use and recreation program space and delineate clear access to public use spaces for students and community, as identified in the education specifications and the 2014 Facility & Outdoor Maintenance & Use Agreement. The 2014 Facility and Outdoor Maintenance and Use Agreement ("Agreement") provides a structure for the broad and cost effective use and maintenance of all ACPS and city owned and operated facilities in support of the community use of these facilities. The intent is to share spaces and provide maximum effective public benefit of all community facilities. School divisions and governmental agencies across the country are beginning to realize that they need cooperation, especially considering the ever-shrinking budgets and meeting the diverse needs of the community. Planning for future schools should include joint use considerations at the beginning of, and throughout the process.

4. Maximize canopy coverage and fulfill the goals of the Urban Forestry Master Plan. The 2009 Urban Forestry Master Plan included specific recommendations for increasing tree canopy on

school sites. Alexandria City Public School properties are perhaps the city's greatest untapped public resource for planting trees and adding to the city's tree canopy cover. Public school properties are important community green spaces and should be managed for the benefit of the neighborhoods in which they are located. In order to implement the Urban Forestry Master Plan, the City recommends that ACPS and the City inventory and then develop comprehensive management plans for all trees on public schools.

5. Where a full size field can physically fit, meet the requirements of the National Federation of State High Schools Standards for athletic fields. ACPS school sites provide some of the largest recreational areas in the city and the best locations for full size fields that meet the requirements of the National Federation of State High Schools Standards. Through the RPCA and ACPS shared use agreement, ACPS gives RPCA the priority to use their facilities, including sports fields, one hour after school lets out each day. Each school community is unique and designers should consider what spaces best support the community's needs; however, ACPS and the City should plan and design school sites to support community use during these non-school hours. A full size field at a school not only benefits the school time use of the field for the students, but also the citywide community of children and adults that play sports throughout the year.



designed with a focus on community use during non-school hours, since there is a high demand for both indoor and outdoor facilities.

ACPS offers formal physical education to elementary students twice a week. For larger schools this may mean 2-4 teachers are teaching in the gymnasium at the same time. At a safe 100 square feet per student, larger schools need a full size gymnasium to accommodate the program. Because the elementary schools do not have intramural sports, no seating is required. To further support the physical education program and provide for after school programs, larger schools should have a smaller multi-purpose space.

ACPS offers formal physical education to middle school students daily on a rotating quarterly schedule. Intramural sports are offered each season and utilize both indoor and outdoor space. Fixed seating requirements should seat the entire school enrollment in bleachers. To further support the physical education program and provide for after school programs, larger schools should have a smaller multi-purpose space and a full locker room with individual showers.

Parking should be located near the gymnasium and a separate entrance should be provided for after school activities. Flexibility of space use is desired and designers should provide the ability to separate the gymnasium into two smaller gym stations during teaching periods.

Dining and Food Service. The dining space(s) should accommodate one-third of the projected student capacity each lunch period. The dining area(s) should be warm and inviting spaces with plenty of natural light, pleasant acoustics, and multiple seating choices. The furniture should be age appropriate and serving lines height sensitive which may require having two distinct areas for primary and intermediate students. It is proposed through creative design that dining area(s) should effectively house multiple functions including assemblies, community meetings, and potentially be utilized as learning areas.

For elementary schools, this educational specification recommends providing for two separate dining areas: one for the early childhood grades (PreK and K) and one for

grades one through five. The early childhood dining area should be located adjacent to the classrooms where it can also function as the ELA and an indoor play area in a fashion similar to the distributed dining concept. The dining area for grades one through five should be much larger and designed as a more traditional centralized cafeteria adjacent to the kitchen. The space should also include the school stage for performances. The key to a well-designed multi-purpose performance space is to consider the technology, acoustics, and layout very early in the design process. The architect should consider the room volume, configuration, technology requirements, acoustics, and general layout as it relates to the stage and kitchen. These key design points can then be further enhanced by the selection of materials and a well-designed audio system.

For middle school students, this educational specification recommends a more traditional, centralized dining space adjacent to the kitchen. This space will serve multiple functions and will also include a stage to host school performances. The architect should consider the room volume, configuration, technology requirements, acoustics, and general layout as it relates to the stage and kitchen. These key design points can then be further enhanced by the selection of materials and a well-designed audio system.

Food service is responsible for food preparation and delivery of food programs division wide. Food services facilities should provide appropriate space for both *‘scratch’* and *‘warming’* kitchens with appropriate equipment. Provide appropriate sized storage facilities to support healthy eating program offerings which include breakfast, bag meals, meals between bells, snacks, lunch, and supper.

Architects should consider serving and dining areas that incorporate composting and recycling facilities, homelike environmental qualities, breadth of flexible seating options, and design qualities that support visual and verbal communication between students and faculty.

Site. Site circulation should be organized for safety and efficiency. This should be accomplished through careful separation of vehicular traffic, including the separation of school buses, parents, and staff. Particular consideration should be given to providing safe passage to pedestrian traffic. Sufficient stacking space should be provided to prevent congestion of busy streets.

All play areas should be protected from vehicular and pedestrian traffic, so students can be assured of a safe and secure environment on the entire school site. Shading



elements should be considered along with an outdoor learning area and garden.

The Virginia Department of Education Guidelines recommend that each school

“site have areas that can be developed to provide the minimum number of play areas require for physical education.”

Alexandria school sites are urban in nature and most current and future sites cannot accommodate the recommendations outlined in the Guidelines for School Facilities in Virginia’s Public School. However, every elementary school site should accommodate non-structured or natural play areas as well as at least one playground. It is recommended that architects work with ACPS and RPCA to prioritize types of outdoor space development on a site-specific basis. Architects should endeavor to design new schools or future renovations in a way that will maximize available open space. Ideally, all elementary schools will be designed to accommodate one multiuse field play area that conforms to the state guidelines.

Site Management. Recreation, Parks, and Cultural Activities (RPCA) is a partnership program that utilizes shared ACPS facilities for afterschool programming. RPCA operates the majority of playing fields, courts, parks, and playgrounds adjacent to Alexandria schools. When funds are available to enhance the campus or grounds of the school, architects should coordinate and consider RPCA’s requirements towards playgrounds, courts, fields, and gymnasium spaces, per the joint ACPS/RPCA Facility & Outdoor Maintenance & Use agreement.

Parking and Transportation. ACPS recommends the minimum parking requirements based upon proposed capacity prototype. Actual parking requirements may be impacted by factors such as zoning, site constraints, absences or presence of other modes of transportation, etc. The architect must coordinate at time of design and it should be noted that ACPS offers incentives to encourage carpooling and the use of mass transit by staff.

DESIGN PRINCIPLES

The following section provides executive summaries of the guiding design principles that should be applied to each space within an ACPS school facility. Appendix B of this document includes expanded detailed guidance for some of the categories discussed here.

FURNITURE & EQUIPMENT

Classrooms vary in shape and size; therefore, the furniture should be flexible to accommodate a variety of classroom formats for both individual and group activities. Teachers and students should have storage space for personal belongings, papers, books, supplies, and teaching materials.



To the extent possible, movable furnishings should be used, rather than fixed casework, to provide flexibility for future reconfiguration. Furniture should be selected for its ergonomic traits, with consideration for variability and adjustability to support diverse learning styles. In middle schools, architects should consider full height private lockers in hallways for every student.

TECHNOLOGY

The facility should contain the latest in technology and infrastructure should be provided to support wireless access to data and video throughout the building. It is intended that access to technology will be seamless and pervasive throughout the building with only the minimal number of hard drops needed to support voice, teaching stations, and wall-mounted devices.

Technology infrastructure should support the concept that learning can happen anywhere by enabling a one-to-one student to device ratio and the notion of “bring your own device.” The specific tools and design guidance will be determined based on the best practices at the time of construction.

Every learning area should be wired for teacher audio enhancement. Research into this cutting-edge technology suggests that student learning can improve in classrooms where the teacher’s voice is amplified and the classroom acoustics are designed to support voice clarity.

UNIVERSAL DESIGN

The entire facility should be accessible for students, staff, and visitors. This should be accomplished through judicious use of ramping and elevators with sufficient internal clearances for circulation, convenient bus/van loading and unloading, and nearby handicapped parking spaces. All elements of the Americans with Disabilities Act must be complied with, including way finding and signage, appropriate use of textures, and universal accessibility of all indoor and outdoor school facilities.

SAFETY & SECURITY

ACPS wants to maintain an inviting and de-institutionalized environment, while simultaneously providing a safe environment for students, staff, and community. The organization of a building will have a major impact on student behavior and safety concerns. Architects should refer to Crime Prevention Thru Design (CPTED).

All school locations should include a double perimeter approach where every visitor is guided through a secure exterior door into a secure holding vestibule prior to gaining access to the main office. Visual access from the main office to the exterior vestibule is mandatory and every entrance to the school should have a CCTV IP camera. Consult with ACPS over the most current keying policy.

COMMUNITY USE AND PARTNERSHIPS

ACPS is pleased to have community and non-profit partners in its buildings offering valuable services and programs for students and families. Partnership programs and other regular community activities require shared, co-located and sometimes dedicated space that is internal to the school yet has the ability to operate beyond ACPS school hours. Extended hours of operation require the partnership programs and community activity area to have an entrance that can be separated from the main school. This allows partnership programs to operate independently of the school’s staffing requirements and provides the necessary security to protect the main school.

This secondary building entrance for after school program use should be visible to all spaces co-located in the community use and partnership area, specifically the gym and multipurpose rooms. This space will be utilized by after school programs for record keeping, registration transactions, secure money storage, and child pickup. During general school hours, partnership programs should function under ACPS’ security policies and use of secondary entrances should be restricted.

Program offerings are location dependent and include, but are not limited to:

- Tutoring
- Family and Community Education Centers
- Recreation, Parks & Cultural Activities
- Medicaid Therapy
- Campagna Center

Functions of these programs should be co-located with the ability to utilize standard classrooms, the gymnasium, multipurpose room and media center. It is also important to note that licensed programs have specific requirements that should be considered as a part of any plans to renovate or build new facilities. While the requirements are not onerous, failure to incorporate their consideration during the planning process can significantly constrain having access to such programs.

ACPS has a standing partnership with Alexandria City’s Department of Recreation, Parks, and Cultural Activities (RPCA) for the maintenance and after-school programming of fields. At several schools, RPCA operates after school and community programs in the gymnasium or multipurpose room; per the joint ACPS/RPCA Facility and Outdoor Maintenance and Use Agreement.

FAMILY AND COMMUNITY ENGAGEMENT CENTERS

ACPS serves a diverse community of families who have immigrated to the DC Metropolitan area from all over the world. It is understandable that newcomers to the school may be hesitant to engage staff and need additional support. The Division wants to establish Family and Community Education Centers (FACE) at each school to welcome families and provide the additional resources to help them succeed.

A typical FACE center would ideally be located near the main office and include a reception area with comfortable seating for individual conversations, table seating for meetings and classes, private offices, and storage.



PARENT TEACHER ASSOCIATIONS

Provide flexible use space to accommodate the mission and program offerings of the PTA group. PTAs meet on a monthly schedule, typically during the evening and have 30 to 35 participants in attendance. PTA meetings include

School Board Members, parents, and, on occasion, the Superintendent. The PTAs offer volunteer after-school programs that require access to standard, flexible classrooms, the gymnasium, the media center, and the cafetorium. Consider co-locating PTA with other partnership functions like the FACE center. PTA functions require dedicated storage space and direct interaction with the school’s main office suite and staff.

ENERGY & ENVIRONMENTAL PERFORMANCE

ACPS is dedicated to renovating existing or building new facilities that meet or exceed the City of Alexandria Eco-City standards and LEED environmental performance standards. ACPS desires to offer schools that teach faculty, staff, students and the community the importance of environmental stewardship. ACPS believes quality architecture and high energy performance facilities positively impact the education of students and increase retention of staff and students. At this time, city development standards require compliance with LEED Silver certification standards for major construction projects.

MATERIALS & FINISHES

ACPS believes high-quality architectural materials and finishes create an atmosphere that supports and inspires learning. All spaces should be conducive to teaching and provide a warm and welcoming feeling and meet the principles of Evidence Based Design (lighting, environmental / air quality, and acoustics). All materials must be highly durable and resilient yet support a creative learning environment. ACPS is cognizant that materials should be reasonable in cost and not exorbitant when considering budget and life-cycle costs of maintenance and upkeep. Balance is necessary to maintaining budget and achieving ACPS’ facility standards.

OPERATIONS & MECHANICAL

Provide mechanical systems that are climate appropriate and responsive to the life cycle, maintenance and efficiency expectations of ACPS. Provide passive systems that pair with active systems and coordinate to achieve maximum efficiencies while coordinating with the users to determine the location of universal and dedicated systems.

ELEMENTARY AND MIDDLE SCHOOL PROTOTYPES

The careful organization of programmatic components during early design phases is critical for the success of a future school program.

THE 700 STUDENT ELEMENTARY SCHOOL PROTOTYPE

There are two academic clusters in the 700 student prototype. A single main entry is a specific determination of ACPS's security plan and that entrance is supported by administration and family and community engagement center functions. Academic clusters are located in the quiet areas of the building that can be isolated during off-hours. Noisier and shared programmatic clusters are grouped toward parking, public and play areas and allow for after-hours access. Informal "break-out" or Extended Learning Areas happen throughout the building.

The number and size of support spaces and labs are driven by staffing formulas and national benchmarks. For new schools or the modernization/addition to an existing school, this information would inform a "site specific" educational specification.

THE 1200 STUDENT MIDDLE SCHOOL PROTOTYPE

There are three academic clusters in the 1200 student prototype. Academic clusters are positioned at the corners of a diamond-shaped plan with the fourth corner taken by the main entrance. A single main entry is a specific determination of ACPS's security plan and that entrance is supported by administration and family and community engagement center functions. Academic clusters are located in the quiet areas of the building that can be isolated during off-hours. At the middle school level, each academic cluster includes a per grade administrative suite. Noisier and shared programmatic clusters are grouped toward parking, public and play areas and allow for after-hours access. Informal "break-out" or Extended Learning Areas happen throughout the building.

The number and size of support spaces and labs are driven by staffing formulas and national benchmarks. For new schools or the modernization/addition to an existing school, this information would inform a "site specific" educational specification.

CHAPTER 4

MINI MASTER PLANS

EDUCATIONAL ADEQUACY ASSESSMENT

The mini master plans were developed based on an educational adequacy assessment that measured existing ACPS facilities against the educational specifications adopted by the School Board in January 2015 and outlined in Chapter 4.

The initial step in the evaluation process was to document existing conditions of building interiors. This assessment, conducted September 2013 — March 2014 by Hughes Group Architects (HGA), electronically gathered data on each school including square footages, light and acoustic levels and presence of technology. In fall 2014, the exterior school sites were assessed and documented including natural resources, parking, circulation, recreation features and utilities. This existing conditions information served as the baseline for the educational adequacy assessments supported by the project team of Studio27 and Brailsford and Dunlavey.

The educational adequacy assessment evaluated specific components of the school campus including individual instructional and support spaces, and provided an evaluation of projected school capacity and utilization. The areas of evaluation as well as the scoring methodology were based on an approach previously developed by the Council for Educational Facility Planners International (CEFPI).

Facility condition assessments evaluate the condition of building systems such as mechanical, electrical, plumbing and structural, through a on-site inspection by technical experts. This is recommended for all the facilities. ACPS is currently in the process of evaluating all the building conditions and the results from that effort should be combined with the recommendations of this report.

SCORING

Scoring for the site, building assessment, and individual spaces was conducted based on the percentage criteria met for each factor evaluated. The **rating categories** assigned to these scores were based on the ranges of scores shown in *Table 4.1*.

| Rating | Range | |
|-----------------|-------|------|
| Excellent | 89.5 | 100 |
| Satisfactory | 69.5 | 89.4 |
| Borderline | 49.5 | 69.4 |
| Inadequate | 29.5 | 49.4 |
| Very Inadequate | 0 | 29.4 |

Table 4.1

Scoring for building utilization was conducted based on projected enrollment through school year 2020 divided by the capacity. Capacity figures were established based on the quantity and size of teaching spaces established in the educational specifications.

Rating of building utilization included an upper and lower range, because both underutilization and overutilization of facilities is problematic. *Table 4.2* indicates the rating categories established for **building utilization**:

| Rating | Range | | | |
|-----------------|-------|------|---------|-------|
| Excellent | 100 | | | |
| Satisfactory | 90 | 99.9 | 100.001 | 110.0 |
| Borderline | 80 | 89.9 | 110.001 | 115.0 |
| Inadequate | 70 | 79.9 | 115.001 | 120.0 |
| Very Inadequate | 0 | 69.9 | 120.001 | 300.0 |

Table 4.2

Prioritization of the educational adequacy factors was undertaken via a tiered approach based on five groups of evaluation factors established by the LREFP subcommittee.

The 5 tier groups of evaluation factors are:

1. Safety
2. Capacity
3. Support of Educational Program
4. Enhancements to Learning Environment
5. Other

Each of the educational adequacy evaluation factors was assigned to a tier group and, when combined with the rating for that factor, is used to establish the relative priority of that factor. The priorities have been utilized to focus project recommendations for each school on issues that are most pertinent to ACPS and the City of Alexandria. *Table 4.3* clarifies how the rating and the tier result in a priority score for each factor evaluated.

The goal of this assessment is to provide an overall snapshot of the health of a school and provide guidance to the issues that may need to be addressed. The results of this analysis is summarized in the *At A Glance* table for each school and provided in detail in Appendix C.

| Rating | Tier | Priority |
|------------------------|--|----------|
| Very Inadequate | 1- Safety & Security | 1 |
| | 2- Capacity | 2 |
| | 3- Support of Educational Program | 3 |
| | 4- Enhancement to Learning Environment | 4 |
| | 5- Other | 5 |
| Inadequate | 1- Safety & Security | 6 |
| | 2- Capacity | 7 |
| | 3- Support of Educational Program | 8 |
| | 4- Enhancement to Learning Environment | 9 |
| | 5- Other | 10 |
| Borderline | 1- Safety & Security | 11 |
| | 2- Capacity | 12 |
| | 3- Support of Educational Program | 13 |
| | 4- Enhancement to Learning Environment | 14 |
| | 5- Other | 15 |
| Satisfactory | 1- Safety & Security | 16 |
| | 2- Capacity | 17 |
| | 3- Support of Educational Program | 18 |
| | 4- Enhancement to Learning Environment | 19 |
| | 5- Other | 20 |
| Excellent | 1- Safety & Security | 21 |
| | 2- Capacity | 22 |
| | 3- Support of Educational Program | 23 |
| | 4- Enhancement to Learning Environment | 24 |
| | 5- Other | 25 |

Table 4.3

SUMMARY OF DATA GATHERED FROM ALL SCHOOLS IN THE EDUCATIONAL ADEQUACY ASSESSMENT

| School Site | Average Priority of Site, Building Assessment and Individual Spaces | Average Utilization Score | Electric Usage in kwh (7-1-13/6-30-14) Per SF | Number of Maintenance Calls (7-1-13/6-30-14) Per SF |
|--------------------|---|---------------------------|---|---|
| Charles Barrett | 73 | 68 | 10.6 | 0.30 |
| Cora Kelly | 70 | 19 | 9.0 | 0.35 |
| Douglas MacArthur | 68 | 68 | 9.6 | 0.24 |
| George Mason | 61 | 73 | 7.7 | 0.22 |
| James K. Polk | 77 | 68 | 9.9 | 0.19 |
| John Adams | 82 | 85 | 7.7 | 0.17 |
| Lyles-Crouch | 60 | 84 | 7.2 | 0.30 |
| Matthew Maury | 66 | 72 | 7.9 | 0.14 |
| Mount Vernon | 53 | 73 | 9.6 | 0.28 |
| Samuel Tucker | 80 | 30 | 11.8 | 0.13 |
| William Ramsay | 58 | 74 | 5.7 | 0.16 |
| Francis C. Hammond | 61 | 66 | 9.2 | 0.09 |
| George Washington | 73 | 50 | 7.4 | 0.10 |

Table 4.4

AN OVERALL SUMMARY OF THE ELEMENTARY ASSESSMENTS IS OUTLINED BELOW

- All elementary schools (including Jefferson-Houston) are **currently** over capacity by a total of **290** students.
- In 2020, elementary schools will be over capacity by a total of **1,271** students.
 - In the east end: **457** (CB, GM, DM, CK, JH, LC, MV, MM)
 - In the west end: **814** (JKP, ST, JA, WR, PH)
- In 2020, the elementary level will need a total of **23** core classrooms (PK-5) to accommodate expected enrollment.
 - In the east end: **1** (CB, GM, DM, CK, JH, LC, MV, MM)
 - In the west end: **22** (JKP, ST, JA, WR, PH)
- Three elementary schools are **projected** to be over the maximum recommended size of 850 students. If capped at 850, 77 Polk students, 330 Adams students, and 148 Ramsay students (a total of **555 students**) will need to be served elsewhere.

| School Site | 2014 | Current Capacity | Current Utilization | 2020 Projections | Future Capacity | Projected Utilization | Future Net Room Surplus/ Deficit | Future Core Classroom Surplus/ Deficit |
|-------------------|--------------|------------------|---------------------|------------------|-----------------|-----------------------|----------------------------------|--|
| Charles Barrett | 458 | 428 | 107% | 512 | 524* | 98% | (4) | 2 |
| Cora Kelly | 341 | 429 | 79% | 409 | 429 | 95% | 3 | 5 |
| Douglas MacArthur | 708 | 554 | 128% | 772 | 554 | 139% | (11) | (6) |
| George Mason | 541 | 368 | 147% | 692 | 368 | 188% | (15) | (11) |
| James K. Polk | 704 | 660 | 107% | 927 | 756* | 123% | (13) | (4) |
| Jefferson-Houston | 444 | 800 | 56% | 553 | 800 | 69% | 6 | 6 |
| John Adams | 944 | 858 | 110% | 1,180 | 858 | 138% | (7) | (2) |
| Lyles-Crouch | 396 | 375 | 106% | 360 | 375 | 96% | (3) | 4 |
| Matthew Maury | 441 | 350 | 126% | 473 | 350 | 135% | (9) | (2) |
| Mount Vernon | 817 | 755 | 108% | 841 | 755 | 111% | (6) | 1 |
| Patrick Henry | 596 | 790 | 75% | 701 | 790 | 89% | - | - |
| Samuel Tucker | 750 | 620 | 121% | 780 | 620 | 126% | (3) | (7) |
| William Ramsay | 885 | 748 | 118% | 998 | 748 | 133% | (18) | (9) |
| ES Total | 8,025 | 7,735 | 104% | 9,198 | 7,927 | 138% | (80) | (23) |

*Future capacity includes 2 summer 2015 capacity projects at Barrett and Polk of 4 classrooms each

Table 4.5

AN OVERALL SUMMARY OF THE MIDDLE SCHOOL ASSESSMENTS IS OUTLINED BELOW

- At middle school, **currently** over capacity by a total of **113** students.
- In 2020, middle schools will be over capacity by a total of **685** students.
- If both middle schools are capped at the maximum ideal school size of 1200 students, there are **831** sixth through eighth graders to house.

| School Year | 2014 | Current Capacity | Current Utilization | 2020 Projections | Future Capacity | Projected Utilization | Future Net Room Surplus/ Deficit | Future Core Classroom Surplus/ Deficit |
|-------------------|--------------|------------------|---------------------|------------------|-----------------|-----------------------|----------------------------------|--|
| Francis Hammond | 1,436 | 1,396 | 103% | 1,832 | 1,396 | 131% | 6 | (1) |
| George Washington | 1,223 | 1,150 | 106% | 1,399 | 1,150 | 122% | (15) | (11) |
| MS Total | 2,659 | 2,546 | 104% | 3,231 | 2,546 | 127% | (9) | (12) |

Table 4.6

MINI MASTER PLAN ORGANIZATION

Each mini-master plan has four main features:

1. At A Glance Table
2. Narrative describing the results of the analysis
3. Recommendations and Cost Estimates
4. School attendance boundary, context and proposed future conceptual design

The recommendations section is divided into required planning, first and second priorities, and long range recommendations — and is intended to be a menu of options for the School Board’s consideration during the development of the Capital Improvement Program. The conceptual design shown in each plan is only one visual representation of how to potentially accommodate the future growth. This drawing is intended to be illustrative only.

The cost estimates provided are based on implementing the suggested master plan in its entirety and in certain

cases, breaks out costs for renovation versus new construction (additions). These are conceptual cost estimates, based on the one option illustrated in the mini-master plans and are subject to change. Future costs will be affected by market conditions. Priorities must be balanced with fiscal resources. Further evaluation of existing conditions may recommend modifications to the plans as shown. Projects and cost estimates will be reevaluated and refined through the development of the capital improvement budget which occurs annually.

Table 4.7 defines the information contained in each plan’s **At A Glance** section. Each table contains information on the existing building and site (year built, current floor area, lot size, floor area ratio), zoning (zoning, floor area permitted by zoning) and educational adequacy (school site, building assessment, instruction & support spaces, and utilization).

| <i>AT A GLANCE...</i> | | | |
|---|---|---|---|
| <i>Year Built</i> | <i>Current Floor Area</i> | <i>Lot Size (acres)</i> | <i>Floor Area Ratio</i> |
| Year school was built | Current square footage of the building | The size of the lot in acres. | Gross Floor Area/Lot Size |
| <i>Zoning</i> | <i>Floor Area Permitted by Zoning (SF)</i> | <i>Core Classroom Surplus/Deficit (2020)</i> | <i>Total Program Square Feet (2020)</i> |
| Zone or zones in which the property lies. | Floor area permitted by the zoning code | Number of core classrooms needed as determined by the assessment. | Total program square feet (includes core spaces, encore and core classrooms) needed as determined by the assessment. |
| <i>School Site</i> | <i>Building Assessment</i> | <i>Instructional & Support Spaces</i> | <i>Utilization</i> |
| Evaluated site circulation, size and appropriateness of play areas | Organization of the building, technology and supporting infrastructure | Size of classrooms, loose and fixed furnishings, lighting, acoustics and air quality | Required spaces per the educational specifications compared against existing spaces |

Table 4.7

CHARLES BARRETT ELEMENTARY SCHOOL

1115 Martha Custis Drive, Alexandria, VA 22302

| AT A GLANCE... | | | |
|--|--|--|---|
| <i>Year Built</i> 1949 | <i>Current Floor Area</i> 62,760 (school) 9,800 (rec center) | <i>Lot Size (acres)</i> 5 | <i>Core Classroom Surplus/Deficit (2020)</i> +2 (includes 2015 capacity project) |
| <i>Zoning</i> R-B (006.01-03-01) | <i>Floor Area Permitted by Zoning (SF)</i> 113,061 | <i>Floor Area Ratio</i> 0.75 | <i>Total Program Surplus/Deficit (Sq. Ft.) (2020)</i> -4,756 |
| POS (006.01-03-01) | 0 | 0.0 | N/A |
| <i>School Site</i> Satisfactory | <i>Building Assessment</i> Satisfactory | <i>Instructional & Support Spaces</i> Satisfactory | <i>Projected Utilization (2020)</i> 98% |

BACKGROUND

Charles Barrett Elementary School was built in 1949. The 1997 addition of a media center is the only major renovation the school has undergone since its establishment. The building shares a gymnasium and play fields with the adjacent Charles Barrett Recreation Center.



In 2014, Charles Barrett's enrollment was 458 students with a measured capacity of 428. Enrollment projections indicate the school population will increase to a student body of 512 by the year 2020.

The academic curriculum at Charles Barrett includes reading, language arts, mathematics, social studies, and science and also offers:

- Music instruction once a week
- Art instruction once a week
- Band and orchestra beginning in 4th grade
- Two physical education classes a week
- Family life instruction at age-appropriate levels
- English as a second language classes
- Special education programs
- TAG pull out program
- Talented and Gifted program for grades K-5¹

STUDENT ENROLLMENT (# OF STUDENTS)

| | 2014 | 2020 Projection |
|-------------------|------------|--------------------|
| Enrollment | 458 | 512 |
| Capacity | 428 | 524* |

| Color | Enrollment as % of Capacity | |
|-------|-----------------------------|-----------------------------|
| | 100% and below | Fully or underutilized |
| | 101% to 120% of capacity | Substantially over capacity |
| | Above 120% of capacity | Extremely over capacity |

* includes summer 2015 capacity project

KEY FINDINGS

SUMMARY

The data collected through this assessment reveals Charles Barrett Elementary School meets 73 percent of the educational adequacy benchmarks for an ideal 21st century elementary school.

- The majority of classrooms did not meet the minimum size requirements.
- Core and specialty classrooms are not equipped with appropriate storage furnishings.

¹<http://www.acps.k12.va.us/barrett>

SCHOOL SITE

| SITE DATA | |
|----------------------------------|---|
| <i>Steep Slopes</i> | <i>Steeper slopes in outfall channel and around open fields</i> |
| <i>Playgrounds</i> | 3 |
| <i>Recreation Features</i> | <i>Ball fields, open fields, recreation center</i> |
| <i>Resource Protection Areas</i> | None |
| <i>Parking</i> | 42 |
| <i>Storm Water Management</i> | <i>Flow through planter boxes & bioretention</i> |



The school site received a satisfactory rating. The school's site circulation rated borderline due to conflicts between vehicular and pedestrian traffic patterns. The kiss-and-ride, school bus lane, and pedestrian traffic all access the school from the same point of entry. This causes significant congestion on the main street near the school's front entrance during peak times. A study is recommended to determine whether the drop-off location can be relocated or reconfigured.

INSTRUCTIONAL AND SUPPORT SPACES

The most urgent items in this section are classroom capacity and HVAC mechanical issues.

Overall, the instructional and support spaces ranked satisfactory. **All spaces failed to meet appropriate size requirements.** The measured average classroom size for grades one through five is 775 square feet rather than the desired 900 square feet needed to provide a flexible learning environment. The majority of resource rooms and specialty classrooms are not only too small, but also lacked the necessary equipment, furniture, fixed infrastructure, and storage. The overall size of specialty classrooms is approximately 56 percent smaller than the square foot minimums detailed in the educational specifications. A renovation is recommended to right-size core and specialty classrooms.

The school has significant deficiencies with air temperature and classrooms lack individual temperature controls. Occupants deal with major temperature fluctuations from season-to-season.

Instructional classrooms do not have individual student desks and therefore do not support diverse learning styles or flexible seating arrangements. The student and teacher program furniture, which includes shelving, cabinets, wardrobes, and cubbies, is either not adequate or non-existent in most classrooms.

BUILDING ASSESSMENT

The school's capacity is below satisfactory primarily because the core classrooms, specialty classrooms, and administrative spaces all fail to meet the required size. Most classrooms at Charles Barrett have the technology infrastructure and tools required to support a 21st century learning environment. The third, fourth, and fifth grade classrooms are not organized in grade level clusters as required by the educational specifications. There are no defined extended learning areas adjacent to the classrooms to allow for flexible and alternate teaching or break-out groups. Additionally, shared spaces, including the gym, art room, and cafeteria, are not centrally located as required. The recommended renovation will address deficiencies in classroom size as well as provide extended learning areas.

RECOMMENDATIONS

Charles Barrett must be expanded and reconfigured to meet the recommended size requirements and key organizational adjacencies. This analysis assumes the four classroom addition currently scheduled for construction summer 2015.

GROUP 1 — REQUIRED PLANNING

- **Site** assessment to determine whether the drop-off location for the school can be relocated/reconfigures (based on property boundaries, setbacks, etc.). It will also help inform opportunities for additional parking.
- **Assess** HVAC and mechanical issues through the facility condition assessment.

GROUP 2 — FIRST PRIORITY

- **Reconfigure** the spaces within the existing school to meet the recommended size requirements for individual academic spaces as outlined in the educational specifications (\$24.5M).
- **Demolish** the existing north wing and build an addition to the school to meet recommended size requirements and key organizational adjacencies outlined in the educational specifications (\$4.3M).

GROUP 3 — SECOND PRIORITY

- **Provide** additional storage for teachers and students as well as an upgrade to the furniture, fixtures and equipment.
- **Equip** all classrooms with individual climate controls.

GROUP 4 — LONG RANGE RECOMMENDATIONS

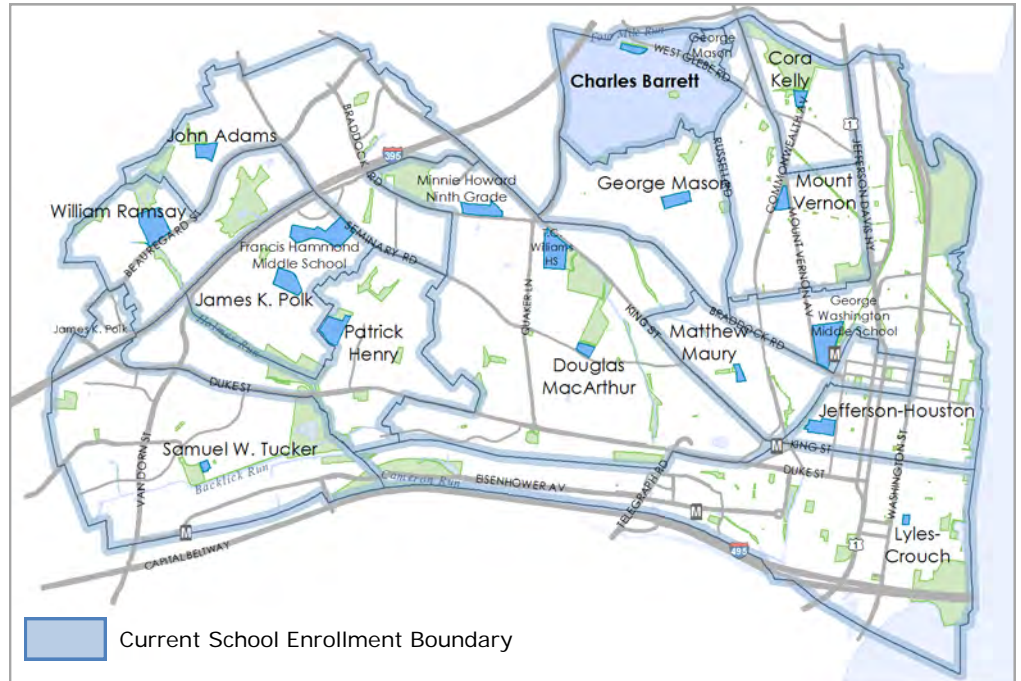
- **Reconfigure**, based on the site assessment, the vehicular circulation to reduce potential conflicts with pedestrians.
- **Upgrade** the recreation fields to meet the standards.

CONCEPTUAL COST ESTIMATES

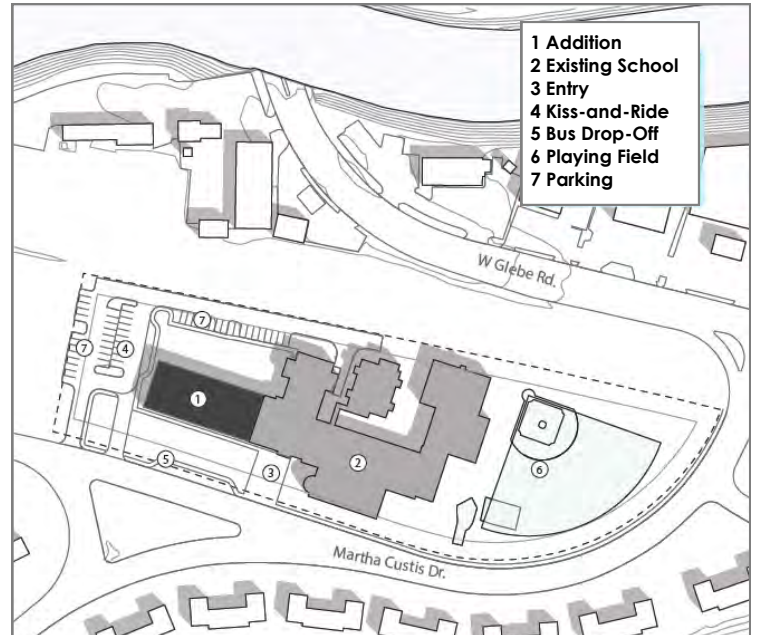
- **Total Renovation, Excluding the Rec Center — \$24.5M (\$309/SF) includes:**
 - All new mechanical, HVAC, plumbing, electrical and window systems
 - New food service and A/V equipment for auditorium, cafeteria and classrooms and sufficient classroom storage
 - New interior walls, floors and ceilings
- **Addition — \$4.3M (\$388/SF) includes:**
 - Replacement of existing Kindergarten pod
- **Complete master plan construction- \$28.8M (\$319/SF) includes:**
 - 15% contingency and 17% fees, insurance, etc.

Barrett is not currently in the modernization program per the FY 2016-2025 CIP; however, a four classroom addition will be built in summer 2015. Additional renovations, additions or the complete master plan project will be evaluated based on ACPS priorities and funding constraints during the development of future CIPs.

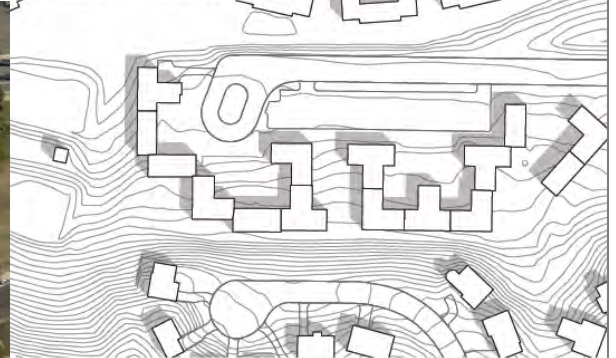
CHARLES BARRETT ELEMENTARY SCHOOL



Neighborhood Context



School site looking north across Martha Custis Drive.

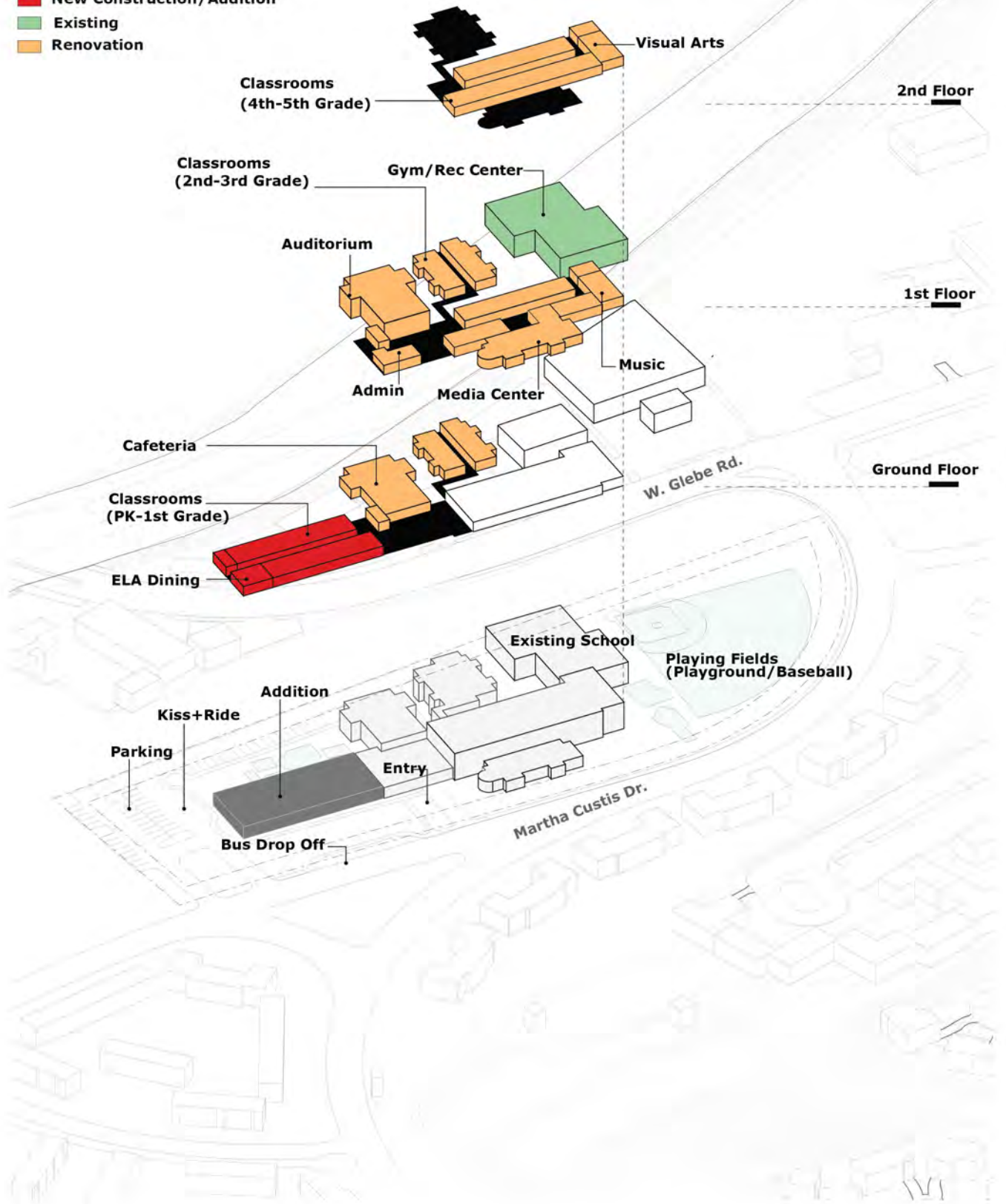


Master Plan concept showing school addition.

Charles Barrett

Conceptual Master Plan

- New Construction/Addition
- Existing
- Renovation



CORA KELLY ELEMENTARY SCHOOL

3600 Commonwealth Avenue, Alexandria, VA, 22305

| AT A GLANCE... | | | |
|--|---|--|---|
| <i>Year Built</i> 1955 | <i>Current Floor Area</i> 69,000 (school) 25,840 (rec center) | <i>Lot Size (acres)</i> 4.5 | <i>Core Classroom Surplus/Deficit (2020)</i> 5 |
| <i>Zoning</i> R-B (015.02-09-01) | <i>Floor Area Permitted by Zoning (SF)</i> 148,255 | <i>Floor Area Ratio</i> 0.75 | <i>Total Program Surplus/Deficit (Sq.Ft.) (2020)</i> 10,500 |
| POS (007.04-09-04) | 0 | 0.0 | |
| <i>School Site</i> Satisfactory | <i>Building Assessment</i> Inadequate | <i>Instructional & Support Spaces</i> Satisfactory | <i>Projected Utilization (2020)</i> 95% |

BACKGROUND

Cora Kelly Elementary School was built in 1955 and shares a gymnasium with the adjacent to the Cora Kelly Recreation Center. Enrollment projections indicate the school's population will increase to 409 students by year 2020.



The academic curriculum includes reading, language arts, mathematics, social studies, and science and also offers:

- Guided Math with personalize instruction meeting individual needs of students
- Core subject matter is integrated within encore classes (i.e. art, library, music and physical education)
- Science & computer labs are provided for students to help develop science and technology literacy.¹

STUDENT ENROLLMENT (# OF STUDENTS)

| | 2014 | 2020 Projection |
|-------------------|-------------|----------------------------|
| Enrollment | 341 | 409 |
| Capacity | 429 | 429 |

| Color | Enrollment as % of Capacity | |
|-------|-----------------------------|-----------------------------|
| | 100% and below | Fully or underutilized |
| | 101% to 120% of capacity | Substantially over capacity |
| | Above 120% of capacity | Extremely over capacity |

KEY FINDINGS

SUMMARY

Based on the data collected through this assessment, Cora Kelly meets 70 percent of the educational adequacy benchmarks for an ideal 21st century elementary school.

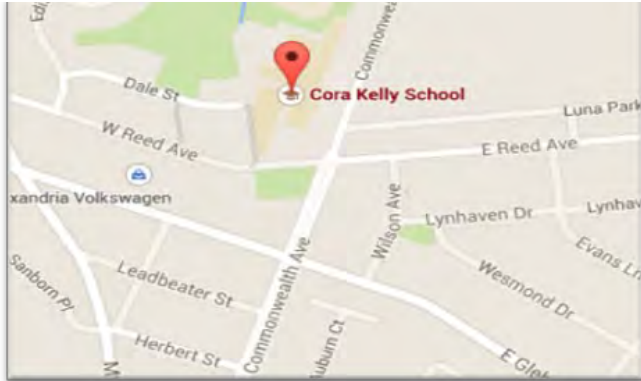
HIGH PRIORITY ITEMS

- Core classrooms are generally under-sized and lack air temperature controls.
- The building's technology and supporting infrastructure, also earning a score of inadequate, must provide basic capabilities such as wireless internet access and ample supply of electrical outlets for teaching devices.

¹<http://www.acps.k12.va.us/kelly>

SCHOOL SITE

| SITE DATA | |
|----------------------------------|---|
| <i>Steep Slopes</i> | <i>Steep slopes to offsite channel around open fields</i> |
| <i>Playgrounds</i> | 3 |
| <i>Recreation Features</i> | <i>Playground, adjacent natural area</i> |
| <i>Resource Protection Areas</i> | None |
| <i>Parking</i> | 85 |
| <i>Storm Water Management</i> | <i>Bio-retention, multiple storm inlets</i> |



Based on the assessment, the school site received a satisfactory rating. The site circulation is the main area of concern for this section. The school's kiss-and-ride and bus lane are not separated and all vehicles access the same driveway in front of the school. Additionally, some of the primary pedestrian routes are not separated from vehicular traffic, as required.

The existing school building was partially constructed in the adjacent park (POS zone). Any future projects should consider rectifying this property boundary issue.

INSTRUCTIONAL AND SUPPORT SPACES

While the instructional and support spaces ranked satisfactory. **Core classrooms fail to meet size requirements.** The measured average size for pre-kindergarten and kindergarten class is 810 instead of the desired 1,025 square feet. The measured average size for grades one through five is 741 instead of the desired 900 square feet. Collectively, only three of the twenty-four classrooms, or thirteen percent, meet the recommended size requirement. A renovation is recommended to right-size the core classrooms.

The core classrooms do not have individual student desks and therefore do not support flexible seating arrangements. Very few of the core classrooms have restrooms within the classroom or shared with an adjacent room, as specified. These rooms also lack individual temperature controls and

occupants deal with major temperature fluctuations from season-to-season.

The specialty classrooms and shared spaces generally have adequate square footage, but they typically lack adequate storage, fixed equipment, and infrastructure. The rooms are missing two teaching walls and sound enhancement equipment. There are very few classrooms with teacher desks and personal storage equipment. In general, the student and teacher program furniture (e.g. shelving, cabinets, wardrobes, and cubbies) is either not adequate or non-existent in most classrooms.

BUILDING ASSESSMENT

The building component of the educational adequacy assessment revealed an inadequate rating. The technology infrastructure and tools are not capable of serving a 21st century learning environment as defined in the educational specifications. Electrical outlets are not present in multiple locations along classroom and corridor walls. The clocks and PA system throughout the building are not integrated, nor are the clocks digital, as desired. Additionally, there is limited wireless connectivity in the hallways and corridors. Finally, the school does not provide wireless bandwidth at a one-to-one student-to-device ratio.

The other two sub-sections of the building assessment did not score much higher. Both building organization and accessibility earned a borderline rating. The building organization rating is due to the lack of distinct academic clusters and extended learning areas (ELAs) throughout the building. The building's configuration allows for after-hours access without compromising the school's security. Lastly, the building's accessibility is poor because the only handicapped access to the second floor is by a stair lift.

RECOMMENDATIONS

While Cora Kelly can meet the projected enrollment within the existing building, reconfiguration is required to achieve the standards in the educational specifications. Because it is under capacity, there is an opportunity to address capacity issues in adjacent districts. Additionally, there are site considerations and ADA projects that should be considered.

GROUP 1 — REQUIRED PLANNING

- **Site assessment** to determine whether all pedestrian circulation routes can be separated from vehicular traffic as recommended in the education specifications.
- **Explore** the feasibility of installing an elevator near the main entry to address the existing ADA accessibility issue.
- **Assess** building condition comprehensively through a facility condition assessment

GROUP 2 — FIRST PRIORITY

- **Reconfigure** the existing building to ensure the core classrooms meet the recommended size requirements outlined in the educational specifications (\$19.1M).

GROUP 3 — SECOND PRIORITY

- **Equip** all classrooms and support spaces with individual climate control.
- **Equip** all core classrooms, corridors and support spaces with additional electrical receptacles as required.
- **Provide** additional storage for teachers and students should be integrated into the reconfigured classrooms as well as an upgrade to furniture, fixtures and equipment.
- **Equip** all classrooms with two teaching walls.

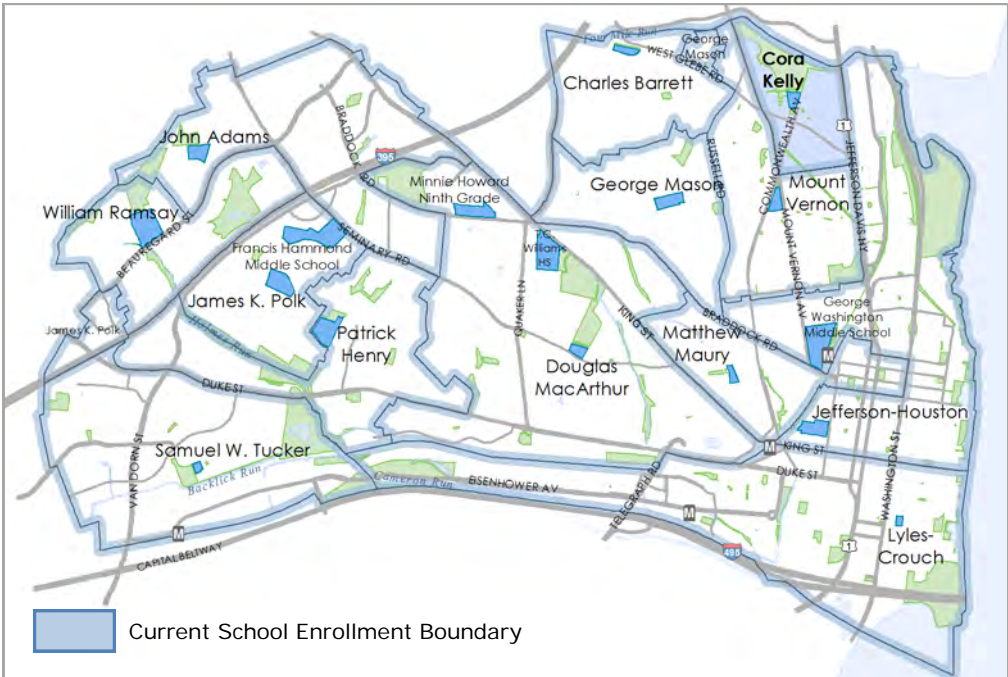
GROUP 4 — LONG RANGE RECOMMENDATIONS

- **Combine** circulation routes and parking with adjacent recreation center to improve efficiency.

CONCEPTUAL COST ESTIMATES

- **Complete master plan construction — \$19.1M (\$275/SF) includes:**
 - 15% contingency and 17% fees, insurance, etc., (*excludes* the rec center in 2015 dollars)
 - All new mechanical, plumbing, electrical and window systems
 - New food service and a/v equipment for auditorium, cafeteria and classrooms
 - New interior walls, floors and ceilings

In the FY 2016-2025 School Board CIP, Cora Kelly is budgeted to receive a modernization and addition beginning in FY 2019 based on division-wide capacity needs. The construction budget for that project is currently \$20,145,000 and includes a capacity component.



**CORA KELLY
ELEMENTARY SCHOOL**



Neighborhood Context



School site looking west across Commonwealth Avenue

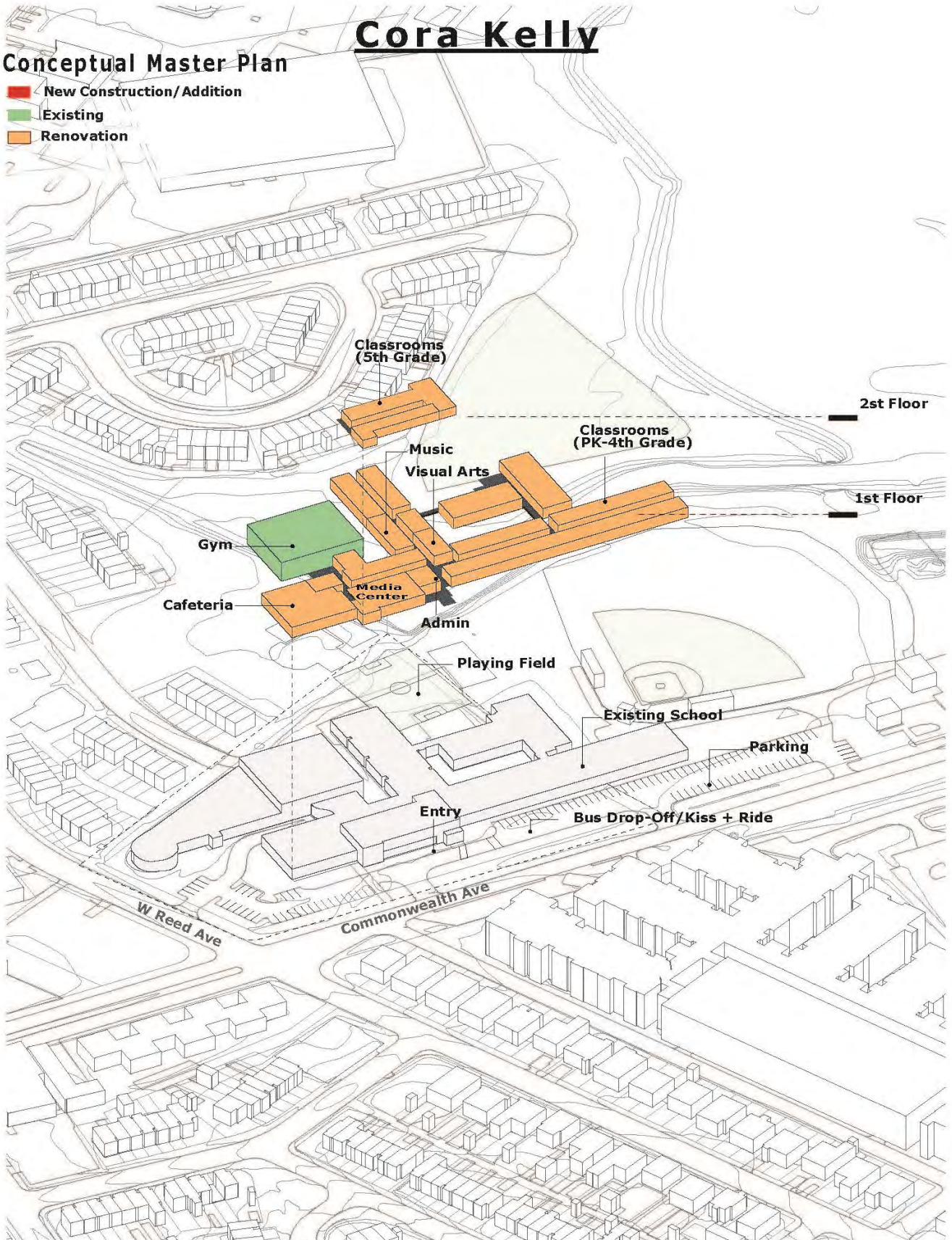


Master Plan Concept with renovation within current footprint

Cora Kelly

Conceptual Master Plan

- New Construction/ Addition
- Existing
- Renovation



DOUGLAS MACARTHUR ELEMENTARY SCHOOL

1101 Janneys Lane, Alexandria, VA 22302

| AT A GLANCE... | | | |
|--|---|--|--|
| <i>Year Built</i> 1942 | <i>Current Floor Area</i> 56,098 | <i>Lot Size (acres)</i> 4.4 | <i>Core Classroom Surplus/Deficit (2020)</i> -6 |
| <i>Zoning</i> R12 (051.02-03-16) | <i>Floor Area Permitted by Zoning (SF)</i> 57,000 | <i>Floor Area Ratio</i> 0.3 | <i>Total Program Surplus/Deficit (Sq.Ft.) (2020)</i> -19,970 |
| <i>School Site</i> Satisfactory | <i>Building Assessment</i> Borderline | <i>Instructional & Support Spaces</i> Borderline | <i>Projected Utilization (2020)</i> 139% |

BACKGROUND

Douglas MacArthur Elementary School was built in 1942 predominantly for children of the Naval Torpedo Plant workers living in Chinquapin Village. The school has undergone a number of renovations with a minor one occurring in 2008. The existing school is adjacent to Forest Park.



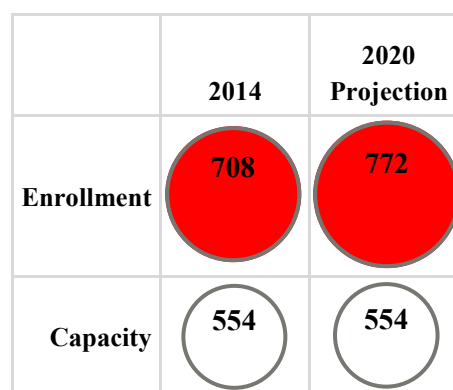
In 2014, Douglas MacArthur had an enrollment of 708 students with a capacity of 554 students. By 2020, enrollment is expected to increase by 9.5 percent to 772 students.

The academic curriculum at MacArthur includes reading, language arts, mathematics, social studies, and science and also offers:

- Art instruction once per week
- Two physical education classes per week
- Global Art on a Timeline
- Habits of the Mind and Character Counts
- Family life instruction at age-appropriate levels
- Band and orchestra beginning in 4th grade
- Vocal music instruction once per week
- Visiting science teacher
- Weekly library visits
- Talented & Gifted program for grades K-5
- ELL program for students learning English as a second language
- Opportunity to participate in numerous after school programs¹

¹<http://www.acps.k12.va.us/macarthur>

STUDENT ENROLLMENT (# OF STUDENTS)



| Color | Enrollment as % of Capacity | |
|------------|-----------------------------|-----------------------------|
| Light Blue | 100% and below | Fully or underutilized |
| Orange | 101% to 120% of capacity | Substantially over capacity |
| Red | Above 120% of capacity | Extremely over capacity |

KEY FINDINGS

SUMMARY

With a score of 68 percent, the site assessment completed for Douglas MacArthur rates this school as borderline on the educational adequacy benchmark.

High Priority Issues

- The school will be significantly over capacity by 2020. The major issues in the school are the classroom sizes, need for additional storage areas and temperature controllability.

SCHOOL SITE

| SITE DATA | |
|----------------------------------|--|
| <i>Steep Slopes</i> | <i>Rolling slopes</i> |
| <i>Playgrounds</i> | <i>4</i> |
| <i>Recreation Features</i> | <i>Playgrounds, basketball court, synthetic turf field, open fields.</i> |
| <i>Resource Protection Areas</i> | <i>No</i> |
| <i>Parking</i> | <i>59</i> |
| <i>Storm Water Management</i> | <i>No existing BMPs</i> |



The assessment of this school site resulted in a satisfactory rating. The school is lacking a student drop-off area with sufficient room for cars to stack and the pedestrian pathways are not adequately separated from vehicular traffic. There are significant drainage issues that have caused flooding and deterioration of the north wing of the school.

INSTRUCTIONAL AND SUPPORT SPACES

The instruction and support space assessment ranked borderline. Items contributing to this low score include classroom size, internal organization, loose furnishings, and air quality.

The majority of classrooms were below the minimum square footage requirement. The desired square footage for a kindergarten classroom is 1,025, however, at Douglas MacArthur; the average for this grade level was 961 square feet. First through fifth grade classrooms require 900 square feet but the average at this school is 742 square feet. **The overall capacity of the instructional classrooms is only 69 percent of their ideal square foot size (per student) as detailed in the educational specifications.**

The lack of controllable lighting and air temperature were borderline for both core and specialty classrooms. Although most core instructional classrooms contained appropriate equipment, infrastructure and acoustics.

However, several core classrooms lack natural daylight. The specialty classrooms were lacking in lighting and temperature controls as well as adequate storage and an interactive electronic device.

BUILDING ASSESSMENT

MacArthur received a borderline rating in the assessment of building accessibility and technology and support infrastructure. Some technology inadequacies include: lack of wireless internet for students at a 1:1 ratio, lack of electrical outlets in classrooms and hallways, and an integrated clock and public announcement system.

Building organization received a satisfactory score due to the lack of extended learning for first through third grade clusters. Public visitor restrooms were not available at MacArthur.

RECOMMENDATIONS

Because of the building condition and the interior configuration, a total school replacement is recommended to rectify the deteriorating building condition and to accommodate the projected future enrollment. A new building, sized to accommodate the 2020 projections, will likely exceed the FAR allowed under the current zoning.

GROUP 1 — REQUIRED PLANNING

- **Site** assessment to determine an appropriate drop-off location for the school with sufficient stacking room and separated from buses and pedestrians (based on property, boundaries, setbacks, etc.).
- **Assess** building condition comprehensively through a facility condition assessment

GROUP 2 — FIRST PRIORITY

- **Consider** a total school replacement. This should address additional square footage supporting projected utilization and address deficient key organizational adjacencies while maximizing open space at the existing site (\$37.0M).

GROUP 3 — SECOND PRIORITY

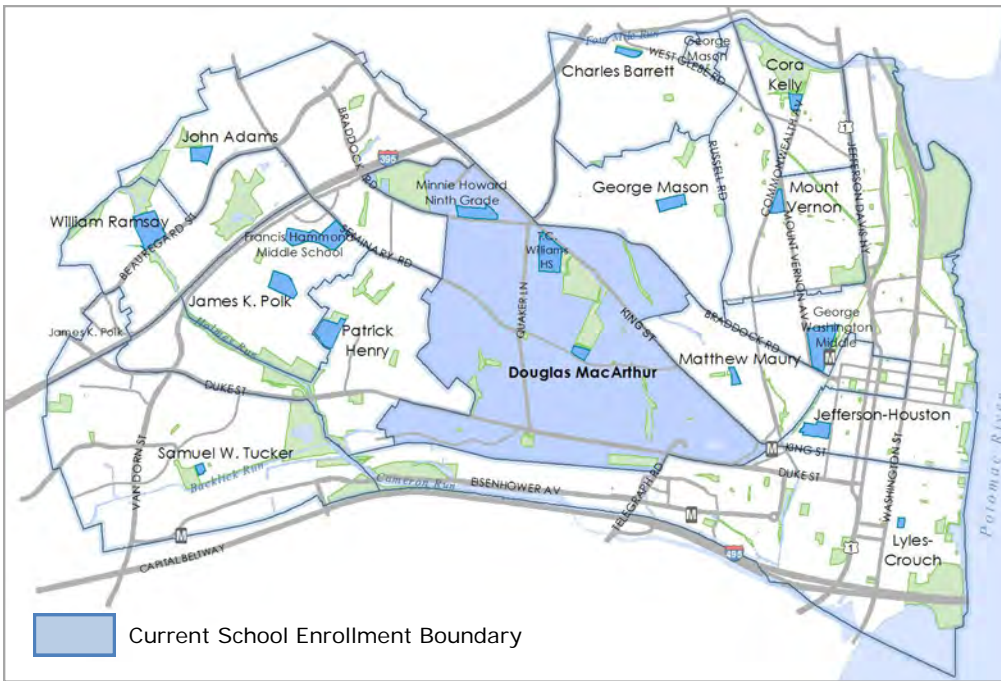
- **Equip** all core classrooms and support spaces with wall mounted interactive devices.
- **Provide** integrated storage for teachers and students in the reconfigured classrooms.
- **Equip** all classrooms and support spaces with individual climate and lighting controls.

GROUP 4 — LONG RANGE RECOMMENDATIONS

CONCEPTUAL COST ESTIMATES

- **Complete master plan construction- \$37.0M (\$405/SF) in 2015 dollars**
 - Total demolition of existing building
 - Grading for new building, parking and fields
 - Storm water management, landscaping, site lighting
 - New recreation features including basketball courts, playing field and playgrounds
 - All new mechanical, plumbing, electrical systems
 - New interior walls, floors and ceilings
 - Two new elevators
 - New food service and a/v equipment for gymnasium, cafeteria and classrooms

In the FY 2016-2025 School Board CIP, Douglas MacArthur is slated to receive a modernization and capacity addition beginning in FY 2017. The construction budget for that project is currently \$28,000,000.



DOUGLAS MACARTHUR ELEMENTARY SCHOOL



Neighborhood Context



School site looking north across Janneys Lane

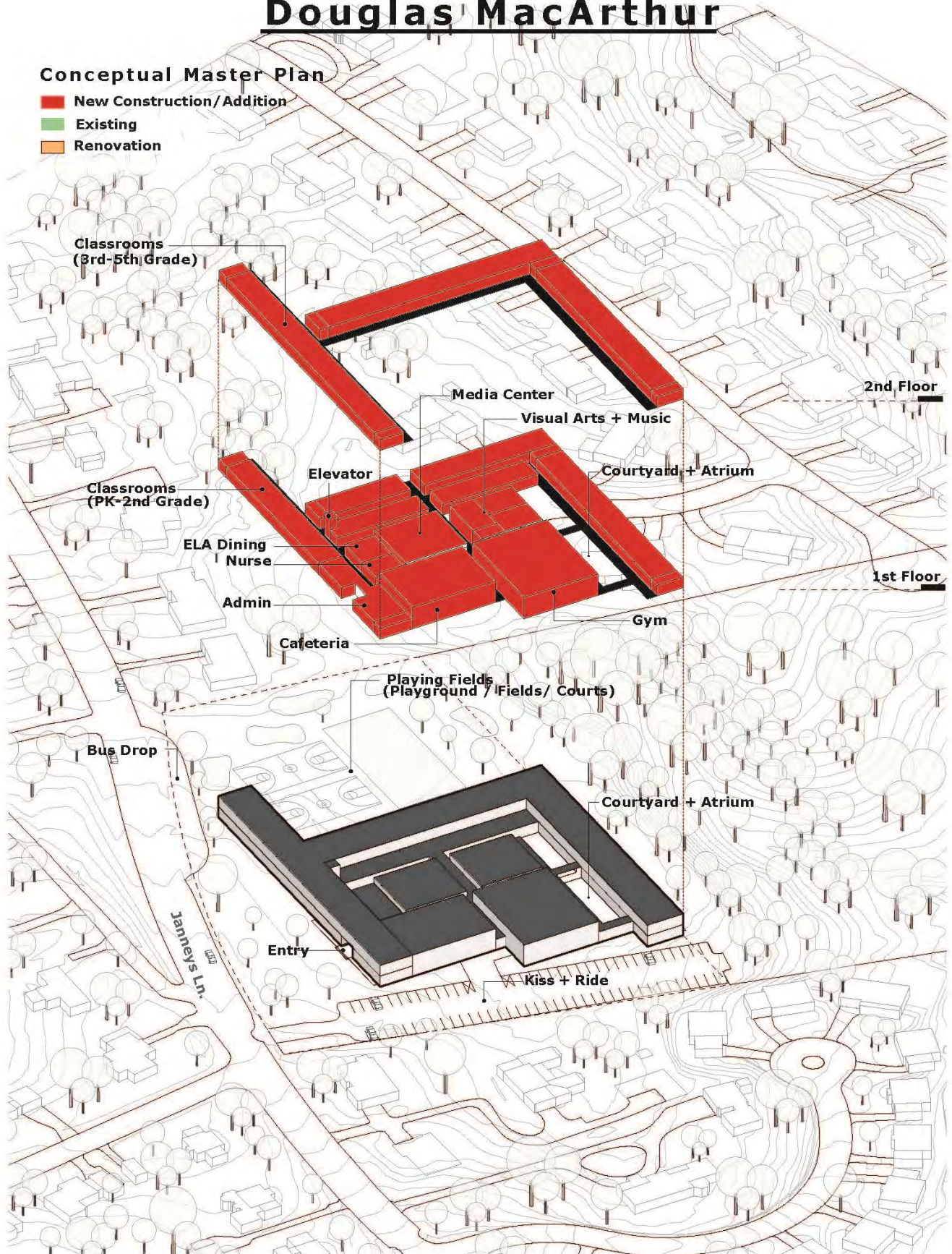


Master Plan Concept
School Replacement

Douglas MacArthur

Conceptual Master Plan

- New Construction/Addition
- Existing
- Renovation



GEORGE MASON ELEMENTARY SCHOOL

2601 Cameron Mills Road, Alexandria, VA 22302

| <i>AT A GLANCE...</i> | | | |
|--|--|--|--|
| <i>Year Built</i> 1939 | <i>Current Floor Area</i> 65,291 | <i>Lot Size (acres)</i> 9.4 | <i>Core Classroom Surplus/Deficit (2020)</i> -11 |
| <i>Zoning</i> R-8 (023.04-10-20) | <i>Floor Area Permitted by Zoning (SF)</i> 142,552 | <i>Floor Area Ratio</i> 0.35 | <i>Total Program Surplus/Deficit (Sq.Ft.) (2020)</i> -21,994 |
| <i>School Site</i> Borderline | <i>Building Assessment</i> Borderline | <i>Instructional & Support Spaces</i> Borderline | <i>Projected Utilization (2020)</i> 188% |

BACKGROUND

George Mason Elementary School was built in 1939 and has undergone two major renovations, in 1949, and 1977. Other minor renovations occurred in 1988, 1997, and 2005. In 2014, the school underwent a substantial expansion which included enlarging the cafeteria, adding two courtyards and four new classrooms. The school has a total square footage of 65,291 over the span of two floors.



In 2014, George Mason had an enrollment of 541 students and a measured capacity of 368 students. By 2020, the enrollment is expected to increase to 692 students.

The academic curriculum at George Mason includes reading, language arts, mathematics, social studies, and science and also offers:

- Art instruction once per week
- Vocal and instrumental music lessons beginning in 4th grade
- Two physical education classes per week
- Family life instruction at age-appropriate levels
- Special education programs
- Talented and Gifted programs for grades K-5
- ELL program for those learning English as a second language
- Opportunity to participate in numerous after school programs¹

STUDENT ENROLLMENT (# OF STUDENTS)

| | 2014 | 2020 Projection |
|-------------------|------------|-----------------|
| Enrollment | 541 | 692 |
| Capacity | 368 | 368 |

| Color | Enrollment as % of Capacity | |
|-------|-----------------------------|-----------------------------|
| | 100% and below | Fully or underutilized |
| | 101% to 120% of capacity | Substantially over capacity |
| | Above 120% of capacity | Extremely over capacity |

KEY FINDINGS

SUMMARY

The data collected through this assessment revealed that George Mason Elementary School meets 61 percent of the educational adequacy benchmarks for an ideal 21st century elementary school.

- The school will be severely over capacity lacking space for nearly 324 students in 2020.
- Classrooms are undersized and lack of fixed equipment and infrastructure, and poor acoustics.

¹<http://www.acps.k12.va.us/mason>

SCHOOL SITE

| SITE DATA | |
|----------------------------------|--|
| <i>Steep Slopes</i> | <i>Relatively flat with steeper slopes down to natural channels</i> |
| <i>Playgrounds</i> | <i>2</i> |
| <i>Recreation Features</i> | <i>Playground, tennis courts, asphalt play area, baseball and open fields.</i> |
| <i>Resource Protection Areas</i> | <i>None</i> |
| <i>Parking</i> | <i>19</i> |
| <i>Storm Water Management</i> | <i>Flow-thru planter boxes, multiple riprap channels and inlets</i> |



George Mason is not equipped with a dedicated vehicular traffic drop-off and pick-up area for students and visitors. The school bus lane and the kiss-and-ride are not separated. Buses and cars park on the public road in front of the school to drop-off and pick-up students. The play areas, located behind the school, are in a good location and connect to a few pedestrian foot paths. The school does not have outdoor learning areas.

George Mason is bordered on one side by a church which serves as a temporary parking lot for staff and visitors during the week. Although the size of the lot is adequate, it is not located near the school's main entrance, nor is it owned by the school.

INSTRUCTIONAL AND SUPPORT SPACES

The school is suffering from a significant shortage of classrooms which is compounded by the fact that the recommended ratio of square feet per student is not met.

The overall quality of the core classrooms is borderline. The core, specialty, and shared spaces do not meet the minimum square footage requirements and lack individual temperature and lighting controls. There is not adequate storage for the students and teachers.

The average core classroom size for pre-kindergarten and kindergarten is 877 rather than the suggested 1,025 square

feet. The measured average classroom size for grade one through five is 686 square feet rather than the desired 900 square feet needed to provide a flexible learning environment. The overall capacity of specialty classrooms and small support rooms is approximately 29 percent smaller than that square foot minimums detailed in the educational specification.

Most rooms do not have full control of the HVAC system and multiple occupants noted there are issues with humidity. Several of the specialty classrooms did not have an interactive electronic presentation device.

BUILDING ASSESSMENT

Roughly half the classrooms at George Mason do not have the technology infrastructure and tools to support a 21st century learning environment. Overall, the school does not meet the division's expectations for small learning environments and key adjacencies. The current spatial layout requires all students and staff to walk through the Media Center in order to access the music room or art room.

The shared programmatic spaces are not centrally located. This does not allow for ease of access from the core academic classrooms. The building is organized in grade level clusters, but there are no extended learning areas or collaborative learning spaces within these areas.

RECOMMENDATIONS

In order to meet the educational specifications, the school requires interior reconfiguration and an addition. Overall, it would be beneficial to demolish portions of the existing structure and reconfigure.

GROUP 1 — REQUIRED PLANNING

- **Evaluation** of the site analysis information will accurately determine whether the drop-off location for the school can be relocated/reconfigured (based on property boundaries, setbacks, etc.).
- **Analyze** existing building conditions to determine if partial demolition is a more cost effective option to renovation.

GROUP 2 — FIRST PRIORITY

- **Improve** overall operational efficiency by demolishing and reconfiguring portions of the existing structure attain the additional square footage will also be required to support the projected utilization (\$40.9M).

GROUP 3 — SECOND PRIORITY

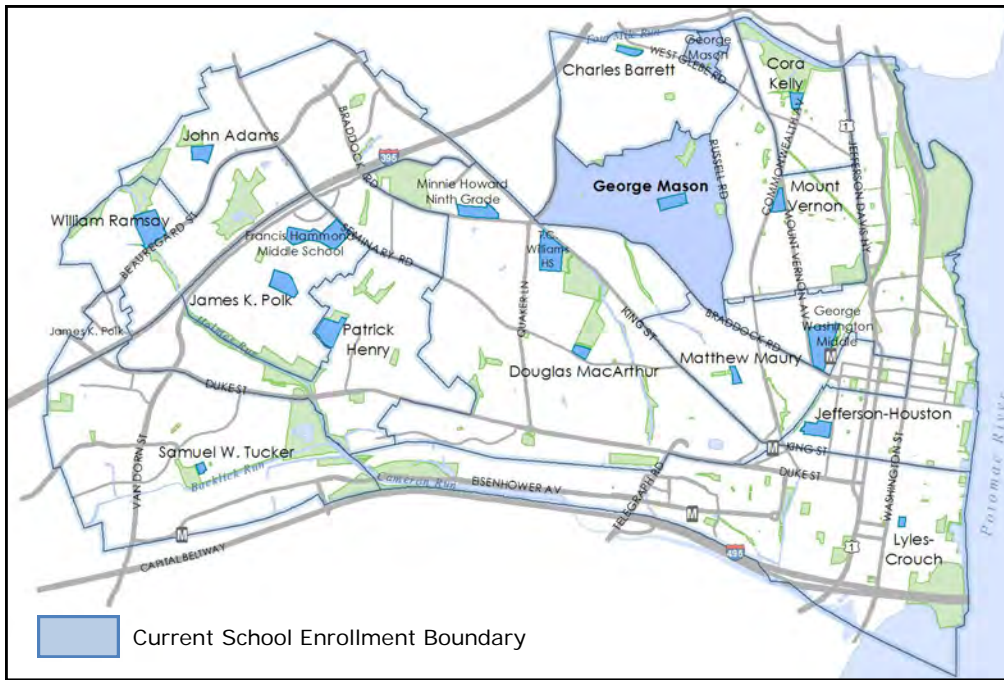
- **Equip** all classrooms and support spaces with individual climate controls, variable lighting controls, and technological equipment and infrastructure.
- **Provide** additional storage for teachers and students in the reconfigured classrooms.
- **Upgrade** the furniture, fixtures and equipment as many classrooms do not have the required millwork necessary for the teaching environment.

GROUP 4 — LONG RANGE RECOMMENDATIONS

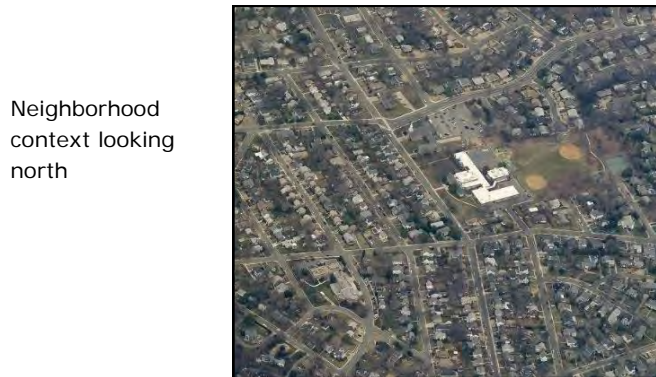
CONCEPTUAL COST ESTIMATES

- **Complete master plan construction- \$40.9M (\$418/SF) in 2015 dollars:**
 - 15% contingency
 - 17% other fees, insurance, etc.
 - New 80,000 SF addition
 - New food service and a/v equipment for auditorium, cafeteria and classrooms
 - New windows
 - All new mechanical, plumbing, electrical systems
 - Two new elevators
- **Renovation of 18,000SF of the existing building including (admin and cafeteria):**
 - Rehabilitation of the existing façade portions to remain
 - New interior walls, floors and ceilings
 - Security, fire alarm and IT/data system
 - Exterior improvements including playgrounds, site lighting, landscaping, basketball courts, soccer field, and storm water management.

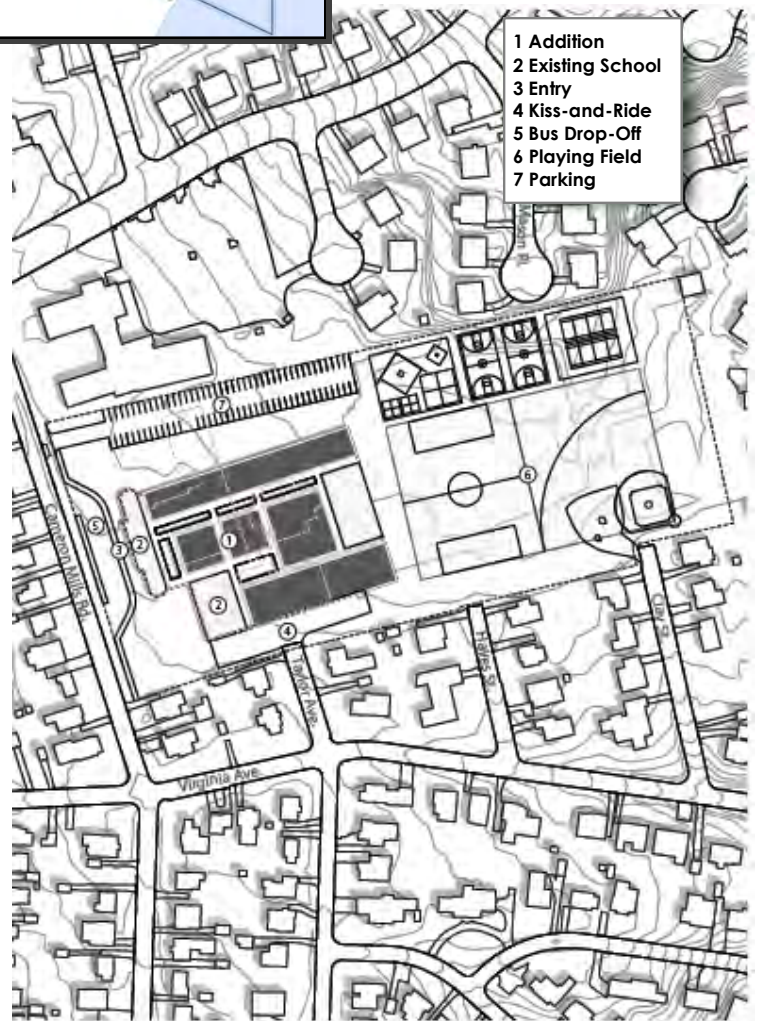
In the FY 2016-2025 School Board CIP, George Mason is slated for renovation, without capacity, beginning in FY 2021. The construction budget for that project is currently \$13,222,510, because it does not include additional capacity.



GEORGE MASON ELEMENTARY SCHOOL



Neighborhood context looking north



Master Plan Concept
Potential Addition

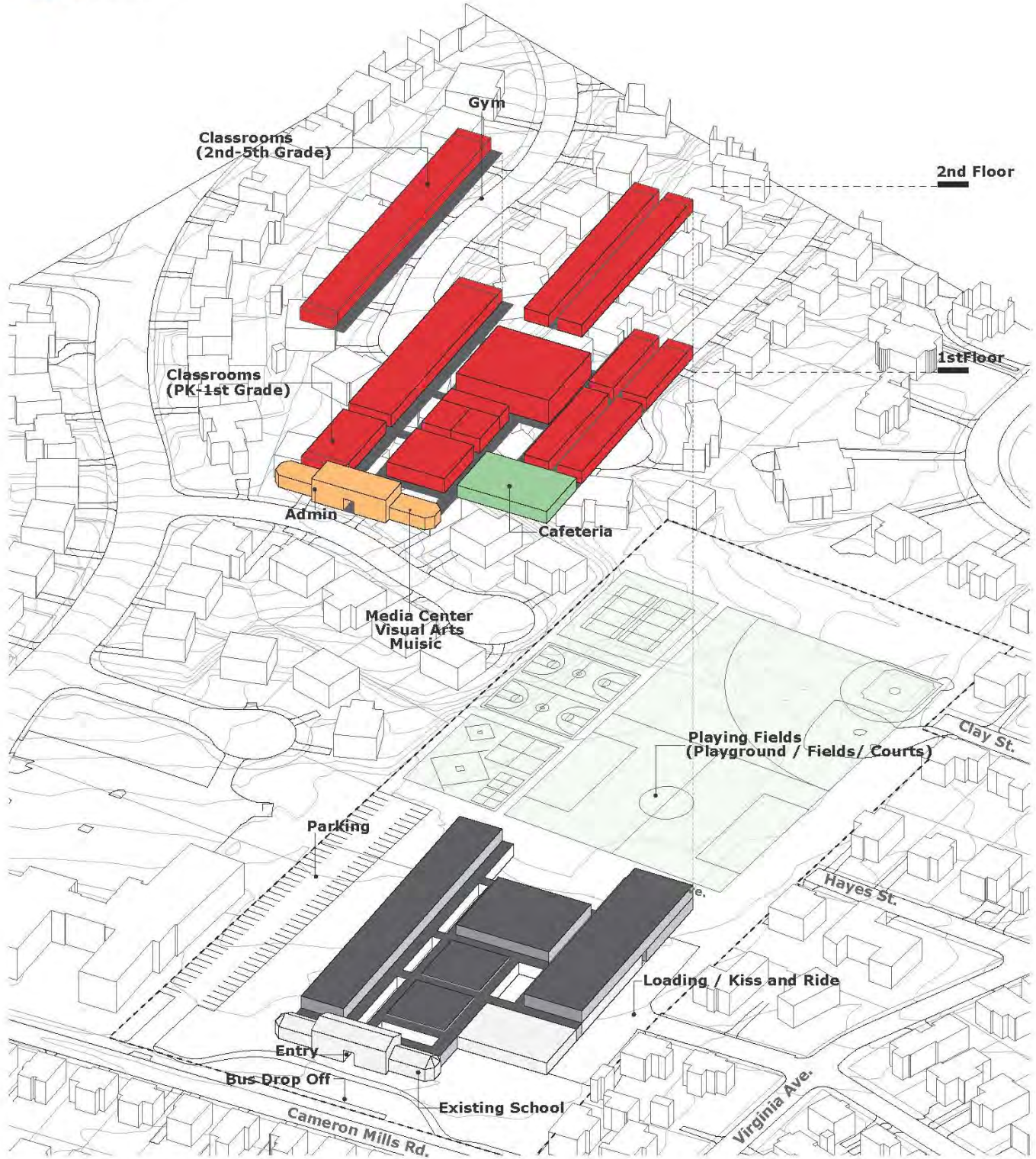


School site looking east across Cameron Mills Road. Note: This image does not reflect construction completed in Summer 2014.

George Mason

Conceptual Master Plan

- New Construction/Addition
- Existing
- Renovation



JAMES K. POLK ELEMENTARY SCHOOL

5000 Polk Avenue, Alexandria, VA, 22304

| <i>AT A GLANCE...</i> | | | |
|--|--|--|---|
| <i>Year Built</i> 1965 | <i>Current Floor Area</i> 83,230 | <i>Lot Size (acres)</i> 13.5 | <i>Core Classroom Surplus/Deficit (2020)</i> -4 (includes 2015 capacity project) |
| <i>Zoning</i> R12 (039.01-01-01) | <i>Floor Area Permitted by Zoning (SF)</i> 128,041 | <i>Floor Area Ratio</i> 0.30 | <i>Total Program Surplus/Deficit (Sq.Ft.) (2020)</i> -16,929 |
| R20 (039.01-01-01) | 40,250 | 0.25 | |
| <i>School Site</i> Satisfactory | <i>Building Assessment</i> Satisfactory | <i>Instructional & Support Spaces</i> Satisfactory | <i>Projected Utilization (2020)</i> 123% |

BACKGROUND

James K. Polk Elementary, built in 1965, sits on a 13.5 acre site. The school expansion in 1994 included a new library, main office, music room, and secure main entrance. In February 2010, Polk received a new gymnasium that was



predominantly pre-fabricated off-site. During the summer of 2011, Polk added four new classrooms using the same modular approach and four more are planned for construction in summer 2015.

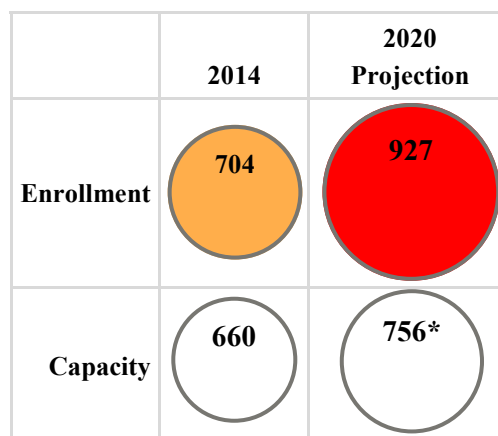
In 2014, James K. Polk had an enrollment of 704 students and a measured capacity of 660 students. By 2020, the school should increase to 927 students. The existing school capacity will not accommodate the increase of students, the school will be over-utilized, and the projected enrollment will exceed the recommended maximum school size of 850 for elementary schools.

The academic curriculum at James Polk includes reading, language arts, mathematics, social studies, and science and also offers:

- Art instruction once per week
- Two physical education classes per week
- Family life instruction at age-appropriate levels
- Band and orchestra beginning in 4th grade
- Vocal music instruction once per week
- Talented & Gifted program for grades K-5
- 3, 4, and 5th grade Keyboarding
- TAG Pullout program
- Special education programs ¹

¹<http://www.acps.k12.va.us/polk>

STUDENT ENROLLMENT (# OF STUDENTS)



| Color | Enrollment as % of Capacity | |
|--------|-----------------------------|-----------------------------|
| Blue | 100% and below | Fully or underutilized |
| Orange | 101% to 120% of capacity | Substantially over capacity |
| Red | Above 120% of capacity | Extremely over capacity |

* includes summer 2015 capacity project

KEY FINDINGS

SUMMARY

Based on the data collected through this assessment, James K. Polk meets 77 percent of the educational adequacy benchmarks for an ideal 21st century elementary school. The school has a satisfactory rating in all sections except for utilization.

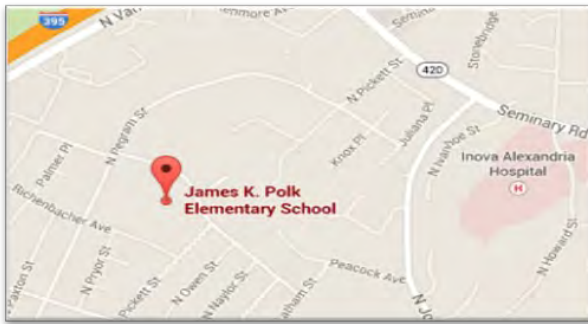
Besides utilization, there are still other areas of concern that this report will address.

HIGH PRIORITY ITEMS

- Core classrooms are under-sized and lack sufficient quantity to meet the projected enrollment.
- Shared spaces are significantly under-sized.

SCHOOL SITE

| SITE DATA | |
|----------------------------------|--|
| <i>Steeper Slopes</i> | <i>Steeper slopes on the open spaces</i> |
| <i>Playgrounds</i> | 2 |
| <i>Recreation Features</i> | <i>Multiple gathering areas. Basketball courts, baseball field, play areas and open field.</i> |
| <i>Resource Protection Areas</i> | <i>No RPAs. Adjacent natural area</i> |
| <i>Parking</i> | 35 |
| <i>Storm Water Management</i> | <i>Multiple BMPs. Vegetated roof, planter boxes, vegetated swale.</i> |



James K. Polk earns a satisfactory rating on its school site assessment. The school meets all the requirements for site circulation and play areas.

INSTRUCTIONAL AND SUPPORT SPACES

The instructional and support spaces at this school earn a satisfactory rating. The highest priority item for this section is the measured size of the shared spaces. **None of the shared spaces meet the educational adequacy size requirements for a school of this size.** The most undersized is the gymnasium.

The second highest priority item for this section is the measured size of the core and specialty classrooms. The average size of a kindergarten classroom is 823 square feet instead of the desired 1,025 square feet. The average size of a first through fifth grade classroom is 785 square feet instead of the desired 900 square feet.

Additional issues include lack of adequate natural light and proper fixed equipment in the shared spaces. Most of the shared spaces do not have the adequate marker boards, interactive presentation devices or sound enhancement

technology. Natural light is also lacking in the specialty classrooms. The temperature in most classrooms is acceptable but individual temperature controls are not present as required. The items discussed above need attention and an interior renovation and an addition are recommended to right-size existing classroom and provide more classrooms to accommodate the projected enrollment.

BUILDING ASSESSMENT

The building assessment resulted in a satisfactory rating. The school does not have all of its shared programmatic spaces appropriately clustered and located away from the academic areas. In addition, there are no extended learning areas present in the building.

The technology infrastructure earned a low score because the school lacks a judicious supply of electrical receptacles in classrooms and main corridors. Additionally, the clocks and PA system throughout the building are not integrated, nor are the clocks digital, as desired. Finally, there is limited wireless connectivity in the hallways and corridors and the school does not provide wireless bandwidth at a one-to-one student-to-device ratio.

RECOMMENDATIONS

The school will be over capacity by 2020 and will exceed the recommended size for an elementary school. In order to accommodate the projected enrollment, a significant addition and interior renovation is required. Consideration should be given to accommodating the projected increase in enrollment at another location due to the overall school size.

GROUP 1 — REQUIRED PLANNING

- **Explore** a new west end elementary school to alleviate the over enrollment.
- **Assess** building condition comprehensively through a facility condition assessment.

GROUP 2 — FIRST PRIORITY

- **Reconfigure** existing instructional, shared and support spaces to meet the recommended size requirements outlined in the educational specifications (\$22.1M).

GROUP 3 — SECOND PRIORITY

- **Equip** all core classrooms, corridors and support spaces with additional electrical receptacles as required, and all classrooms with two teaching walls.
- **Equip** all classrooms and support spaces with individual climate control.
- **Additional** storage for teachers and students should be integrated into the reconfigured classrooms as well as an upgrade to furniture, fixtures and equipment.
- **Upgrade** the building technology equipment and infrastructure to meet the educational adequacy standards.

GROUP 4 — LONG RANGE RECOMMENDATIONS

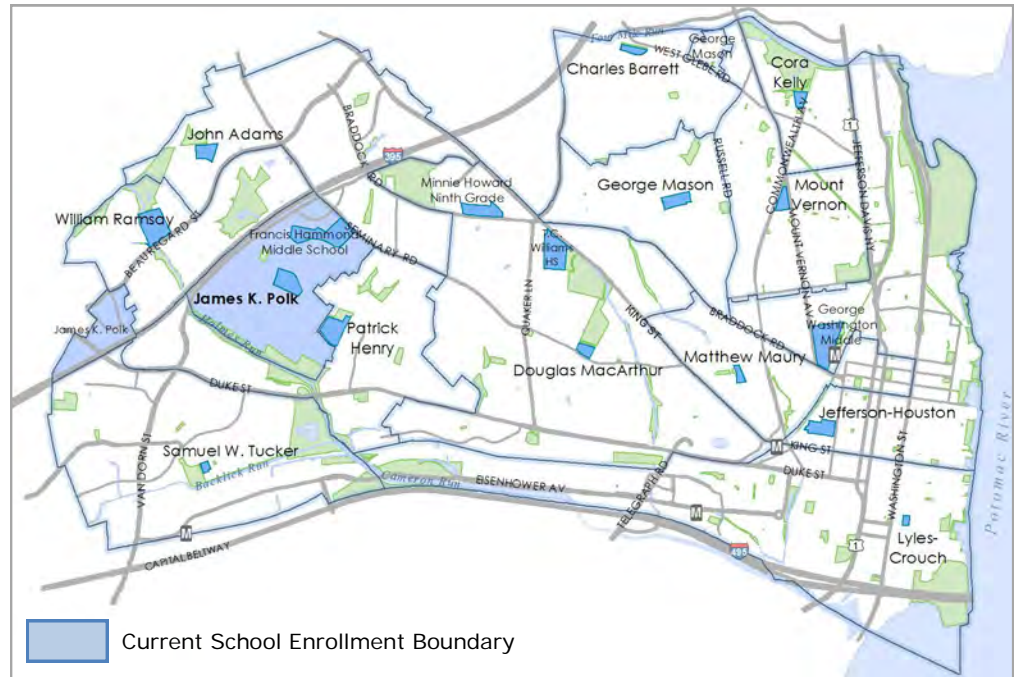
- **Resize** the gymnasium to meet the standards required for the size of the student population.
- **Explore** the feasibility of an expansion to attain additional instructional square footage required to support the projected enrollment if a decision is made to exceed the recommended size for an elementary school or if alternatives cannot be determined.

CONCEPTUAL COST ESTIMATES

- **Complete Master Plan Construction \$34.2M (in 2015 dollars)**
 - 15% contingency
 - 17% other fees, insurance, etc.
- **New 38,000 SF addition (\$12.1M) including:**
 - Demolition of existing pod to be replaced
 - Relocation and expansion of the gymnasium
- **Total renovation of existing building (\$22.1M) including:**
 - All new mechanical, plumbing, electrical and window systems
 - New food service and a/v equipment for auditorium, cafeteria and classrooms
 - New interior walls, floors and ceilings

Polk is not currently in the modernization program per the FY 2016-2025 CIP; however, a four classroom addition will be built in summer 2015 and a ten classroom addition is scheduled beginning in FY 2016. The construction budget for that project is currently \$4.8M. Additional renovations, additions or the complete master plan projects will be evaluated based on ACPS priorities and funding constraints during the development of future CIPs.

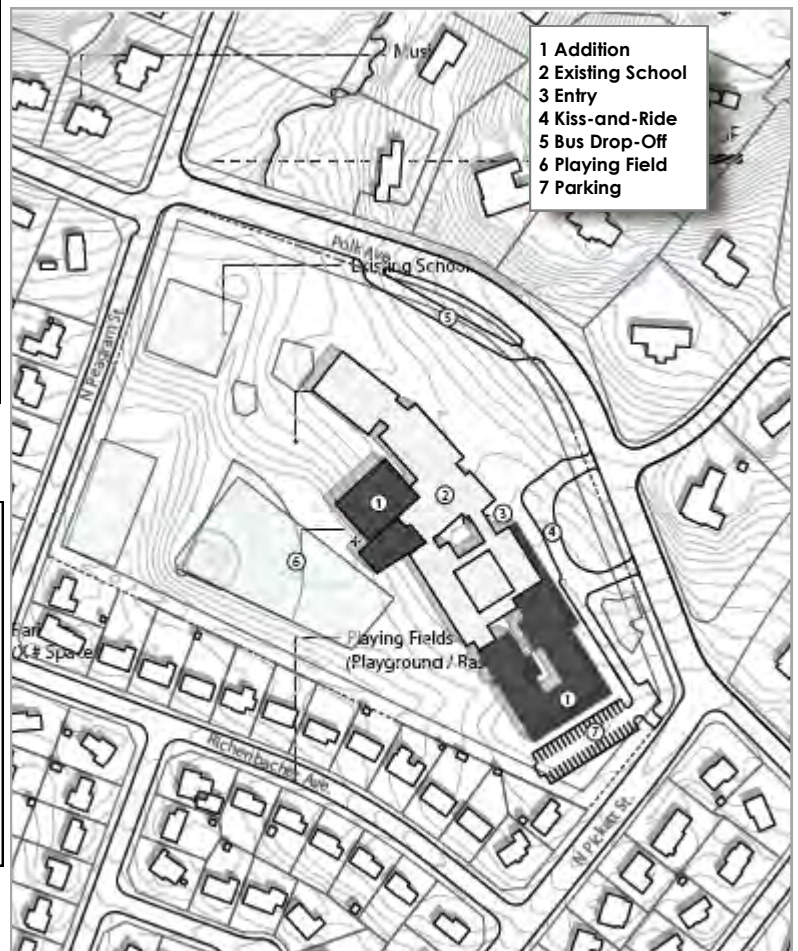
JAMES K. POLK ELEMENTARY SCHOOL



Neighborhood context looking north. Patrick Henry Elementary School is at lower right.



School site looking west across Polk Avenue

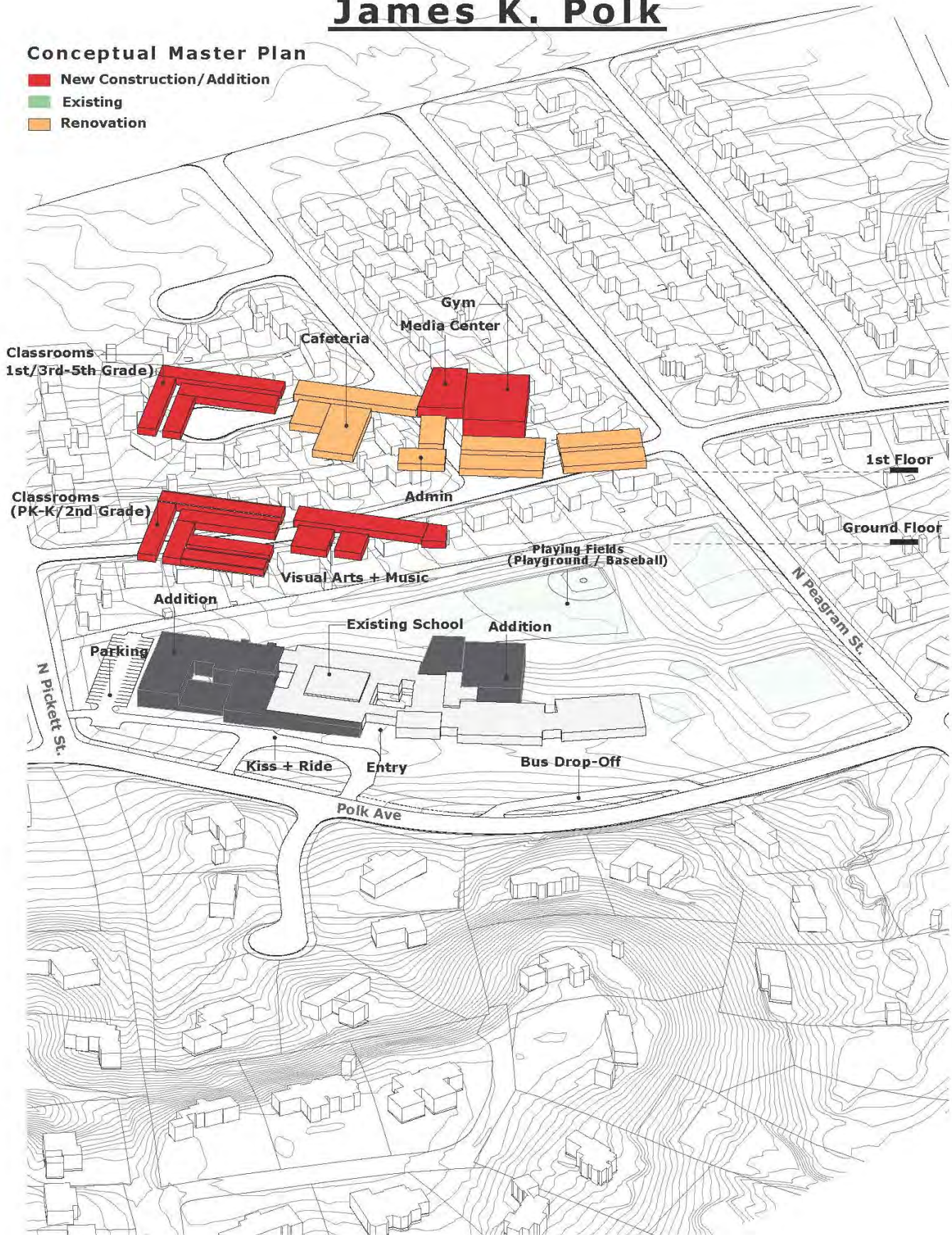


Master Plan concept showing potential additions

James K. Polk

Conceptual Master Plan

- New Construction/Addition
- Existing
- Renovation



JEFFERSON-HOUSTON SCHOOL

1501 Cameron Street, Alexandria, VA 22314

AT A GLANCE...

| | | |
|---------------------------|--|--|
| <i>Year Built</i> | <i>Current Floor Area</i> | <i>Floor Area Permitted by Zoning (SF)</i> |
| 2014 | 124,000 (school) Durant Center (15,358) Old Town Pool (5,336) | 241,705 |
| <i>Zoning</i> | <i>Lot Size (acres)</i> | <i>Floor Area Ratio</i> |
| RB (064.03-01-01) | 7.4 | 0.75 |
| POS (064.03-01-01) | 2.9 | 0.0 |

Jefferson-Houston was not included in the educational adequacy analysis because it opened in September 2014.

BACKGROUND

Jefferson-Houston School was built in 2014. The building includes a full size gymnasium, a white box theater, and a distributed dining operation instead of a traditional cafeteria.



Adjacent to the school is the City of Alexandria's Durant Center, Old Town Pool and Buchanan Park.

The new building includes:

- 10 early-childhood classrooms
- 21 classrooms for first- through eighth-grade students
- Full-size gymnasium
- Synthetic turf playing field
- Play areas and structure for all grade levels
- Green features that are on target for LEED Silver designation

SCHOOL SITE

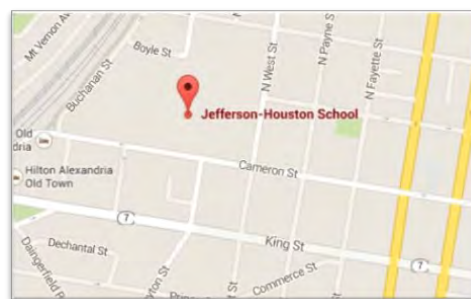
Jefferson-Houston has a full-size athletic turf field, playgrounds, and an outdoor learning garden. Adjacent City recreation features include:

- Buchanan Park, located behind the Old Town Pool, has a playground that is accessible throughout the day.
- Durant Center, home of the Alexandria Commission for the Arts, provides space for community rehearsals, performances, special events, meetings and arts focused classes.
- Old Town Pool is a 25-yard pool with a diving well and separate training pool for small children.

STUDENT ENROLLMENT (# OF STUDENTS)

| | 2014 | 2020 Projection |
|-------------------|-------------|----------------------------|
| Enrollment | 444 | 553 |
| Capacity | 800 | 800 |

| Color | Enrollment as % of Capacity | |
|--------|-----------------------------|-----------------------------|
| Blue | 100% and below | Fully or underutilized |
| Orange | 101% to 120% of capacity | Substantially over capacity |
| Red | Above 120% of capacity | Extremely over capacity |



RECOMMENDATION

Because this is the newest ACPS facility, it is recommended to reassess in 10 years.

JOHN ADAMS ELEMENTARY SCHOOL

5651 Rayburn Avenue, Alexandria, VA 22311

| <i>AT A GLANCE...</i> | | | |
|---|--|--|---|
| <i>Year Built</i> 1967 | <i>Current Floor Area</i> 143,290 | <i>Lot Size (acres)</i> 7.9 | <i>Core Classroom Surplus/Deficit (2020)</i> -2 |
| <i>Zoning</i> R-12 (019.01-01-48) | <i>Floor Area Permitted by Zoning (SF)</i> 103,842 | <i>Floor Area Ratio</i> 0.3 | <i>Total Program Square Feet (2020)</i> -13,843 |
| <i>School Site</i> Excellent | <i>Building Assessment</i> Satisfactory | <i>Instructional & Support Spaces</i> Satisfactory | <i>Projected Utilization (2020)</i> 138% |

BACKGROUND

John Adams was built in 1967 to serve the community as a middle school. It became an elementary school in 1980. The school's mission is to create a community of high achieving students through their involvement in arts-integrated learning environments.

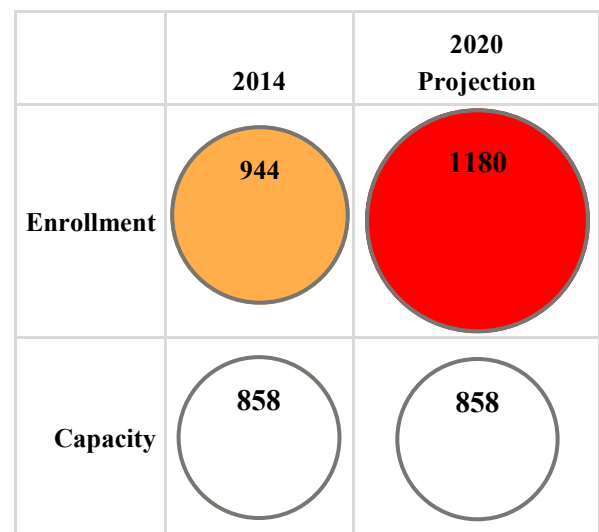


In 2014, John Adams had an enrollment of 944 students with a measured capacity of 858 students. By 2020, enrollment is expected to increase to 1,180 students lacking space for approximately 322 students. Both the current and projected enrollment exceeds the recommended size for an elementary school.

The academic curriculum at John Adams includes reading, language arts, mathematics, social studies, and science and also offers:

- Vocal and Instrumental music instruction once a week
- Art instruction once a week
- Band and orchestra beginning in 4th grade
- Two physical education classes a week
- Family life instruction at age-appropriate levels
- English as a second language classes
- Special education programs
- TAG pull out program
- Talented and Gifted program for grades K-5¹

STUDENT ENROLLMENT (#OF STUDENTS)



| Color | Enrollment as % of Capacity | |
|------------|-----------------------------|-----------------------------|
| Light Blue | 100% and below | Fully or underutilized |
| Orange | 101% to 120% of capacity | Substantially over capacity |
| Red | Above 120% of capacity | Extremely over capacity |

KEY FINDINGS

SUMMARY

Based on the data collected through this assessment, John Adams meets 82 percent of the educational adequacy benchmarks for an ideal 21st century elementary school.

HIGH PRIORITY ITEMS

- Core classrooms are under-sized.
- School exceeds the recommended size for an elementary school.

¹<http://www.acps.k12.va.us/adams>

SCHOOL SITE

| SITE DATA | |
|----------------------------------|---|
| <i>Steep Slopes</i> | <i>Steep slope changes around the edges of the school</i> |
| <i>Playgrounds</i> | 4 |
| <i>Recreation Features</i> | <i>Playgrounds, asphalt play area. Adjacent Chambliss Park includes baseball field, tennis courts and open field. Dense forest north of school.</i> |
| <i>Resource Protection Areas</i> | |
| <i>Parking</i> | 124 |
| <i>Storm Water Management</i> | <i>Severe ponding around site. No known SWM facilities.</i> |



John Adams earned an excellent rating on their school site assessment. While it met the minimum requirements of separated vehicular, bus and kiss and ride circulation, the one vehicular access off of Rayburn Avenue causes traffic problems during arrival and dismissal. Additionally, there is not enough staff and visitor parking so currently overflow parking is located adjacent to Chambliss Park (zoned POS). A parking lot expansion is underway and expected to be completed prior to the 2014-2015 school year. The portion of the park currently used for parking will be restored as open space once the school lost is expanded. Site access is constrained, even with planned improvements.

The existing square feet of the school exceeds the allowed square feet per the zoning.

INSTRUCTIONAL AND SUPPORT SPACES

The highest priority item at John Adams is the measured size of core classrooms. **Collectively, only five out of 52 core classrooms, or ten percent, meet the educational adequacy size requirements.** The average size for a pre-kindergarten or kindergarten class is 749 square feet instead of the desired 1,025 square feet. The average size

for grades one through five is 705 instead of the desired 900 square feet.

The second highest priority item in this section is the fixed equipment and infrastructure in the specialty classrooms. All of these rooms lack sound enhancement systems and half of them are not equipped with wall mounted interactive devices. These classrooms are not equipped with the required infrastructure to function as a 21st century learning space.

Additional issues with the instructional spaces are the lack of storage, plumbing fixtures, and fixed equipment. The classrooms lack adequate student and teacher built-in storage and shelving. Over 90 percent of the classrooms have an interactive electronic device as needed but are missing a secondary teaching wall.

The educational standards require an internal or adjoining bathroom for all core classrooms, but these are absent from over 50 percent of John Adams' classrooms. In addition, 70 percent of classrooms are not equipped with sinks and bubblers.

BUILDING ASSESSMENT

The building assessment of John Adams is rated satisfactory. The portion most lacking is sufficient electrical receptacles being present in multiple locations along classroom and corridor walls. The clocks and PA system throughout the building are not integrated, nor are the clocks digital, as desired. Finally, there is limited wireless connectivity in the hallways and corridors and the school does not provide wireless bandwidth at a one-to-one student-to-device ratio.

John Adams also lacks extended learning areas.

RECOMMENDATIONS

The student enrollment currently exceeds the optimal school size for an elementary school. To serve the projected enrollment, an addition is required and should only be considered in conjunction with major circulation /transportation improvements. Considerations should be given to accommodating the projected increase in enrollment at another location due to the overall school size. Also, the current building exceeds the FAR allowed under the current zoning.

GROUP 1 — REQUIRED PLANNING

- **Assess** building condition comprehensively through a facility condition assessment.
- **Explore** a new west end elementary school to alleviate the over enrollment.

GROUP 2 — FIRST PRIORITY

- **Reconfiguration** of the school to achieve size and layout requirements in the instructional classrooms and provide extended learning areas, per the educational specifications (\$43.9M).

GROUP 3 — SECOND PRIORITY

- **Additional** electrical receptacles added to the classrooms and corridors.
- **Provide** additional storage for teachers and students.
- **Equip** all classrooms with two teaching walls
- **Upgrade** the building technology in specialty classrooms to meet the educational adequacy standards.

GROUP 4 — LONG RANGE RECOMMENDATIONS

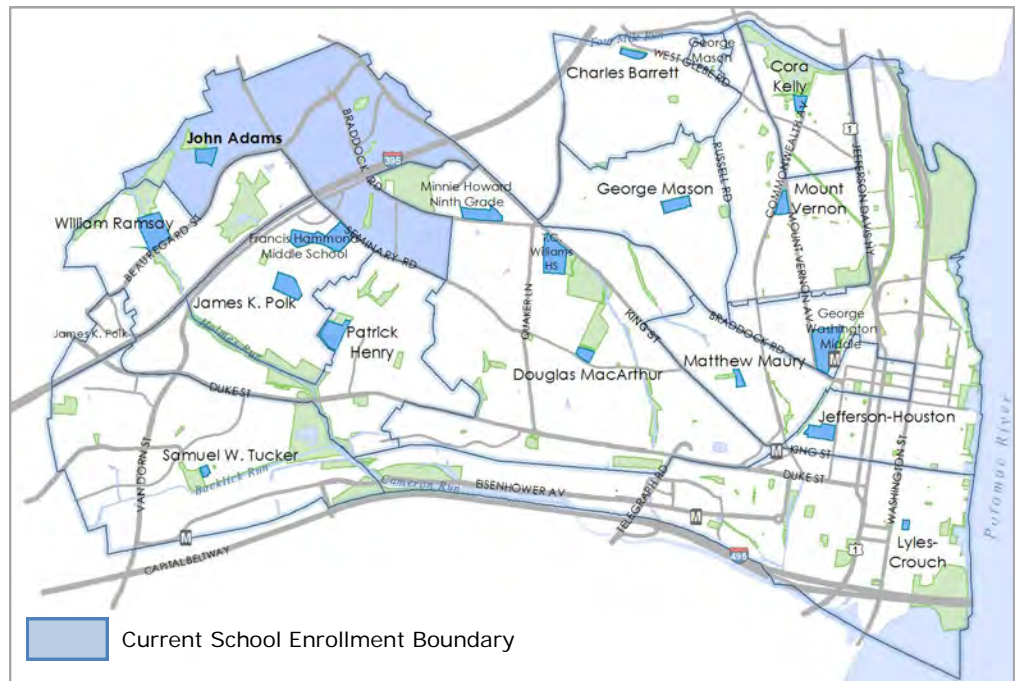
- **Implementation of the future Beauregard Small Area Plan (SAP)** road network may provide opportunities for alternate and cohesive site strategies including relocating playgrounds to build a parking lot adjacent to the new parallel road, which includes a pull-off for student kiss-and-ride.
- In conjunction with the implementation of the Beauregard SAP road network, **an addition could be considered** to accommodate an increase in enrollment if a decision is made to exceed the recommended size for an elementary school. This addition should only be considered in conjunction with major circulation/transportation improvements and would exceed the FAR under the current zoning.

CONCEPTUAL COST ESTIMATES

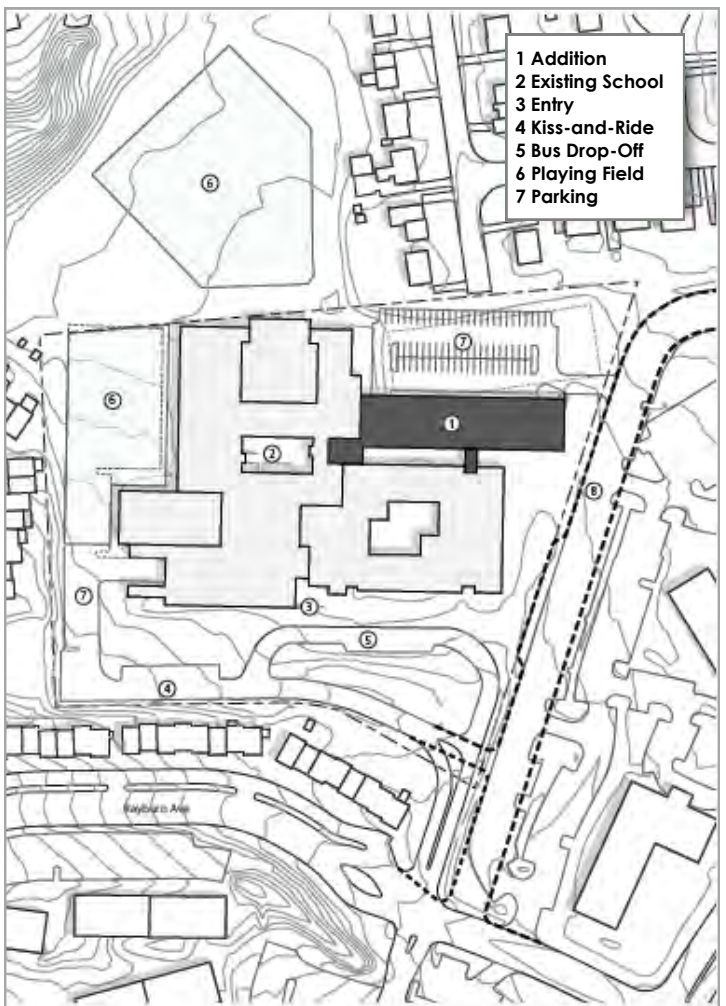
- **Complete Master Plan Construction \$49.4 (2015 dollars)**
 - 15% contingency
 - 17% other fees, insurance, etc.
- **New 9,000 SF addition (\$5.2M) including:**
 - New parking and playing field
 - New playgrounds and storm water management
- **Total renovation of existing building (\$43.9M) including:**
 - All new mechanical, plumbing, electrical and window systems
 - New food service and a/v equipment for auditorium, cafeteria and classrooms
 - New interior walls, floors and ceilings

John Adams is not currently in the modernization program per the FY 2016-2025 CIP. This project will be evaluated based on ACPS priorities and funding constraints during the development of future CIPs.

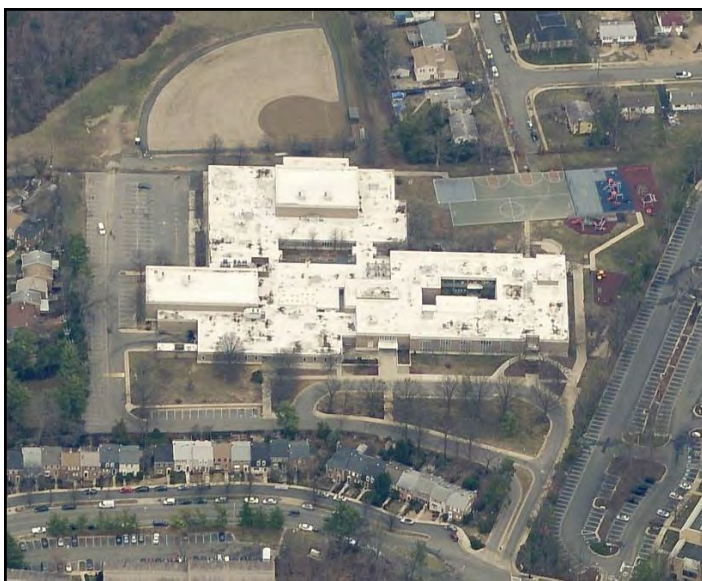
JOHN ADAMS ELEMENTARY SCHOOL



Neighborhood Context



Master Plan concept showing potential addition and potential future access road alignment.

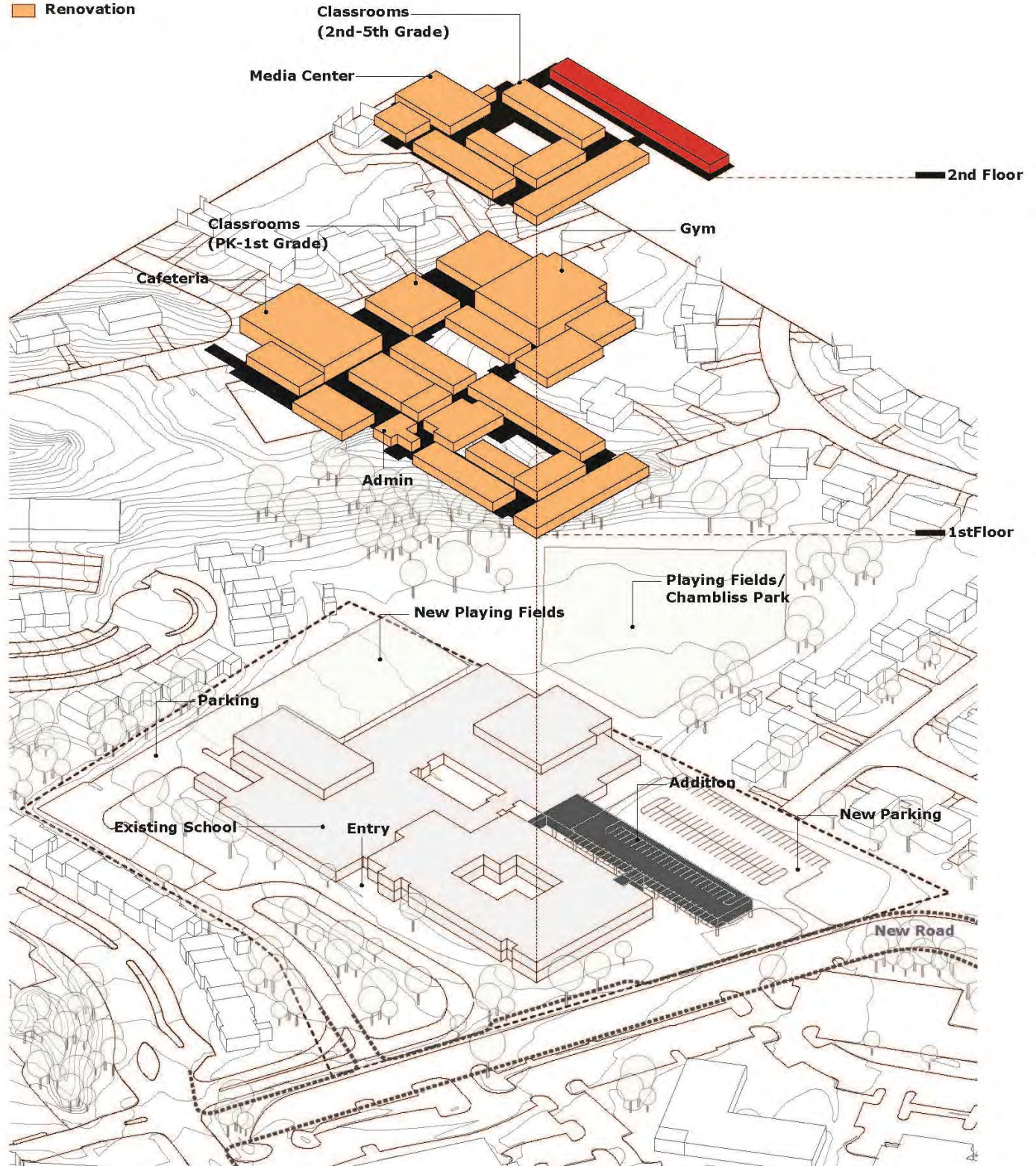


School site looking north across Rayburn Avenue

John Adams

Conceptual Master Plan

- New Construction/Addition
- Existing
- Renovation



LYLES-CROUCH TRADITIONAL ACADEMY

530 South St. Asaph Street, Alexandria, VA, 22314

| AT A GLANCE... | | | |
|---|---|--|---|
| <i>Year Built</i> 1958 | <i>Current Floor Area</i> 65,645 | <i>Lot Size (acres)</i> 2.0 | <i>Core Classroom Surplus/Deficit (2020)</i> +4 |
| <i>Zoning</i> RM (080.02-03-01) | <i>Floor Area Permitted by Zoning (SF)</i> 86,838 | <i>Floor Area Ratio</i> 1.5 | <i>Total Program Surplus/Deficit (Sq.Ft.) (2020)</i> -3,243 |
| <i>School Site</i> Inadequate | <i>Building Assessment</i> Borderline | <i>Instructional & Support Spaces</i> Satisfactory | <i>Projected Utilization (2020)</i> 96% |

BACKGROUND

Lyles-Crouch is a traditional academy educating children from kindergarten through fifth grade.



In 2014, Lyles-Crouch's enrollment was 396 students with a measured capacity of 375. By 2020, enrollment is expected to decrease nine percent to 360 students. Therefore, based on the school's existing capacity it will be able to accommodate the future enrollment size, as currently projected.

The academic curriculum at Lyles-Crouch includes reading, language arts, mathematics, social studies, and science and also offers:

- Art instruction with a certified art teacher once a week
- Vocal music instruction with a certified music teacher once a week
- Instrument music lessons beginning in fourth grade
- Fourth and Fifth graders can join band or orchestra
- Two physical education classes a week with a certified P.E. teacher
- Family life instruction at age-appropriate levels
- English as a second language classes
- Special education programs
- Talented and Gifted program for grades K-5¹

STUDENT ENROLLMENT (# OF STUDENTS)

| | 2014 | 2020 Projection |
|-------------------|-------------|----------------------------|
| Enrollment | 396 | 360 |
| Capacity | 375 | 375 |

| Color | Enrollment as % of Capacity | |
|-------|-----------------------------|-----------------------------|
| | 100% and below | Fully or underutilized |
| | 101% to 120% of capacity | Substantially over capacity |
| | Above 120% of capacity | Extremely over capacity |

KEY FINDINGS

SUMMARY

Based on the data collected through this assessment, Lyles-Crouch meets 60 percent of the educational adequacy requirements. A score of 66 earns this school a borderline rating.

While there is an adequate number of core classrooms to accommodate future enrollment, the existing rooms are not large enough. An interior reconfiguration would expand the classrooms to meet the square footage requirements of the educational specifications.

HIGH PRIORITY ITEM

- Core classrooms are all under-sized.

¹<http://www.acps.k12.va.us/crouch/>

SCHOOL SITE

| SITE DATA | |
|----------------------------------|--|
| <i>Steep Slopes</i> | <i>No steep slopes</i> |
| <i>Playgrounds</i> | <i>1</i> |
| <i>Recreation Features</i> | <i>Picnic and bench areas. Asphalt play areas, open field & baseball field. Garden beds.</i> |
| <i>Resource Protection Areas</i> | <i>No RPAs or natural areas.</i> |
| <i>Parking</i> | <i>43</i> |
| <i>Storm Water Management</i> | <i>Sand filter</i> |



Lyles-Crouch earns an inadequate rating on the school site assessment. The school's site circulation lacks proper separation of the kiss-and-ride and school bus lane. There is no stacking area for the student kiss-and-ride. The on-site parking is not adequate to accommodate the needs of the school, although there is street parking on the adjacent streets that accommodate school visitors and staff.

The school's play field size is inadequate and the outdoor play equipment appear undersized. Additionally, the site design does not incorporate outdoor learning spaces.

INSTRUCTIONAL AND SUPPORT SPACES

The instructional and support spaces at this school earn a satisfactory rating. The highest priority item at Lyles-Crouch is the measured size of the core classrooms.

Collectively, none of the core classrooms meet the educational adequacy size requirements. The average size for a kindergarten class is 750 square feet instead of the desired 1,025. The average size of grades one through five is 727 square feet instead of the desired 900 square feet. An interior reconfiguration is recommended to right-size the core classrooms.

The second priority item, in this section, is the measured size of the specialty classrooms and shared spaces. Both these sections earn an inadequate rating and an addition is recommended to address this inadequacy.

Additional issues with the specialty and shared spaces are the lack of temperature controllability, the lack of storage, and the lack of fixed equipment. Only half of these spaces possess an interactive electronic device as needed. In addition, 70 percent of spaces are missing a secondary teaching wall. Lastly, the educational standards require an internal or adjoining bathroom for all core classrooms; these are only present in 10 percent of the core academic classrooms.

BUILDING ASSESSMENT

The building assessment of Lyles-Crouch reveals a borderline rating. The building organization is inadequate because there are no distinct academic clusters, the shared programmatic spaces are not appropriately located and clustered, and the building lacks extended learning areas.

The technology infrastructure is inadequate because the school lacks the adequate wireless access for students and lacks a sufficient amount of electrical receptacles in corridors and classrooms. In addition, the clock and PA system are not integrated, nor are the clocks digital as required.

RECOMMENDATIONS

The school has the adequate number of core classrooms but they are not the adequate size. A small addition is recommended to provide sufficient size of the specialty classrooms and shared spaces.

GROUP 1 — REQUIRED PLANNING

- **Assess** the site to determine whether the separation of the kiss-and-ride and school bus lane is feasible (based on property boundaries, setbacks, etc.). It will also help inform opportunities for additional parking
- **Assess** building condition comprehensively through a facility condition assessment.

GROUP 2 — FIRST PRIORITY

- **Reconfigure** existing instructional classroom spaces to meet the recommended size requirements and provide extended learning areas as outlined in the educational specifications (\$12.7M).

GROUP 3 — SECOND PRIORITY

- **Equip** all core classrooms, corridors and support spaces with additional electrical receptacles as required and all classrooms with two teaching walls.
- **Upgrade** the building technology equipment and infrastructure to meet the educational adequacy standards in the specialty classrooms.
- **Upgrade** the playing fields and play equipment.
- **Equip** all classrooms and support spaces with individual climate control.

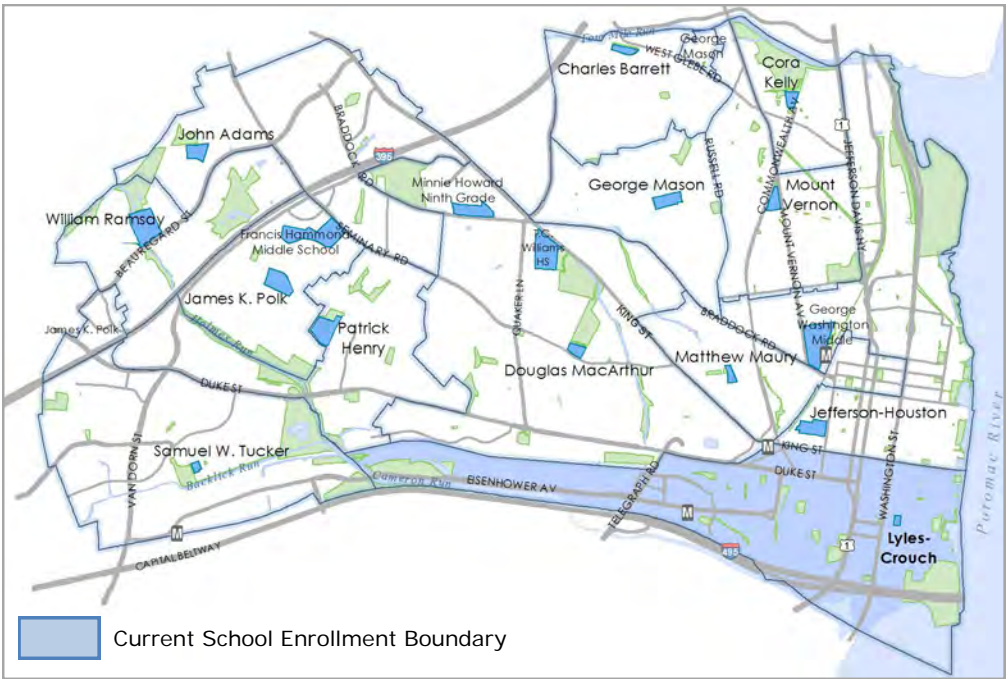
GROUP 4 — LONG RANGE RECOMMENDATIONS

- **Expand** the building to allow for right-sized specialty classrooms such as art and music (\$2.0M).

CONCEPTUAL COST ESTIMATES

- **Complete Master Plan Construction \$14.7 (in 2015 dollars)**
 - 15% contingency
 - 17% other fees, insurance, etc.
- **New one-story 5,500 SF addition (\$2.0M) including:**
 - Concrete columns on the ground floor level
- **Total renovation of existing building (\$12.7M) including:**
 - All new mechanical, plumbing, electrical and window systems
 - New a/v equipment for classrooms
 - New interior walls, floors and ceilings

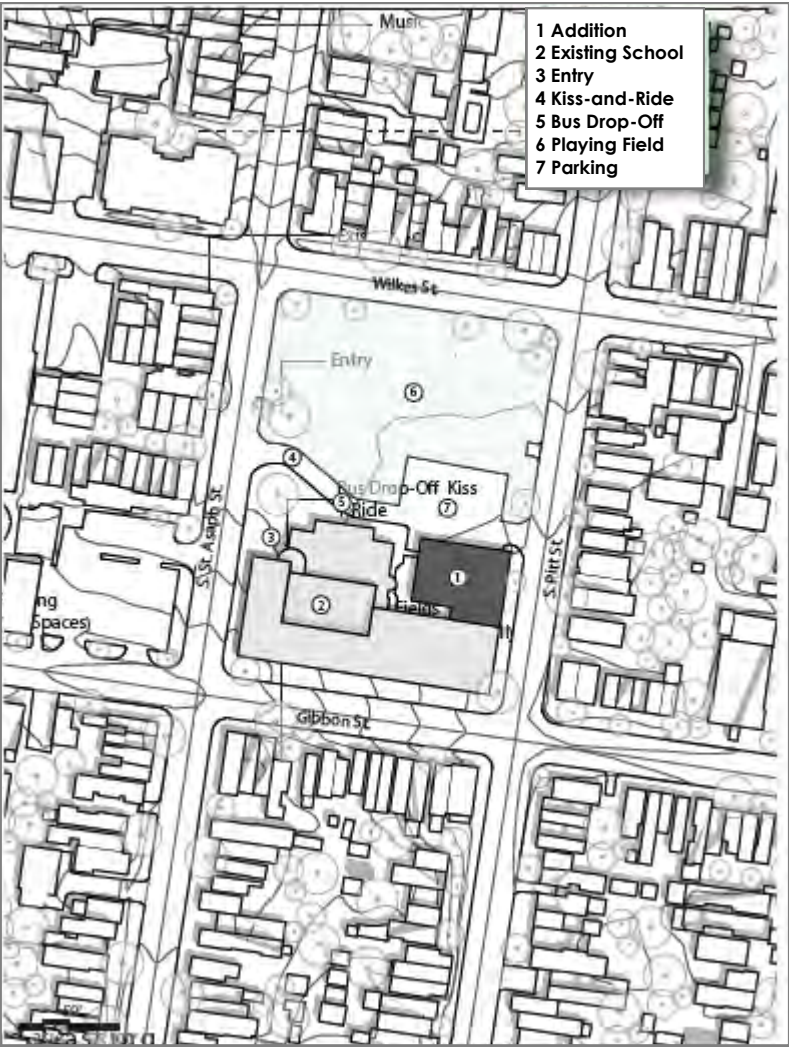
Lyles-Crouch is not currently in the modernization program per the FY 2016-2025 CIP. Renovations, additions or the complete master plan projects will be evaluated based on ACPS priorities and funding constraints during the development of future CIPs.



LYLES-CROUCH TRADITIONAL ACADEMY SCHOOL



Neighborhood context looking north with Washington Street on the left and Royal Street on the right.



Master Plan concept with potential addition over parking

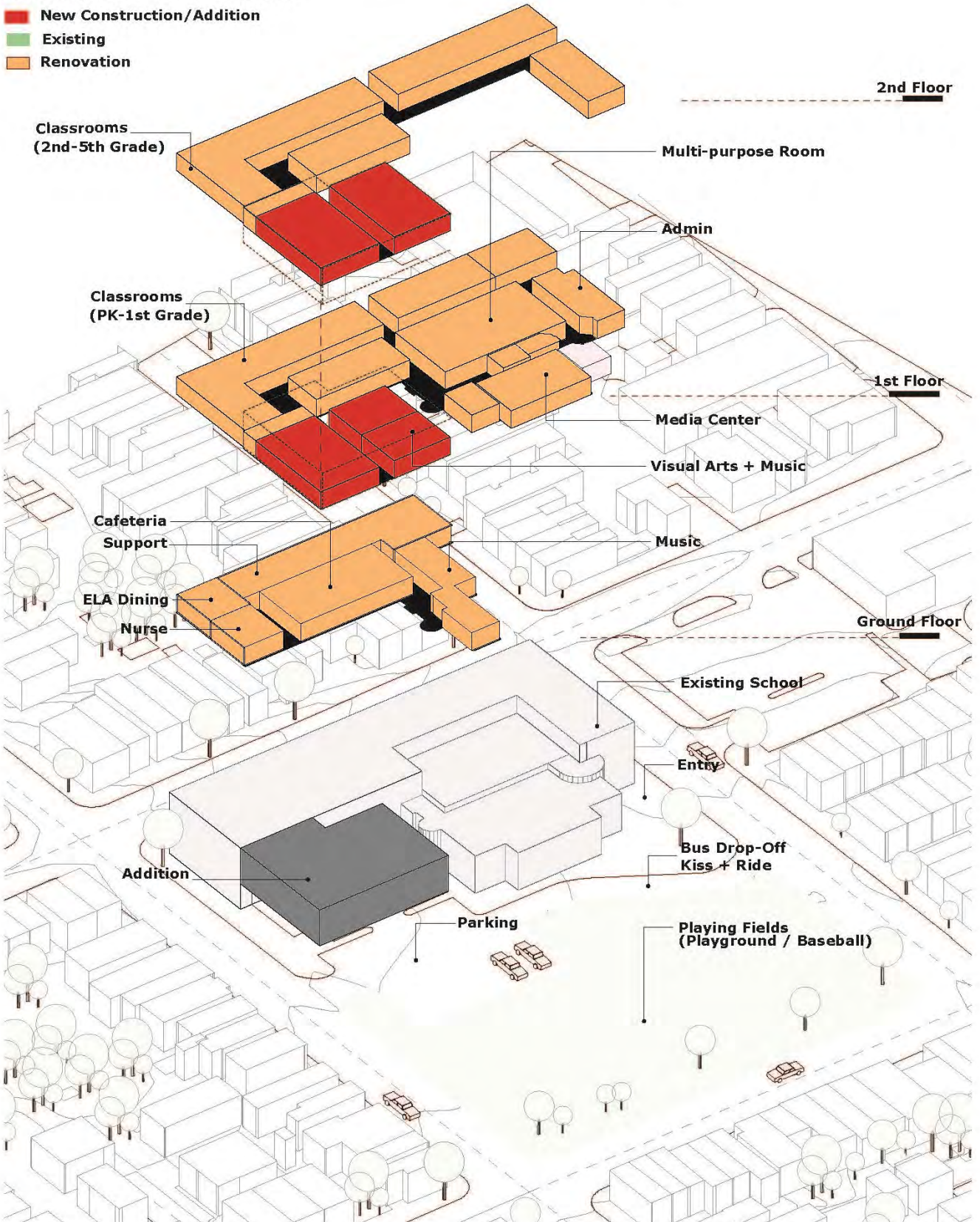


School site looking south across Wilkes Street with St. Asaph Street on the right of the image

Lyles-Crouch

Conceptual Master Plan

- New Construction/Addition
- Existing
- Renovation



MATTHEW MAURY ELEMENTARY SCHOOL

600 Russell Road, Alexandria, VA, 22301

| <i>AT A GLANCE...</i> | | | |
|--|---|--|--|
| <i>Year Built</i> 1929 | <i>Current Floor Area</i> 51,800 | <i>Lot Size (acres)</i> 3.9 | <i>Core Classroom Surplus/Deficit (2020)</i> -2 |
| <i>Zoning</i> R-5 (053.03-02-02) | <i>Floor Area Permitted by Zoning (SF)</i> 76,840 | <i>Floor Area Ratio</i> 0.45 | <i>Total Program Surplus/Deficit (Sq.Ft.) (2020)</i> -10,308 |
| <i>School Site</i> Borderline | <i>Building Assessment</i> Satisfactory | <i>Instructional & Support Spaces</i> Satisfactory | <i>Projected Utilization (2020)</i> 135% |

BACKGROUND

Matthew Maury Elementary School was built on seven acres of farm land purchased in 1929. Classroom additions occurred in 1941, 1949, and 1961. In 1971, a gymnasium was added while the library underwent a major renovation. In 2005, a new media center, additional classrooms, teacher work area, new offices, and security upgrades were added.



In 2014, Matthew Maury's enrollment was 441 students with a measured capacity of 350. By 2020, enrollment is expected to increase to 473 students.

The academic curriculum at Maury includes reading, language arts, mathematics, social studies, and science and also offers:

- Music instruction once a week
- Art instruction once a week
- Band and orchestra beginning in 4th grade
- Two physical education classes a week
- Family life instruction at age-appropriate levels
- Dedicated science exploration lab
- Talented and Gifted program for grades K-5¹

STUDENT ENROLLMENT (# OF STUDENTS)

| | 2014 | 2020 Projection |
|-------------------|------------|--------------------|
| Enrollment | 441 | 473 |
| Capacity | 350 | 350 |

| Color | Enrollment as % of Capacity | |
|-------|-----------------------------|-----------------------------|
| | 100% and below | Fully or underutilized |
| | 101% to 120% of capacity | Substantially over capacity |
| | Above 120% of capacity | Extremely over capacity |

KEY FINDINGS

SUMMARY

The data collected through this assessment reveals that Matthew Maury Elementary School meets 66 percent of the educational adequacy benchmarks for an ideal 21st century elementary school.

HIGH PRIORITY ITEMS

- Based on the 2020 enrollment projections, as it exists now, the school will be significantly over capacity and lacking space for over 120 students.

¹<http://www.acps.k12.va.us/maury>

SCHOOL SITE

| SITE DATA | |
|----------------------------------|---|
| <i>Steep Slopes</i> | <i>Flat with steep slope around playground</i> |
| <i>Playgrounds</i> | <i>1</i> |
| <i>Recreation Features</i> | <i>Playground, asphalt play areas, basketball goals, baseball and open fields; Natural area adjacent to main building</i> |
| <i>Resource Protection Areas</i> | |
| <i>Parking</i> | <i>7</i> |
| <i>Storm Water Management</i> | <i>Nyloplast inlets-underground detention system, but many SWM issues on site.</i> |



The Matthew Maury site is poorly organized for both pedestrian and vehicular traffic. Site circulation does not separate these types of traffic creating potential conflicts. The bus lane and parent kiss-and-ride drop off occur in the same location; on the street in front of the school. There is a small parking lot behind the school with room for about 7 vehicles and due to the urban nature of the site, a majority of parking occurs in the street. Furthermore, the small school site does not allow for full-size athletic fields as recommended by the Virginia Guidelines. The equipment provided is weathered and dated. The playground is not accessible for students with disabilities; play courts are deteriorating and drainage is poor.

INSTRUCTIONAL AND SUPPORT SPACES

The instructional and support spaces of the building earned a satisfactory rating. While the overall assessment resulted in a positive rating, it should be noted that most of the instructional spaces do not meet the division's size requirements. Common deficiencies throughout the spaces include dated furniture that is not flexible, inadequate space to accommodate flexible furniture arrangements, lack of electrical outlets, and poor internal adjacencies for required restrooms or collaborative learning spaces. The most urgent items in this section are classroom capacity. The average classroom size for kindergarten is

680 rather than the suggested 1,025 square feet. This is the smallest in the division. The measured average classroom size for grade one through five is 715 square feet rather than the desired 900 square feet. The overall capacity of specialty classrooms and small support rooms is approximately 29 percent smaller than the square foot minimums detailed in the educational specification.

BUILDING ASSESSMENT

Most classrooms in Matthew Maury have the technology infrastructure and tools required to support a 21st century learning environment. However, overall space arrangements do not meet the division's expectations for providing small learning environments and key classroom adjacencies. Classrooms are loosely organized by grade grouping with few adjacent restrooms and no collaborative learning spaces. Additionally, the school is not ADA equitable with the main entrance not providing ADA access.

RECOMMENDATIONS The shortage of classroom numbers and space must be addressed in order to bring Matthew Maury up to levels designated in the Ed Specs for ACPS, and to address the level of student population currently projected. The Site and Building Plan improvements should be considered and incorporated into the comprehensive site and building plan listed below. Site and building recommendations (Groups 2-4) are generally grouped according to priority; however, due to the limited size of the school site, each decision may impact the others.

GROUP 1 — REQUIRED PLANNING

- **Develop** a vision, goals and strategies with a comprehensive Site and Building Plan for the school.
- **Develop** priority phasing with associated Return-on-Investment to determine whether existing building renovations, demolition, and new construction should be combined or phased separately. Funding sources, level of service, and schedule disruption should be identified. Funding should consider coordinated impacts of future construction in an effort to prevent double-work or demolition of new facilities.
- **Consolidate** the two adjacent properties of the main school site—600 Russell Road and 701 Johnston Place—to create one single lot. Analyze the newly combined FAR to determine whether further rezoning is necessary to accommodate projected additional spaces.
- **Seek** abandonment and dedication to the school of the Rucker Place spur east of Johnston Place.
- **Develop** a long-range management plan for the school and site facilities to coordinate capital improvement and operations projects. Management plan should incorporate decisions which may be allowed to evolve in response to future needs and opportunities.
- **Assess** building condition comprehensively through a facility condition assessment.

GROUP 3 — SECOND PRIORITY

- **Provide** outdoor learning areas with sufficient infrastructure, allowing flexible programming.
- **Address** physical and/or operational changes for the drop-off location, configuration for busses, and kiss-and-ride.
- **Reorganize** overall layout of classrooms—may allow opportunity to create a PreK/Kindergarten “wing” at the school.
- **Explore** the utilization of Johnston Place for greater connection to Beach Park. Various approaches may include temporary closures (times barricades) to connect the school with Beach Park, narrowing the street for greater space or converse utilization for parking. Coordinate with the Neighborhood Park planning process and the City’s Recreation Parks and Cultural Activities to enhance Beach park facilities for greater utilization by the school and Community.
- **Provide** all classroom and support spaces with the appropriate loose furnishings and fixed equipment to address noted deficiencies for a 21st century learning environment.
- **Consider** the improved utilization of the southwestern on-property alley (from Elm Street) for additional parking opportunities in that area of the school site.
- **Upgrade** the existing play areas and field to meet ACPS and ADA guidelines.

GROUP 2 — FIRST PRIORITY

- **Reconfigure** the space within the existing school to meet recommended size requirements outlined in the Educational Specifications.
- **Construct** a new, two-story wing in the general location of the existing northern wing and gymnasium to provide the missing classroom and support space needed to meet the projected utilization. Redistribute the core classroom types accordingly.

GROUP 4 — LONG RANGE RECOMMENDATIONS

- **Consider** the purchase of adjacent property as it may provide more area for the school thus creating a more efficient site.

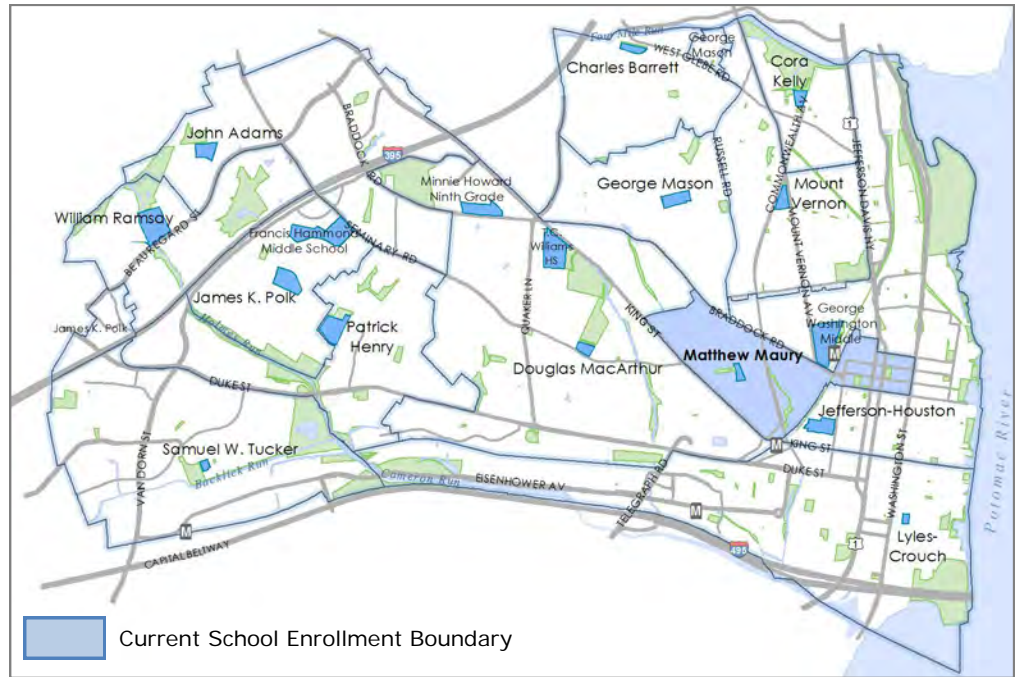
CONCEPTUAL COST ESTIMATES

- **Complete Master Plan Construction \$23.7 (in 2015 dollars)**
 - 15% contingency
 - 17% other fees, insurance, etc.
- **Total renovation of existing building (\$10M) including:**
 - All new mechanical, plumbing, electrical and window systems
 - New food service and a/v equipment for auditorium, cafeteria and classrooms
 - New interior walls, floors and ceilings

- **New 31,000 SF addition (\$13.6M) including:**
 - Demolition of portions of the existing building
 - New elevator
 - New gymnasium and relocated cafeteria

In the FY 2016-2025 School Board CIP, Maury is currently slated to receive a modernization and capacity addition beginning in FY 2023. The construction budget for that project is currently \$16,500,000.

MATTHEW MAURY ELEMENTARY SCHOOL



Neighborhood context looking north across King Street from Masonic Memorial



Master Plan concept showing potential second-level addition

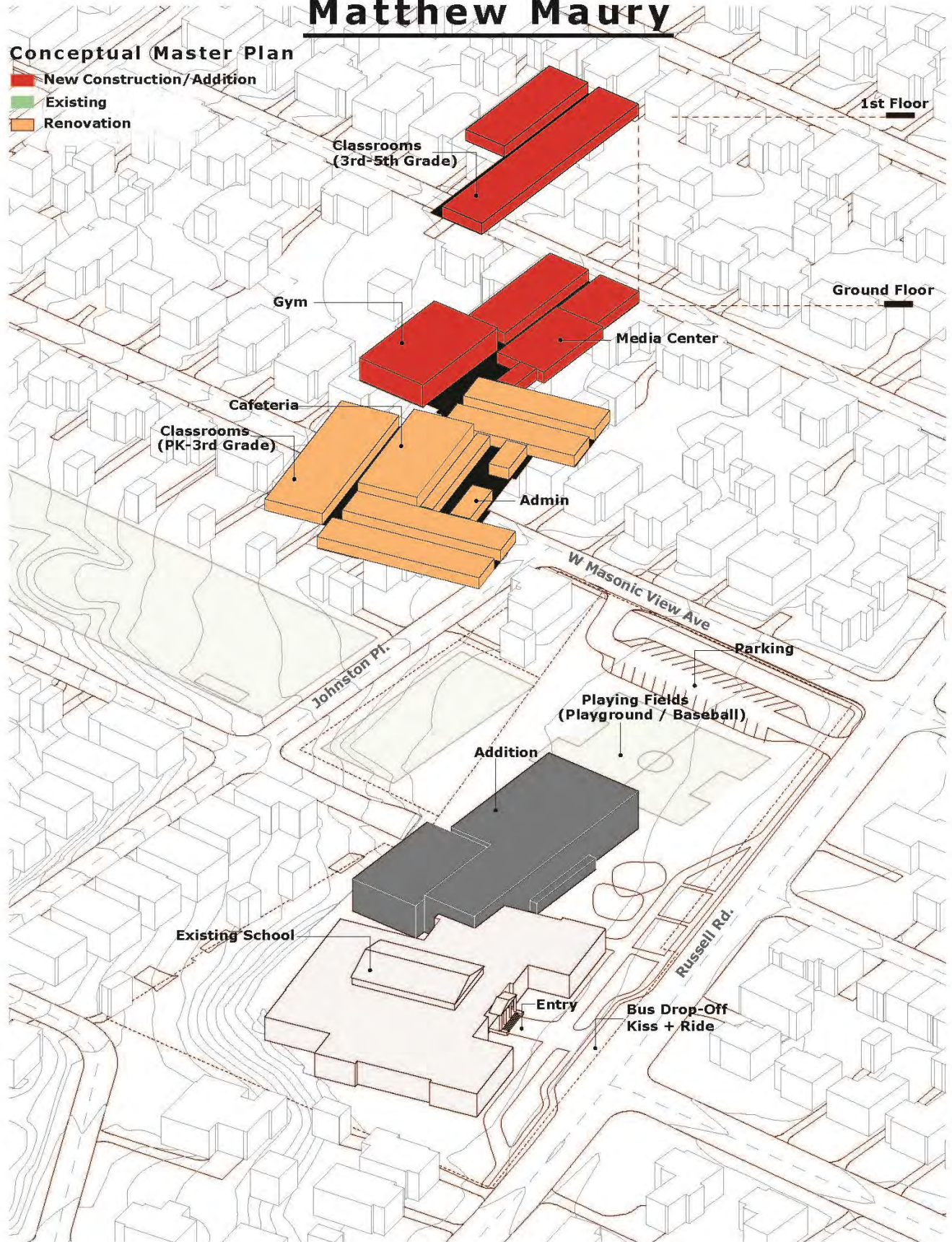


School site looking west across Russell Road

Matthew Maury

Conceptual Master Plan

- New Construction/Addition
- Existing
- Renovation



MOUNT VERNON COMMUNITY SCHOOL

2601 Commonwealth Avenue, Alexandria, VA 22301

| AT A GLANCE... | | | |
|-----------------------------|--|---|--|
| <i>Year Built</i> | <i>Current Floor Area</i> | <i>Lot Size (acres)</i> | <i>Core Classroom Surplus/Deficit (2020)</i> |
| 1923 | 112,730 (school) 18,000 (rec center) (library*) | 6.5 | +1 |
| <i>Zoning</i> | <i>Floor Area Permitted by Zoning (SF)</i> | <i>Floor Area Ratio</i> | <i>Total Program Surplus/Deficit (Sq.Ft.) (2020)</i> |
| R-2-5 (024.04-02-03) | 90,272 | 0.45 | -1,064 |
| POS (024.04-02-03) | 0 | 0.0 | |
| <i>School Site</i> | <i>Building Assessment</i> | <i>Instructional & Support Spaces</i> | <i>Projected Utilization (2020)</i> |
| Borderline | Inadequate | Borderline | 111% |

BACKGROUND

The current Mount Vernon Community School structure was built in 1923. Classroom additions were built in 1941 and 1950 with major building additions in 1967 and 1991. The adjacent Mount Vernon Recreation Center, built in 1997, shares the gym and outdoor fields with the school.



In 2014, Mount Vernon had an enrollment of 817 students with a capacity of 755 students. By 2020, enrollment is expected to increase to 841 students. Mount Vernon is a community school encouraging partnerships between school and community in an effort to improve academics, health, and development of the community and its students. This relationship fosters a personalized curriculum teaching real-world problem solving skills. Mount Vernon offers an English-Spanish Dual Language program aiming to make students bilingual, bi-literate, and culturally aware. The school also offers:

- Art instruction once per week
- Two physical education classes per week
- Family life instruction at age-appropriate levels
- Band and orchestra beginning in 4th grade
- Vocal music instruction once per week
- Talented & Gifted program for grades K-5
- 3, 4, and 5th grade Keyboarding
- TAG Pullout program
- Special education programs¹

¹<http://www.acps.k12.va.us/mtvernon>

* Because the school, recreation center and library are located on the same site, all contribute to the floor area ratio calculation.

STUDENT ENROLLMENT (# OF STUDENTS)

| | 2014 | 2020 Projection |
|-------------------|-------------|----------------------------|
| Enrollment | 817 | 841 |
| Capacity | 755 | 755 |

| Color | Enrollment as % of Capacity | |
|-------|-----------------------------|-----------------------------|
| | 100% and below | Fully or underutilized |
| | 101% to 120% of capacity | Substantially over capacity |
| | Above 120% of capacity | Extremely over capacity |

KEY FINDINGS SUMMARY

The data collected through this assessment reveal that Mount Vernon Community School meets only 53 percent of the educational adequacy benchmarks for an ideal 21st century elementary school.

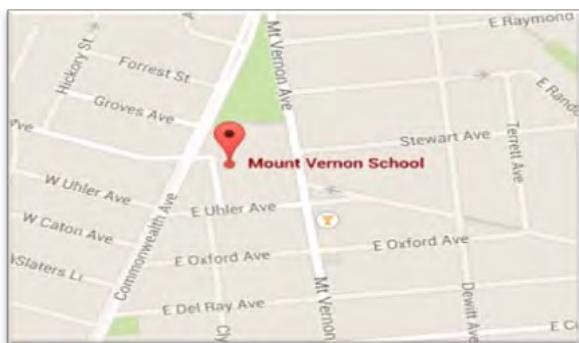
HIGH PRIORITY ITEMS

- Based on the 2020 projections, as it exists now, the school will be substantially over capacity, lacking space for nearly 86 students. The school is suffering from a shortage of classrooms which is compounded by the fact that the recommended ratio of square feet per student is not met.

- The classroom conditions are also below satisfactory levels for reasons such as, inadequate classroom size, lack of storage space, poor acoustics and the absence of individual controllability of the HVAC and lighting systems.

SCHOOL SITE

| SITE DATA | |
|----------------------------------|---|
| <i>Steep Slopes</i> | <i>Isolated steep area</i> |
| <i>Playgrounds</i> | 3 |
| <i>Recreation Features</i> | <i>Open field, playground, baseball field and basketball court.</i> |
| <i>Resource Protection Areas</i> | No |
| <i>Parking</i> | 27 |
| <i>Storm Water Management</i> | <i>Multiple inlets, two underground detersion systems.</i> |



Organization of vehicular and pedestrian traffic patterns are not efficiently organized about the site. Site circulation does not separate vehicular and pedestrian traffic creating potential life safety hazards for all users. Pedestrian paths cross vehicular thoroughfares during after-school pickup times. Additionally, the bus lane is also used as the kiss and ride drop off area which could create a dangerous situation for students. It was also observed, while appropriately located near the main entrance, on-site parking for staff and visitors is inadequate based on the number of spaces provided.

While the apparent rating of the fields is borderline, the two play fields, located adjacent to the gym, do not meet Virginia Guidelines but are adequate for the school's use. Finally, the field condition is deteriorating with observable divots and dry patches noted that could pose a hazard to students.

INSTRUCTIONAL AND SUPPORT SPACES

The most urgent items in this section are classroom capacity and HVAC mechanical issues.

The instructional and support spaces of the building earned a borderline rating. Some factors that contributed to this rating include: the rooms do not meet the size requirements; the lack of lighting and HVAC controllability, and noise interference from inside and outside the rooms was not mitigated. Numerous teachers reported humidity and moisture issues in their classroom which they indicate increases during the warmer months.

The average core classroom size for prekindergarten and kindergarten is 885 rather than the suggested 1,025 square feet. The measured average classroom size for grade one through five is 757 square feet rather than the desired 900 square feet needed to provide a flexible learning environment.

The overall capacity of specialty classrooms and small support rooms is approximately 28 percent smaller than the square foot minimums detailed in the educational specification. The facility had significant deficiencies with air temperature, humidity and acoustical elements. The lighting, in most classrooms, was adequate but not adjustable. Finally, several classrooms had no natural light or windows with a view outdoors.

Among the core classrooms, the item of greatest concern is the **acoustics**. Many of the classrooms are divided by a thin, operable partition which does not provide an adequate sound barrier between the two classrooms. The student and teacher program furniture, which includes shelving, cabinets, wardrobes and cubbies, is either not adequate or non-existent in most classrooms. Classrooms are not equipped with the required number of teaching walls and electrical outlets are not readily available on all walls. The shared spaces, including the gym, art room, and cafeteria are not centrally located.

BUILDING ASSESSMENT

Most classrooms in Mount Vernon have the technology infrastructure and tools required to support a 21st century learning environment. However, overall space arrangements do not meet the standards for providing small learning environments and key classroom adjacencies. While classrooms are mainly organized by grade level groupings, there were no defined extended learning areas observed and not all shared programmatic spaces were centrally located.

The building organization also contributed to the school's low rating because the shared spaces such as: the gym, cafeteria and art room are not centrally located and did not meet their intended size or space requirements.

RECOMMENDATIONS

Mount Vernon currently lacks sufficient space to accommodate future enrollment. An addition and interior renovation is recommended after a building conditions assessment. Because of the age of the building, a partial demolition may be a more cost effective option to renovation. Currently the school building exceeds the allowed FAR for the building, which has implications on a future significant renovation and the feasibility of a future addition.

GROUP 1 — REQUIRED PLANNING

- **Site** assessment to determine whether the drop-off location for the school can be relocated/reconfigures (based on property boundaries, setbacks, etc.). It will also help inform opportunities for additional parking.
- **Explore** existing building conditions to determine if partial demolition is a more cost effective option to renovation due to the building's age.
- **Rezone** to rectify the existing FAR issue and allow room for an addition or major reconfiguration.

GROUP 2 — FIRST PRIORITY

- **Reconfigure** the spaces within the existing school to meet the recommended size requirements for individual academic spaces as outlined in the educational specifications incorporation of collaborative learning spaces (\$35.9M).
- **Construct** an addition to the school which may be necessary to attain the additional square footage required but will be more accurately determined once the building reorganization and redistribution has been studied (\$3.2M).

GROUP 3 — SECOND PRIORITY

- **Equip** all classrooms and support spaces with individual climate controls, and technology equipment and infrastructure.
- **Provide** additional storage for teachers and students as well as an upgrade to the furniture, fixtures and equipment.
- **Upgrade** existing playing areas .

GROUP 4 — LONG RANGE RECOMMENDATIONS

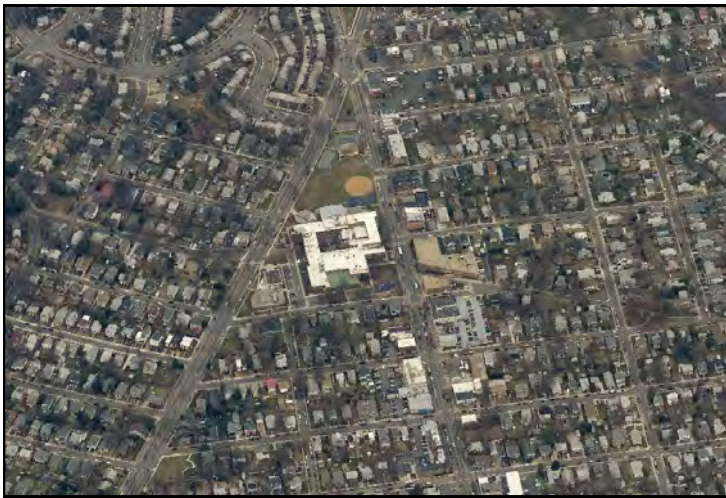
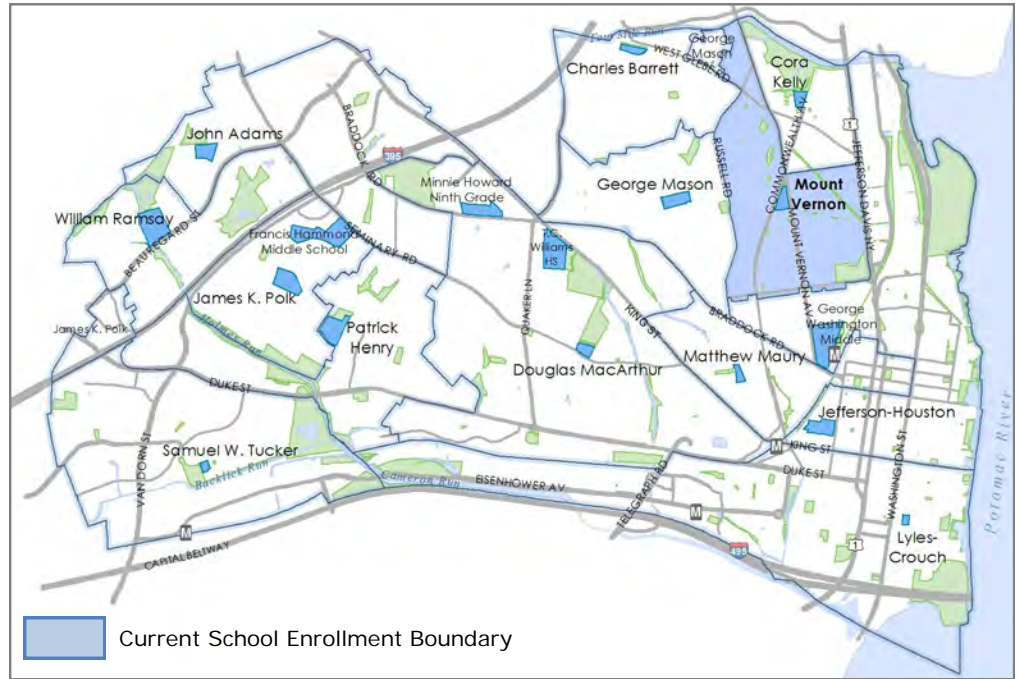
- **Relocate** tennis courts to allow for upgraded playing fields.

CONCEPTUAL COST ESTIMATES

- **Complete Master Plan Construction \$39.1 (in 2015 dollars)**
 - 15% contingency
 - 17% other fees, insurance, etc.
- **New 10,000 SF addition (\$3.2M)**
- **Total renovation of existing building (\$35.9M) including:**
 - All new mechanical, plumbing, electrical and window systems
 - New food service and a/v equipment for auditorium, cafeteria and classrooms
 - New interior walls, floors and ceilings

Mt. Vernon is not currently in the modernization program per the FY 2016-2025 CIP. Renovations, additions or the complete master plan projects will be evaluated based on ACPS priorities and funding constraints during the development of future CIPs.

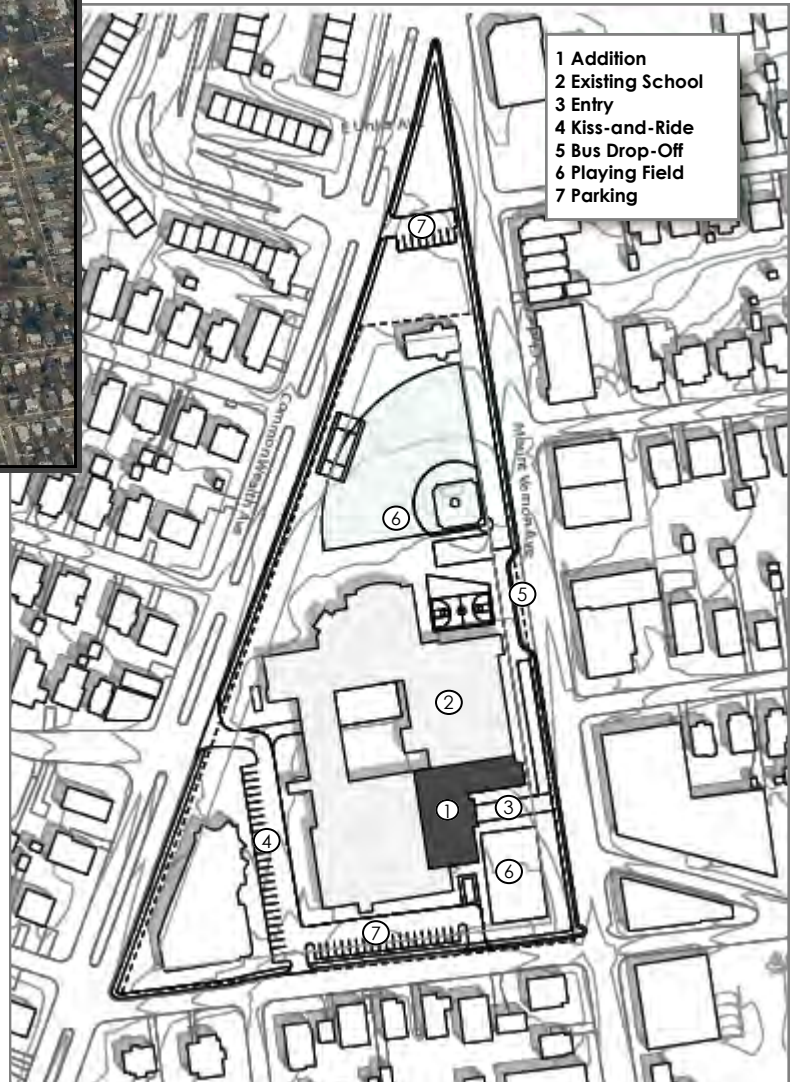
MOUNT VERNON COMMUNITY SCHOOL



Neighborhood context looking north.



School site looking north. Commonwealth Avenue is on the left, and Mount Vernon Avenue on the right. Duncan Library is at the lower left.

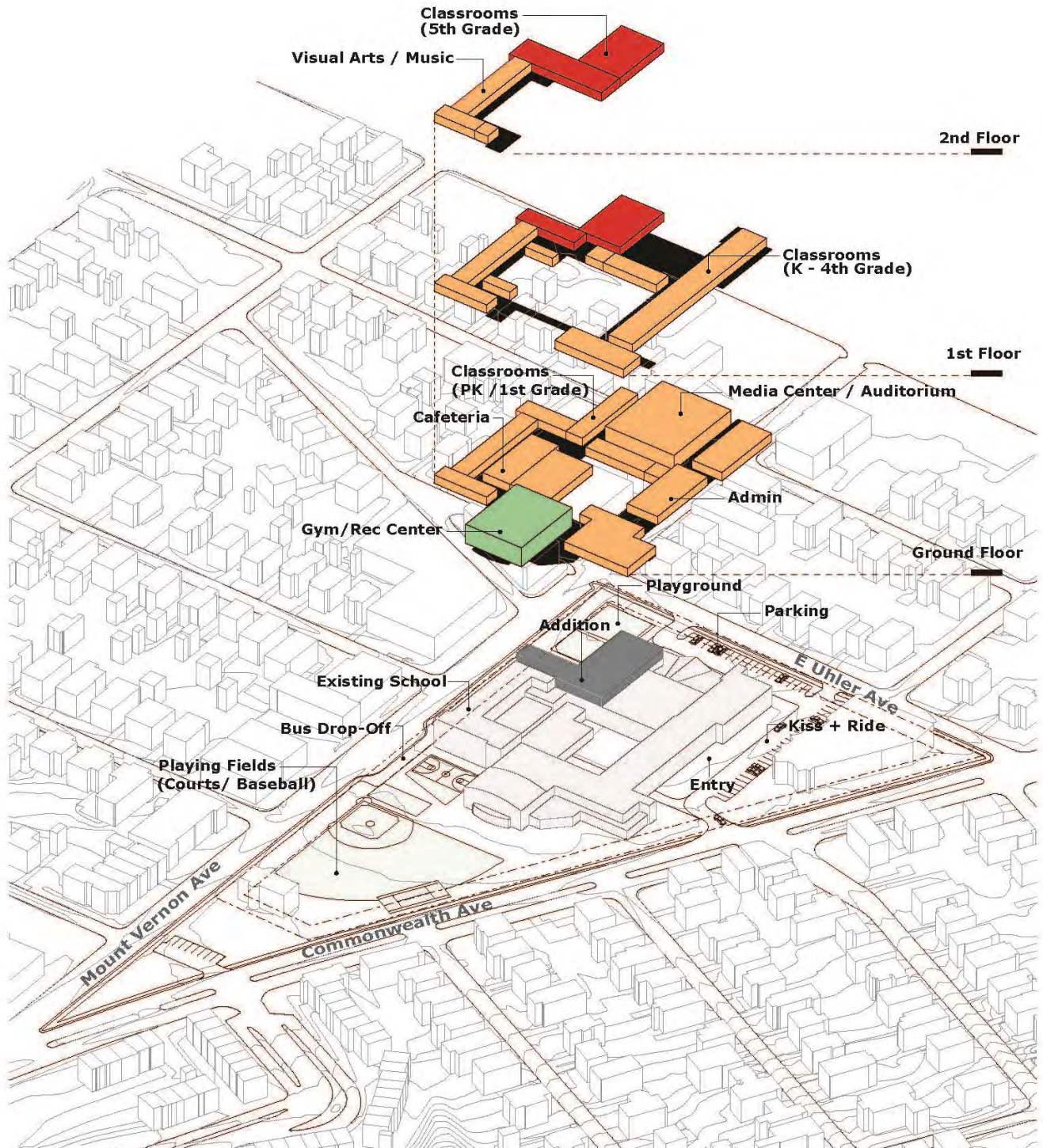


Master Plan concept showing two-level addition on southeastern part of school site.

Mount Vernon

Conceptual Master Plan

- New Construction/Addition
- Existing
- Renovation



PATRICK HENRY ELEMENTARY SCHOOL

4643 Taney Avenue, Alexandria, VA 22304

AT A GLANCE...

| | | | | | |
|-------------------|---------------------------|---------------------------|---|--|----------------|
| <i>Year Built</i> | 1953 | <i>Current Floor Area</i> | 62,400 (school) 8,850 (rec center) | <i>Floor Area Permitted by Zoning (SF)</i> | 176,418 |
| <i>Zoning</i> | R-12(039.03-05-14) | <i>Lot Size (acres)</i> | 15.0 | <i>Floor Area Ratio</i> | 0.30 |

Patrick Henry was not included in the educational adequacy analysis because there is a feasibility study under a separate effort.

BACKGROUND

Patrick Henry Elementary School was originally constructed in 1953, classroom additions in 1995 and 2011. The City of Alexandria constructed a gymnasium addition in 1973



that included a full-time recreation center. In 1996, a media center was constructed. This site is shared with a full-time City recreation center and tennis courts.

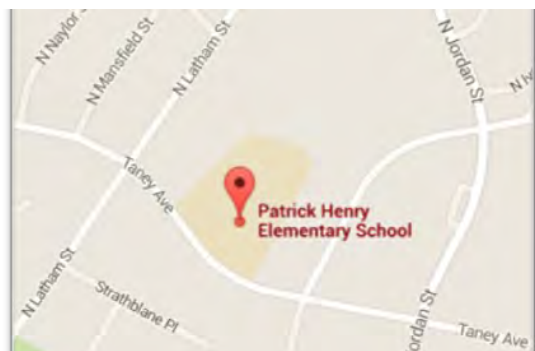
ACPS currently has a Patrick Henry Capacity Project in the CIP. This project will create Pre K-8 program with additional capacity for ACPS on the west side of the city. Planning is underway to analyze the current school and recreation center conditions and site to review options for construction versus renovation. A recommendation will be made to the School Board in Spring 2015.

SCHOOL SITE

The Patrick Henry site includes two open fields, tennis courts and a playground. Student drop-off occurs along Taney Avenue which conflicts with local traffic during peak times. Buses use the parking lot which often conflicts with staff, visitor and Rec Center patrons. Analysis of these circulation issues is a part of the study currently underway.

RECOMMENDATION

Patrick Henry was not included in the educational adequacy analysis due to the fact that a study was currently underway. Results of the study should be incorporated into the next update of the Long Range Plan.



SAMUEL W. TUCKER ELEMENTARY SCHOOL

435 Ferdinand Day Drive, Alexandria, VA, 22304

| <i>AT A GLANCE...</i> | | | |
|------------------------------|--|---|--|
| <i>Year Built</i> | <i>Current Floor Area</i> | <i>Lot Size (acres)</i> | <i>Core Classroom Surplus/Deficit (2020)</i> |
| 2000 | 80,180 | 2.4 | -7 |
| <i>Zoning</i> | <i>Floor Area Permitted by Zoning (SF)</i> | <i>Floor Area Ratio</i> | <i>Total Program Square Feet (2020)</i> |
| CDD 9 (068.01-02-01) | 80,000 | 0.35 | -6,398 |
| <i>School Site</i> | <i>Building Assessment</i> | <i>Instructional & Support Spaces</i> | <i>Projected Utilization (2020)</i> |
| Satisfactory | Satisfactory | Satisfactory | 126% |

BACKGROUND

Samuel W. Tucker Elementary opened in 2000, making it the City's first new school in 30 years. The school is situated at the west end of the Cameron Station development and serves kindergarten through fifth grade students.



In 2014, Samuel Tucker had an enrollment of 750 students and a measured capacity of 620 students. By 2020, the school should increase to 780 students. Therefore, the existing school capacity will not accommodate the increase of students and the school will be over-utilized. The academic curriculum includes reading, language arts, mathematics, social studies, and science and also offers:

- Music instruction once a week
- Art instruction once a week
- Band and Orchestra beginning in 4th grade
- Two physical education classes a week
- Family life instruction at age-appropriate levels
- English as a second language classes
- Special education programs
- TAG pull out program
- Talented and Gifted program for grades K-5¹

STUDENT ENROLLMENT (# OF STUDENTS)

| | 2014 | 2020 Projection |
|-------------------|------|--------------------|
| Enrollment | 750 | 780 |
| Capacity | 620 | 620 |

| Color | Enrollment as % of Capacity | |
|------------|-----------------------------|-----------------------------|
| Light Blue | 100% and below | Fully or underutilized |
| Orange | 101% to 120% of capacity | Substantially over capacity |
| Red | Above 120% of capacity | Extremely over capacity |

KEY FINDINGS

SUMMARY

Based on the data collected through this assessment, Samuel Tucker meets 80 percent of the educational adequacy benchmarks for an ideal 21st century elementary school.

HIGH PRIORITY ITEMS

- The inadequate measured size of the specialty classrooms
- Inadequate size and number of core classrooms to accommodate the projected enrollment

¹<http://www.acps.k12.va.us/tucker>

SCHOOL SITE

| SITE DATA | |
|----------------------------------|--|
| <i>Steep Slopes</i> | <i>No steep slopes</i> |
| <i>Playgrounds</i> | <i>2 (one in the adjacent Boothe</i> |
| <i>Recreation Features</i> | <i>Adjacent Boothe Park contains playgrounds, a shelter, a baseball field, basketball court and tennis court</i> |
| <i>Resource Protection Areas</i> | <i>No natural areas</i> |
| <i>Parking</i> | <i>106</i> |
| <i>Storm Water Management</i> | <i>No known facilities onsite</i> |



Samuel W. Tucker earns a satisfactory rating on the site assessment. The school meets all the requirements for site circulation and play areas except inadequate parking and lack of outdoor learning areas. Within the CDD zoning, the school site and park site are separately platted properties. The recreational features used by the school are on adjacent property. Because of this distinction, it may be difficult add parking and outdoor learning areas to the school site.

It should be noted that the potential multi-modal bridge that may occur adjacent to Boothe Park could impact the size and number of recreational fields in close proximity to the school.

INSTRUCTIONAL AND SUPPORT SPACES

The instructional and support spaces at this school earn a satisfactory rating. **The highest priority item for this section is the measured size of the core classrooms.** Comprehensively, only 39 percent of the core classrooms meet the educational adequacy size requirements of 900 square feet. The average size of a specialty classroom is 437 square feet which is significantly higher than the desired 250 square feet. While the existing specialty classrooms are larger than the required size in the educational specifications, there is a deficit of three in

the total quantity. Multiple teachers typically share these spaces to accommodate the student capacity needs. The classes often run concurrently in these spaces indicating a lack of quantity. Only 17 percent of the classrooms have temperature controls.

The second highest priority item, in this section, is the natural lighting in the shared spaces. Only one third of these spaces have adequate natural lighting. The gymnasium, for example, only has a few windows even though it is not an interior space and could potentially accommodate more.

Additional issues the specialty classrooms are the lack of storage, bubblers and fixed equipment. The specialty classrooms lack adequate student and teacher built-in storage and shelving. Many rooms do not have adequate teacher furnishings, such as a desk or wardrobe. The rooms are not equipped with interactive learning devices and secondary teaching walls, as required. In spite of the satisfactory rating for this section, the items discussed above need attention to ensure this school continues to be an excellent teaching and learning environment for its students.

BUILDING ASSESSMENT

The building assessment of Samuel W. Tucker reveals a satisfactory rating. The only category that does not meet the educational adequacy standards is technology and supporting infrastructure. The inadequate rating for this section is due to electrical receptacles not being present in multiple locations along classroom and corridor walls. Additionally, the clocks and PA system throughout the building are not integrated, nor are the clocks digital, as desired. Finally, there is limited wireless connectivity in the hallways and corridors and the school does not provide wireless bandwidth at a one-to-one student-to-device ratio.

The other two categories: building organization and accessibility; both meet the standards. However, the school's noisier programmatic spaces are not adequately separated from the instructional classrooms, as required.

RECOMMENDATIONS

The school will continue to be over capacity by 2020. In order to accommodate the projected enrollment, an addition to the building would likely exceed the FAR allowed by the zoning. Considerations should be given to accommodating the projected increase in enrollment at another location due to the overall school size and site constraints.

GROUP 1 — REQUIRED PLANNING

- **Assess** opportunities to reconfigure existing instructional classroom spaces to meet the recommended size requirements outlined in the educational specifications.
- **Assess** building condition comprehensively through a facility condition assessment.

GROUP 2 — FIRST PRIORITY

- **Reconfigure** the existing interior to provide sufficient sized classrooms (\$14.5M).
- **Renovate** the shared spaces to provide sufficient natural light.

GROUP 3 — SECOND PRIORITY

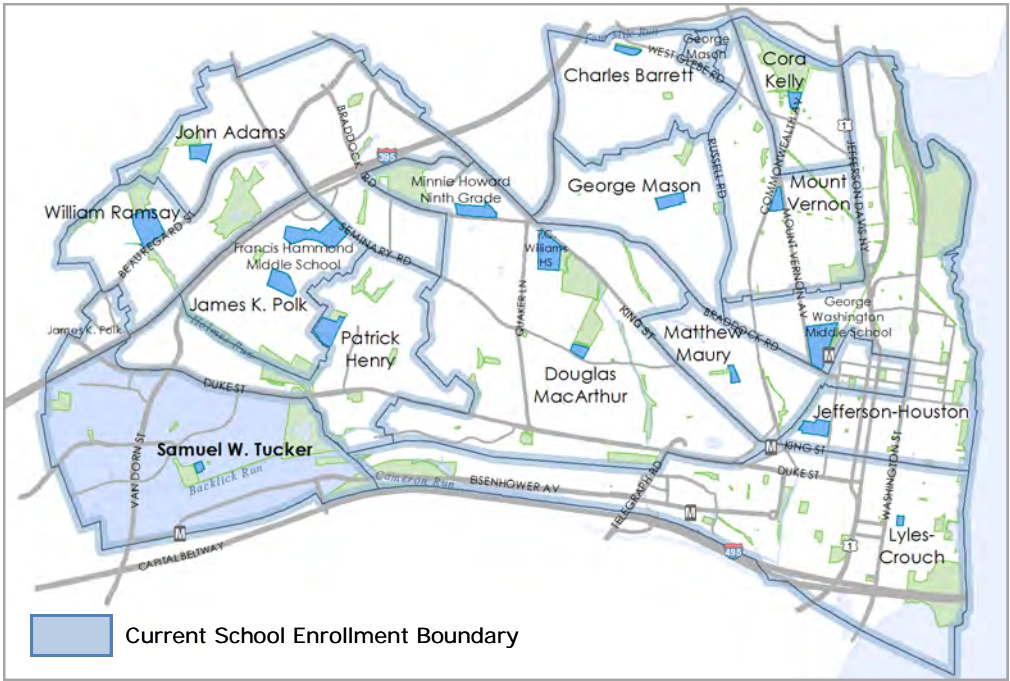
- **Assess** the possibility of equipping all classrooms and support spaces with individual climate control.
- **Provide** additional storage for teachers and students in the reconfigured classrooms.
- **Equip** all classrooms with two teaching walls and technology

GROUP 4 — LONG RANGE RECOMMENDATIONS

CONCEPTUAL COST ESTIMATES

- **Complete Master Plan Construction \$14.5M (in 2015 dollars)**
 - 15% contingency
 - 17% other fees, insurance, etc.
- **Limited renovation of existing building including:**
 - New floor and ceiling finishes
 - New walls and MEP systems as necessary for new classroom configuration
 - Renovation of cafeteria and gymnasium
 - New plumbing and light fixtures

Tucker is not currently in the modernization program per the FY 2016-2025 CIP. This project will be evaluated based on ACPS priorities and funding constraints during the development of future CIPs.



**SAMUEL W. TUCKER
ELEMENTARY SCHOOL**



Neighborhood context. The Norfolk Southern tracks and Cameron Run separate the site from uses along Eisenhower Avenue, shown at bottom right in this photo. Pickett Street runs along the upper left. The Cameron Station residential development is to the right of the school.



School site looking north, showing adjacent park and ball field. Cameron Run runs along the lower part of this photo.

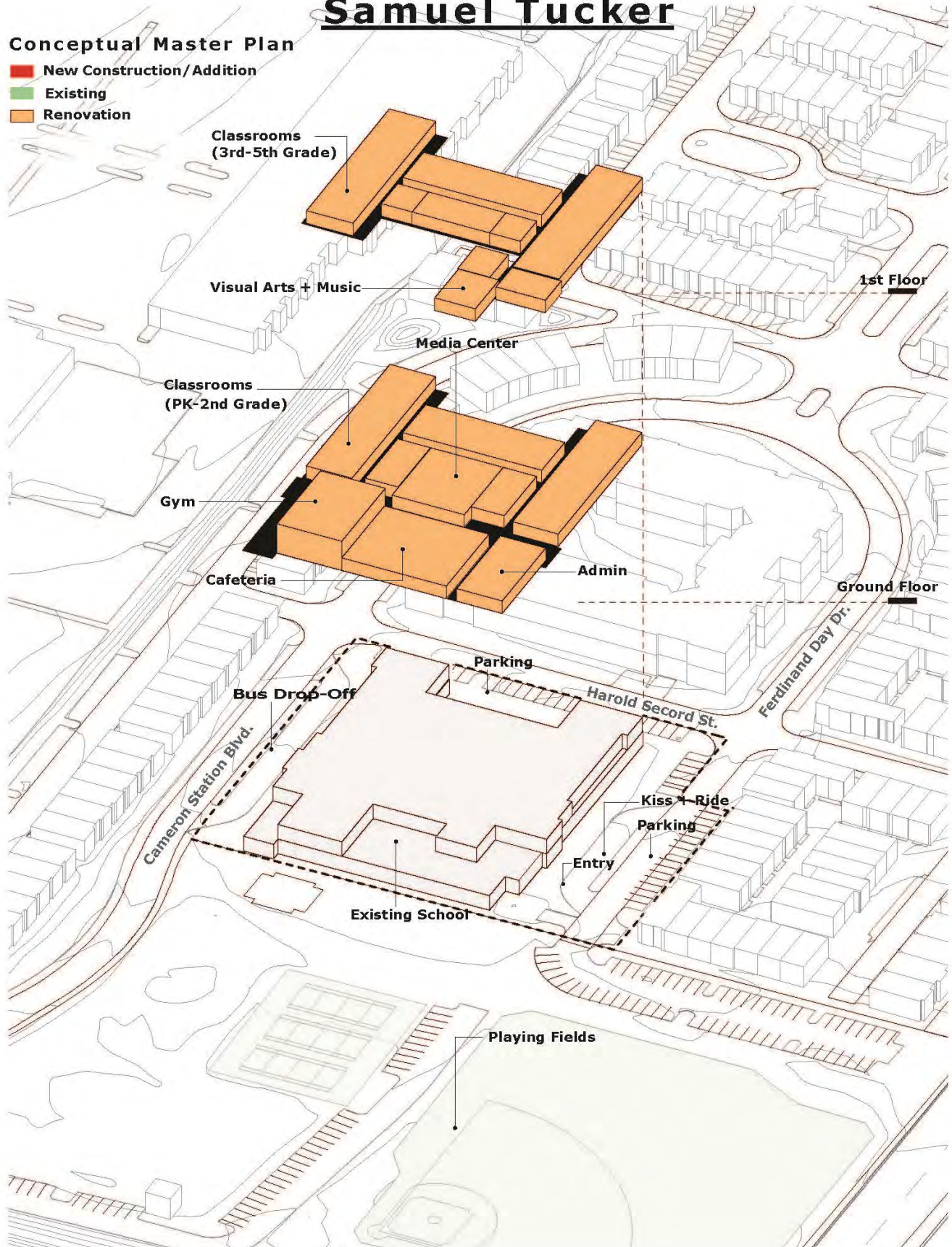


Master Plan concept showing renovations within the existing school footprint only.

Samuel Tucker

Conceptual Master Plan

- New Construction/Addition
- Existing
- Renovation



WILLIAM RAMSAY ELEMENTARY SCHOOL

5700 Sanger Avenue, Alexandria, VA 22311

| <i>AT A GLANCE...</i> | | | |
|---|---|--|--|
| <i>Year Built</i> 1958 | <i>Current Floor Area</i> 87,650 (school) 18,150 (rec center) 5,700 (nature center) | <i>Lot Size (acres)</i> 20 | <i>Core Classroom Surplus/Deficit (2020)</i> -18 |
| <i>Zoning</i> R-12 (028.02-03-34) | <i>Floor Area Permitted by Zoning (SF)</i> 99,989 | <i>Floor Area Ratio</i> 0.30 | <i>Total Program Surplus/Deficit (Sq.Ft.) (2020)</i> -23,857 |
| RA (028.02-03-34) | 58,432 | 0.75 | |
| POS (028.02-03-34) | 0 | 0.0 | |
| <i>School Site</i> Borderline | <i>Building Assessment</i> Inadequate | <i>Instructional & Support Spaces</i> Satisfactory | <i>Projected Utilization (2020)</i> 133% |

BACKGROUND

William Ramsay Elementary was built in 1958 and received building additions in 1963, 1977, 1990 and 2001. The school is bordered by an adjoining nature and recreation center. The school supports the community through Campagna Extended



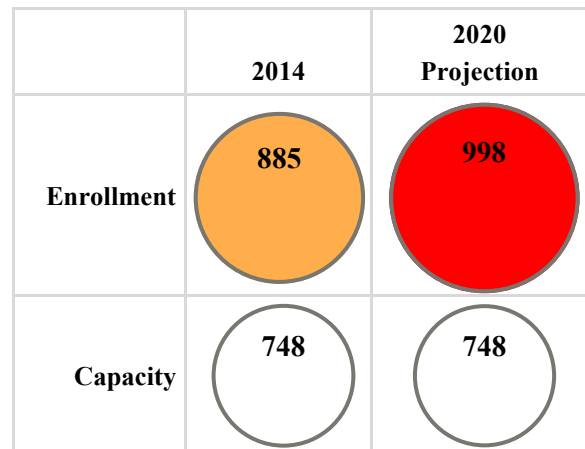
Day Care Programs, nature center programs, PTA reflections programs, and recreation center activities. The nature center and recreation center have an independent entrance; therefore, the community can access them without going through the school. Additionally, the projected enrollment will exceed the recommended maximum school size for elementary schools.

In 2014, Ramsay's enrollment was 885 students with a measured capacity of 748. The 2020 enrollment projection indicates the school's population will increase to 998 students.

The academic curriculum at Ramsay includes reading, language arts, mathematics, social studies, and science and also offers:

- Art instruction with a certified art teacher
- Vocal music
- Band, Orchestra and Instrument music lessons beginning in fourth grade
- Two physical education classes per week
- Family life

STUDENT ENROLLMENT (# OF STUDENTS)



| Color | Enrollment as % of Capacity | |
|-------|-----------------------------|-----------------------------|
| | 100% and below | Fully or underutilized |
| | 101% to 120% of capacity | Substantially over capacity |
| | Above 120% of capacity | Extremely over capacity |

- English as a second language
- Special education programs
- TAG pull out program
- Talented and Gifted program for grades K-5¹

¹<http://www.acps.k12.va.us/ramsay>

KEY FINDINGS

SUMMARY

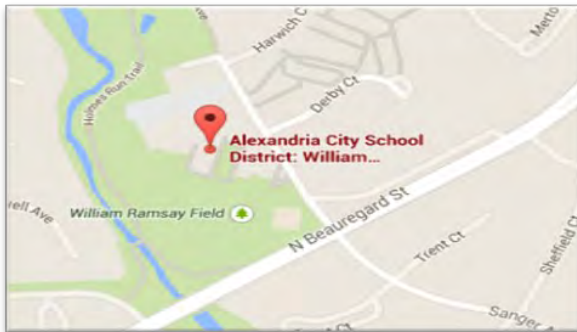
William Ramsay meets 58 percent of the educational adequacy benchmarks for an ideal 21st century elementary school.

HIGH PRIORITY ITEMS

- Accessibility sub-section which received a very inadequate rating.
- Inadequate measured size of the core and specialty classrooms.

SCHOOL SITE

| SITE DATA | |
|----------------------------------|--|
| <i>Steep Slopes</i> | <i>Steep Slopes</i> |
| <i>Playgrounds</i> | 2 |
| <i>Recreation Features</i> | <i>Baseball field, tennis court, asphalt play area, and open field</i> |
| <i>Resource Protection Areas</i> | <i>Adjacent to Dora Kelly Natural Park & dense trees</i> |
| <i>Parking</i> | 135 |
| <i>Storm Water Management</i> | <i>Storm filter & storm captor at western end of parking lot</i> |



Based on the assessment, the school site received a borderline rating. The site circulation received a borderline rating because the school's kiss-and-ride driveway and the bus lane share the same vehicular entrance. The shared driveway also provides the school with limited stacking area which can cause congestion on adjacent streets. Finally, the on-site parking is not adequate based on the size of the school.

The play fields and play areas are in safe locations, but not adequate in size, nor do they possess the required equipment per the educational specifications. Included in the Beauregard Small Area plan is a multi-purpose field

that will provide adequate field space for the school. This will be located in the area of the existing tennis courts at the corner of Sanger Avenue and North Beauregard Street. The school is located between the William Ramsay Recreation Center and the Dora Kelly Nature Center.

INSTRUCTIONAL AND SUPPORT SPACES

While the instructional and support spaces rank satisfactory, there are a few areas of concern in this section. **The most important issue to note is the lack of sufficient square footage in the core and specialty classrooms.** The measured average size for pre-kindergarten and kindergarten class is 924 square feet instead of the desired 1,025. The measured average size for first through fifth grade class is 816 square feet instead of the desired 900.

Instructional rooms lack temperature controls with more than 60 percent of the occupants reporting humidity issues. In specialty classrooms, there is minimal student and teacher program furniture includes shelving, cabinets, wardrobes, and cubbies. These items are either not adequate or non-existent in most instructional spaces. The majority of these specialty spaces are also missing an interactive electronic device. Lastly, the shared spaces would benefit with additional windows increasing natural light levels.

BUILDING ASSESSMENT

The comprehensive building assessment of William Ramsay reveals an inadequate rating. The school lacks extend learning areas and public restrooms for visitors. Additionally, the shared programmatic spaces are not appropriately clustered nor located away from academic classrooms.

Electrical outlets are not present in multiple locations along classroom and corridor walls. The clocks and PA system throughout the building are not integrated, nor are the clocks digital, as desired. Additionally, there is limited wireless connectivity in the hallways and corridors. Finally, the school does not provide wireless bandwidth at a one-to-one student-to-device ratio.

This school lacks judicious use of ramps, elevators, and signage to allow a handicapped student, teacher, or visitor access to the entire school. The school has two separate floors and multiple split levels. There is an elevator at the school, but poorly located at one corner of the school, and only provides access to four resource classrooms on the second floor addition. The second floor addition is a separate building from the first and second floor of the main school.

RECOMMENDATIONS

The school will be over capacity by 2020. In order to accommodate the projected enrollment, an addition to the building would likely exceed the FAR allowed by the zoning. Considerations should be given to accommodating the projected increase in enrollment at another location due to the overall school size and site constraints.

GROUP 1 — REQUIRED PLANNING

- **Site** assessment to determine whether the drop-off and bus entrance for the school can be separated (based on property boundaries, setbacks, etc.) in coordination with the Recreation and Nature Centers.
- **Assess** building condition comprehensively through a facility condition assessment.

GROUP 2 — FIRST PRIORITY

- **Install** an elevator near the main entry to address existing ADA accessibility issue. Assess possible solutions to address existing ADA accessibility issues within the corridors.
- **Reconfigure** the existing school to meet the recommended size requirements and key organizational adjacencies outlined in the educational specifications (\$18.3M).

GROUP 3 — SECOND PRIORITY

- **Equip** all rooms with individual climate control.
- **Equip** all core classrooms and support spaces with additional electrical receptacles to meet educational adequacy standards.
- **Upgrade** the building technology to meet the educational adequacy standards.
- **Provide** additional storage for teachers and students as well as an upgrade to the furniture, fixtures and equipment.

GROUP 4 — LONG RANGE RECOMMENDATIONS

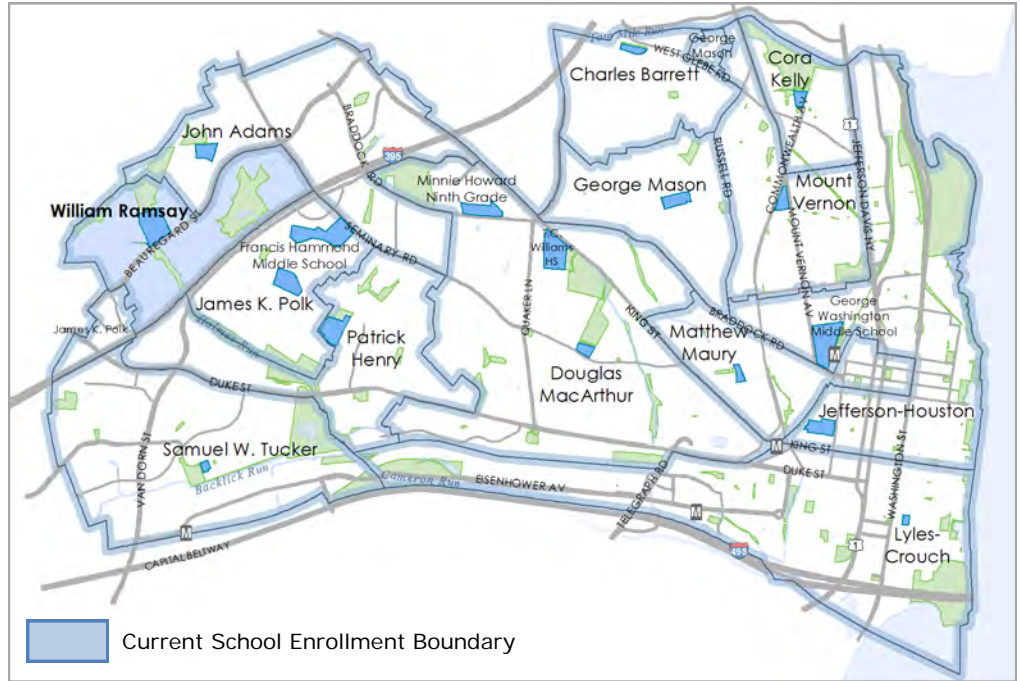
- **Reconfigure** parking to improve efficiency.
- **Included** in the Beauregard Small Area plan is a multi-purpose field that will provide adequate field space for the school.
- **The implementation of the Beauregard Small Area Plan** will reconfigure the area's road network and the surrounding neighborhoods. An addition could be considered to accommodate the projected enrollment increase, if expansion beyond the recommended school size is warranted. This addition would likely exceed the FAR and require a rezoning (\$18.1M).

CONCEPTUAL COST ESTIMATES

- **Complete Master Plan Construction \$36.4 (in 2015 dollars)**
 - 15% contingency
 - 17% other fees, insurance, etc.
- **New 53,000 SF addition (\$18.1M)**
 - Demolition of the portion of the existing building to be replaced
- **Total renovation of 68,000 SF of the existing building (\$18.3M), including:**
 - All new mechanical, plumbing, electrical and window systems
 - New food service and a/v equipment for gymnasium, cafeteria and classrooms
 - New interior walls, floors and ceilings
 - New elevator

Ramsay is not currently in the modernization program per the FY 2016-2025 CIP. This project will be evaluated based on ACPS priorities and funding constraints during the development of future CIPs.

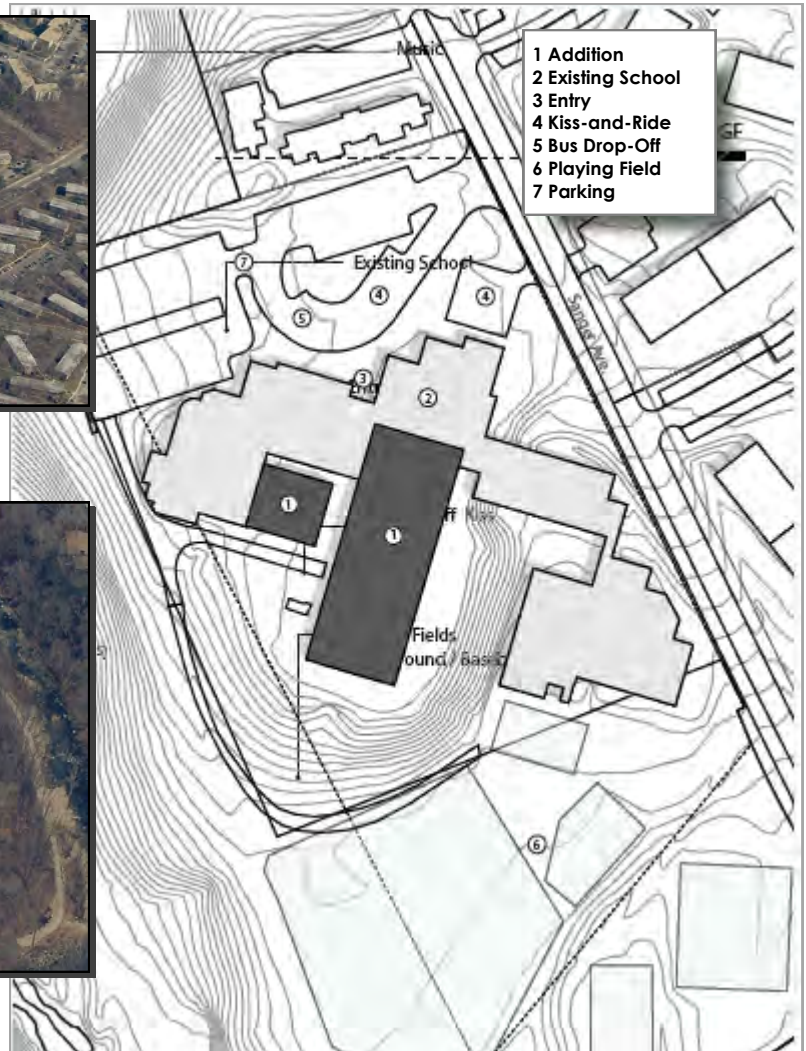
WILLIAM RAMSAY ELEMENTARY SCHOOL



Neighborhood context looking north across Beauregard Street.



School site looking south across Sanger Avenue with Holmes Run on the right.



Master Plan concept showing potential enlargement of south wing and media center addition.

FRANCIS C. HAMMOND MIDDLE SCHOOL

4646 Seminary Road, Alexandria, VA 22304

| <i>AT A GLANCE...</i> | | | |
|------------------------------|--|---|--|
| <i>Year Built</i> | <i>Current Floor Area</i> | <i>Lot Size (acres)</i> | <i>Core Classroom Surplus/Deficit (2020)</i> |
| 1956 | 236,125 | 25 | -11 |
| <i>Zoning</i> | <i>Floor Area Permitted by Zoning (SF)</i> | <i>Floor Area Ratio</i> | <i>Total Program Surplus/Deficit (Sq.Ft.) (2020)</i> |
| R-8 (030.01-01-03) | 364,659 | 0.45 | -29,368 |
| R-20 (030.01-01-03) | 69,811 | 0.25 | |
| <i>School Site</i> | <i>Building Assessment</i> | <i>Instructional & Support Spaces</i> | <i>Projected Utilization (2020)</i> |
| Satisfactory | Inadequate | Borderline | 131% |

BACKGROUND

Francis C. Hammond was originally built in 1956. The building operated as a high school from 1956 through 1971. In fall 1979, Hammond Junior High School opened and served grades seven through nine. In fall 1993, the junior high was reorganized into a middle school for grades six through eight.



In 2014, Hammond had an enrollment of 1,436 students and a capacity of 1,396 students. By 2020, enrollment is expected to increase to 1,832 students. Therefore, the existing school capacity will not accommodate the increase of students and will be over utilized and it will exceed the recommended size for a middle school.

The academic curriculum at Francis Hammond includes reading, language arts, mathematics, social studies, and science and also offers:

- Art, Band, Orchestra, Choir
- Health/Physical Education
- Family life instruction at age-appropriate levels
- Computer Applications
- Foreign Languages (Chinese, German, French, Spanish and Latin)
- Technology
- ELL programs for students learning English as a second language
- Opportunity to participate in numerous after school programs¹

¹<http://www.acps.k12.va.us/fch>

STUDENT ENROLLMENT (# OF STUDENTS)

| | 2014 | 2020 Projection |
|-------------------|-------------|------------------------|
| Enrollment | 1,436 | 1,538 |
| Capacity | 1,396 | 1,396 |

| Color | Enrollment as % of Capacity | |
|-------|-----------------------------|-----------------------------|
| | 100% and below | Fully or underutilized |
| | 101% to 120% of capacity | Substantially over capacity |
| | Above 120% of capacity | Extremely over capacity |

KEY FINDINGS

SUMMARY

The data collected through this assessment revealed that Hammond meets only 61 percent of the educational adequacy benchmarks for an ideal 21st century elementary school.

HIGH PRIORITY ITEMS

- Based on the 2020 projections, Hammond will be significantly undersized if it remains in its current condition.

RECOMMENDATIONS

The school will be significantly over capacity by 2020. Considerations should be given to accommodating the projected increase in enrollment at another location due to the building capacity and the overall school size.

GROUP 1 — REQUIRED PLANNING

- **Plan** to accommodate the projected increase in enrollment at another location due to the building capacity and the overall school size.
- **Assess** building condition comprehensively through a facility condition assessment.

GROUP 2 — FIRST PRIORITY

- **Reconfigure** the existing instructional classroom spaces to meet the recommended size requirements outlined in the educational specifications (\$33.4M).
- **Address** the ADA accessibility issue through the installation of ramps and/or elevators.

GROUP 3 — SECOND PRIORITY

- **Equip** all classrooms and support spaces with individual climate controls.
- **Provide** additional storage for teachers and students in the reconfigured classrooms.

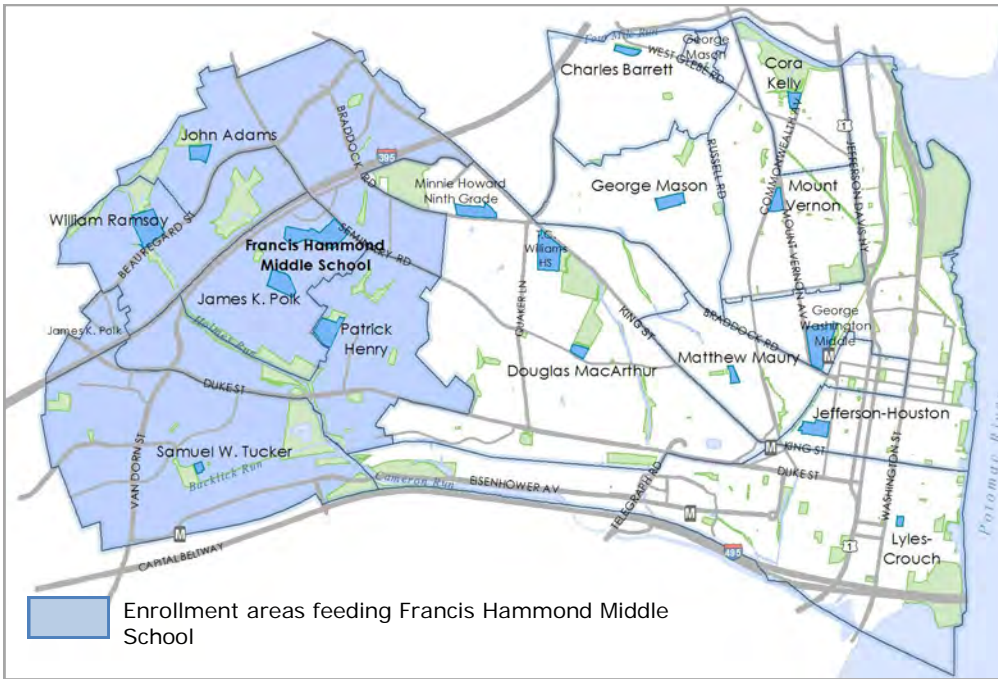
GROUP 4 — LONG RANGE RECOMMENDATIONS

- **Reconfigure** site circulation to consolidate the staff parking and separate the bus drop off from the kiss and ride and to improve site efficiency.
- **Utilize** the lower field/roller rink area as a site for a future school.

CONCEPTUAL COST ESTIMATES

- **Complete Master Plan Construction \$33.4M (in 2015 dollars)**
 - 15% contingency
 - 17% other fees, insurance, etc.
- **Total renovation of the existing building including:**
 - All new mechanical, plumbing, electrical and window systems
 - New food service and a/v equipment for classrooms
 - New interior walls, floors and ceilings
 - New elevator

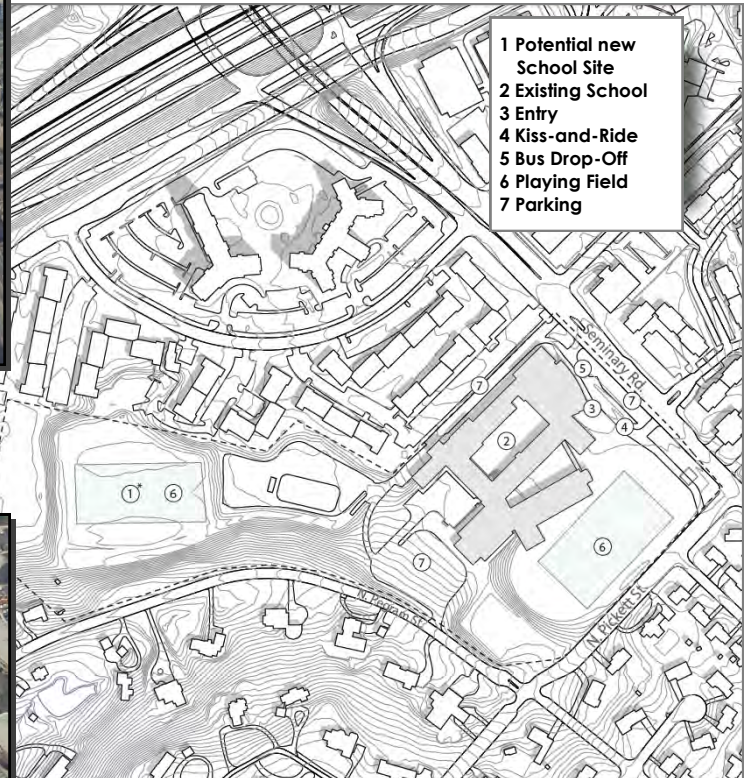
Hammond is not currently in the modernization program per the FY 2016-2025 CIP. This project will be evaluated based on ACPS priorities and funding constraints during the development of future CIPs.



FRANCIS HAMMOND MIDDLE SCHOOL



Nighborhood context looking south along I-395 across Seminary Road. Inova Hospital is at the far left.



Master Plan concept showing potential new school on unimproved lower playing field at left.

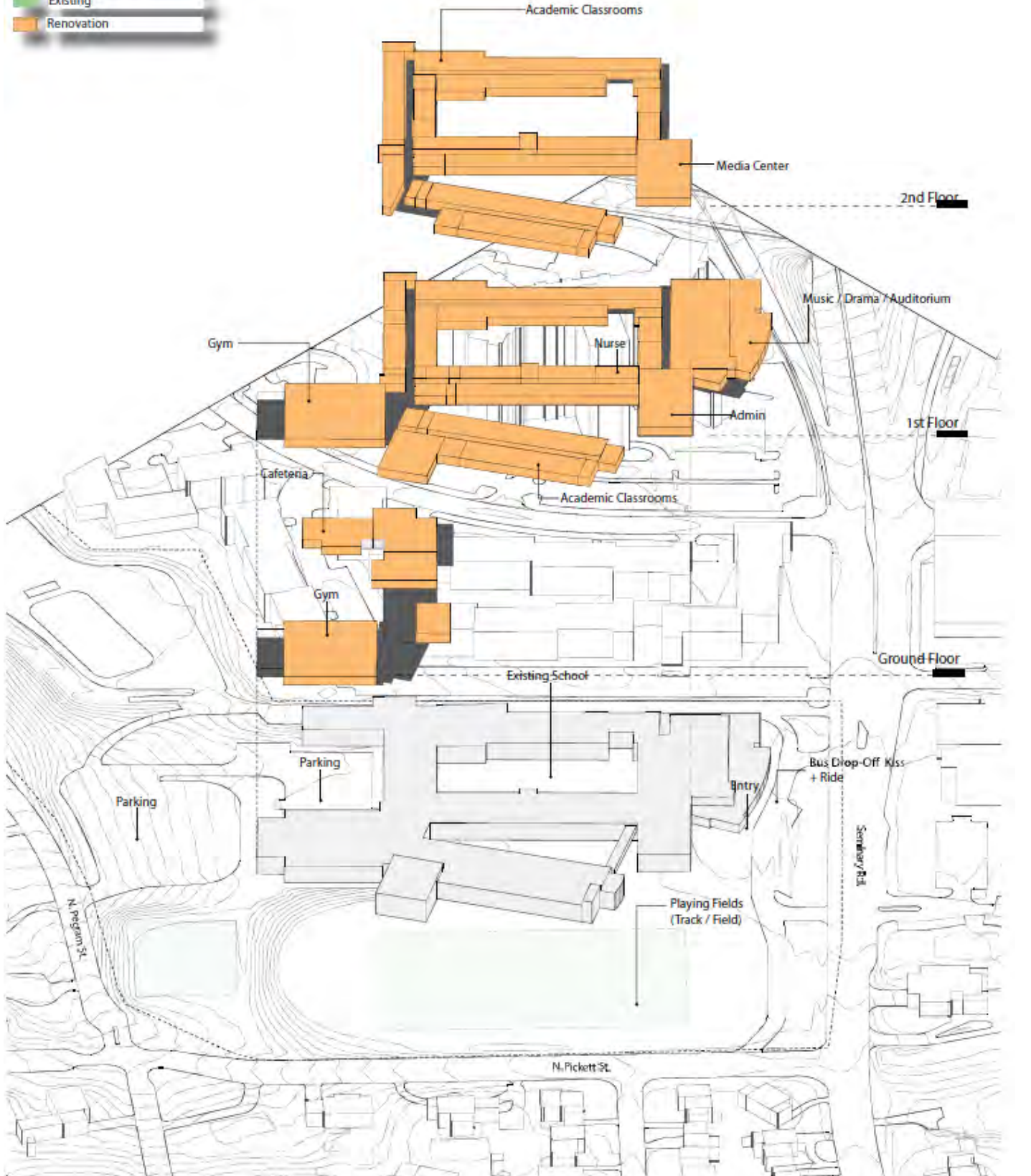


School site looking south across Seminary Road with Seminary Hills Apartments at right and North Pegasus Street behind the school at upper left.

Francis C. Hammond

Conceptual Master Plan

- New Construction/Addition
- Existing
- Renovation



GEORGE WASHINGTON MIDDLE SCHOOL

1005 Mount Vernon Avenue, Alexandria, VA 22301

| AT A GLANCE... | | | |
|------------------------|--|---|--|
| <i>Year Built</i> | <i>Current Floor Area</i> | <i>Lot Size (acres)</i> | <i>Core Classroom Surplus/Deficit (2020)</i> |
| 1935 | 237,332 | 23.2 | -1 |
| <i>Zoning</i> | <i>Floor Area Permitted by Zoning (SF)</i> | <i>Floor Area Ratio</i> | <i>Total Program Surplus/Deficit (Sq.Ft.) (2020)</i> |
| R-B (054.01-01-01) | 574,090 | 0.75 | |
| POS (054.01-01-01) | 0 | 0.0 | |
| CDD #10 (044.03-07-02) | | | |
| <i>School Site</i> | <i>Building Assessment</i> | <i>Instructional & Support Spaces</i> | <i>Projected Utilization (2020)</i> |
| Satisfactory | Borderline | Satisfactory | 122% |

BACKGROUND

George Washington was built in 1935 and operated as a high school until 1971. In 1971, George Washington and Francis Hammond (FH) schools were reorganized to serve ninth and tenth graders while T.C. Williams served eleventh and twelfth grade. George Washington was reorganized again in 1979 to serve seventh, eighth and ninth graders. George Washington finally became a middle school in 1993. In 2014, George Washington had an enrollment of 1,223 students with measured capacity of 1,150 students. By 2020, enrollment is expected to increase to 1,399 students. Therefore, the existing school will be over capacity by 249 students.



The academic curriculum at George Washington includes reading, language arts, mathematics, social studies, science and also offers:

- Art, Choir, Band and Orchestra
- Computer applications
- Speech and Drama
- Foreign Languages (Chinese, French, German, Spanish and Latin)
- Technology
- ELL program for students learning English as a second language
- Special education programs
- Health/Physical Education
- Opportunity to join many after school programs ¹

¹<http://www.acps.k12.va.us/gw>

STUDENT ENROLLMENT (# OF STUDENTS)

| | 2014 | 2020 Projection |
|-------------------|-------|--------------------|
| Enrollment | 1,223 | 1,402 |
| Capacity | 1,150 | 1,150 |

| Color | Enrollment as % of Capacity | |
|--------|-----------------------------|-----------------------------|
| Blue | 100% and below | Fully or underutilized |
| Orange | 101% to 120% of capacity | Substantially over capacity |
| Red | Above 120% of capacity | Extremely over capacity |

KEY FINDINGS

SUMMARY

The data collected through this assessment reveals that George Washington Middle School meets 67 percent of the educational adequacy benchmarks for an ideal 21st century elementary school.

HIGH PRIORITY ITEMS

- Core classrooms are undersized.
- Main entrance does not meet the recommended standards for access control.

SCHOOL SITE

| SITE DATA | |
|----------------------------------|--|
| <i>Steep Slopes</i> | <i>Isolated steep area</i> |
| <i>Playgrounds</i> | 2 |
| <i>Recreation Features</i> | |
| <i>Resource Protection Areas</i> | No |
| <i>Parking</i> | 271 |
| <i>Storm Water Management</i> | <i>Multiple inlets, two underground detention systems.</i> |



George Washington is not equipped with a dedicated vehicular traffic drop-off and pick-up area for students and visitors.

The school bus lane and the kiss-and-ride are located on the school premises, but essentially next to each other. Pedestrians being dropped off at the kiss-and-ride must cross the bus lane to access the school. The play areas, located behind the school, are in a good location and connect to a few pedestrian foot paths. However, to access the play fields, students must cross the thoroughfare road and parking lot. Outdoor learning areas were not observed.

INSTRUCTIONAL AND SUPPORT SPACES

George Washington earns a score of satisfactory for overall instructional and support spaces. This rating reflects areas of concern related to insufficient classroom sizes, absence of adequate storage and furnishings, and poor internal organization of the spaces. The most urgent items identified for this section of the assessment are core classroom size and capacity. Within the core classroom section, the academic classrooms are driving the overall rating to inadequate because the average size is 670 square feet, rather than the desired 850 square feet. While the average classroom is 22 percent undersized, which directly impacts capacity, the school has multiple un-used rooms that help improve the capacity score. The classrooms are also lacking temperature controls with many noting humidity issues.

The internal organization of a classroom defines its ability to support the recommended program activities within the space. Over 68 percent of classrooms do not have an interactive electronic presentation device.

BUILDING ASSESSMENT

Over half the classrooms at George Washington do not have the technology infrastructure and tools to support a 21st century learning environment. Overall the school does not meet the division's expectations for small learning environments and key adjacencies. Academic clusters are present; however there are no extended learning areas or collaborative learning spaces within these clusters. The shared programmatic space is not centrally located nor appropriately clustered to allow for after-hours access as needed. Lastly, the faculty is unable to secure the rest of the school from the after-hours space as desired.

RECOMMENDATIONS

The school will be over capacity by 2020. In order to accommodate the projected enrollment, an interior renovation is required. Additionally, a small addition is recommended to provide a more visible and controlled access point.

GROUP 1 — REQUIRED PLANNING

- **Site** assessment to determine whether the drop-off location for the school can be relocated/reconfigured (based on property boundaries, setbacks, etc.).
- **Explore** extending the main entry corridor to the existing gymnasium to help address the key shared space organization issues without the need for major reconfiguration or addition.
- **Assess** building condition comprehensively through a facility condition assessment.

GROUP 2 — FIRST PRIORITY

- **Reconfigure** the spaces within the existing school to meet the recommended size requirements for individual academic spaces as outlined in the educational specifications.
- **Reconfiguration/addition** of the main entry that would allow for a dedicated drop-off and entry point to the school from the existing bus lane. It would provide a more visible and controlled access point to the school for visitors as well.

GROUP 3 — SECOND PRIORITY

- **Equip** all classrooms and support spaces with individual climate controls, and technological equipment and infrastructure.
- **Provide** additional storage for teachers and students as well as an upgrade to the furniture, fixtures and equipment. The square footage from un-used spaces could be repurposed to increase the size of classrooms used throughout the day by students.

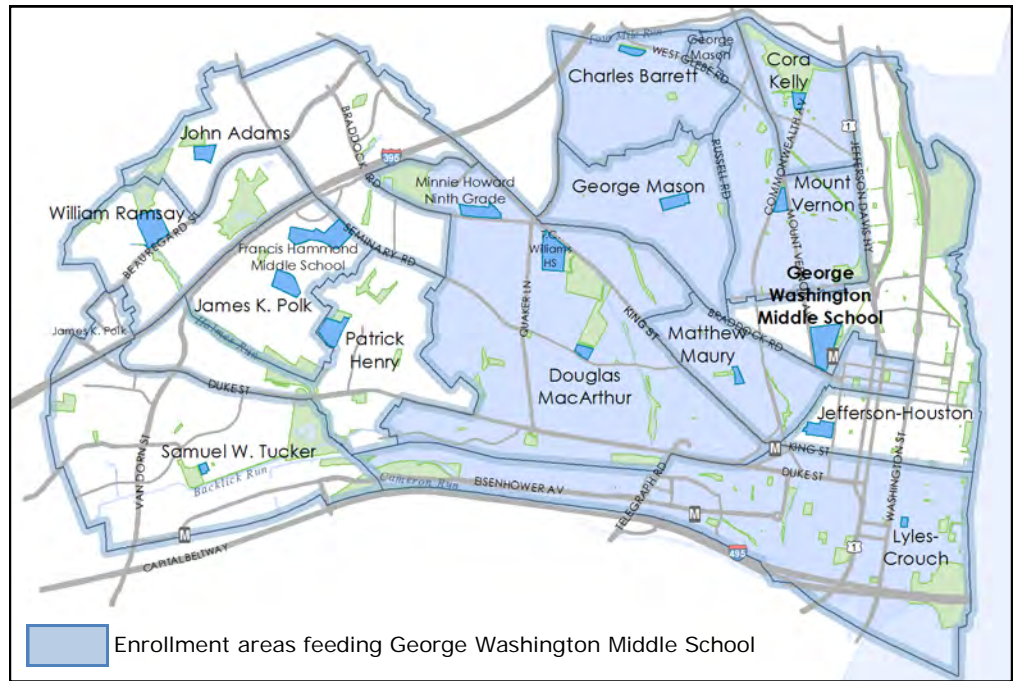
GROUP 4 — LONG RANGE RECOMMENDATIONS

CONCEPTUAL COST ESTIMATES

- **Complete Master Plan Construction \$70M (in 2015 dollars)**
 - 15% contingency
 - 17% other fees, insurance, etc.
- **Total renovation of the existing building and 2,000 SF addition including:**
 - All new mechanical, plumbing, electrical and window systems
 - Façade rehabilitation
 - New food service and a/v equipment for gymnasium, auditorium, cafeteria and classrooms
 - New interior walls, floors and ceilings
 - New elevator

George Washington is not currently in the modernization program per the FY 2016-2025 CIP. This project will be evaluated based on ACPS priorities and funding constraints during the development of future CIPs.

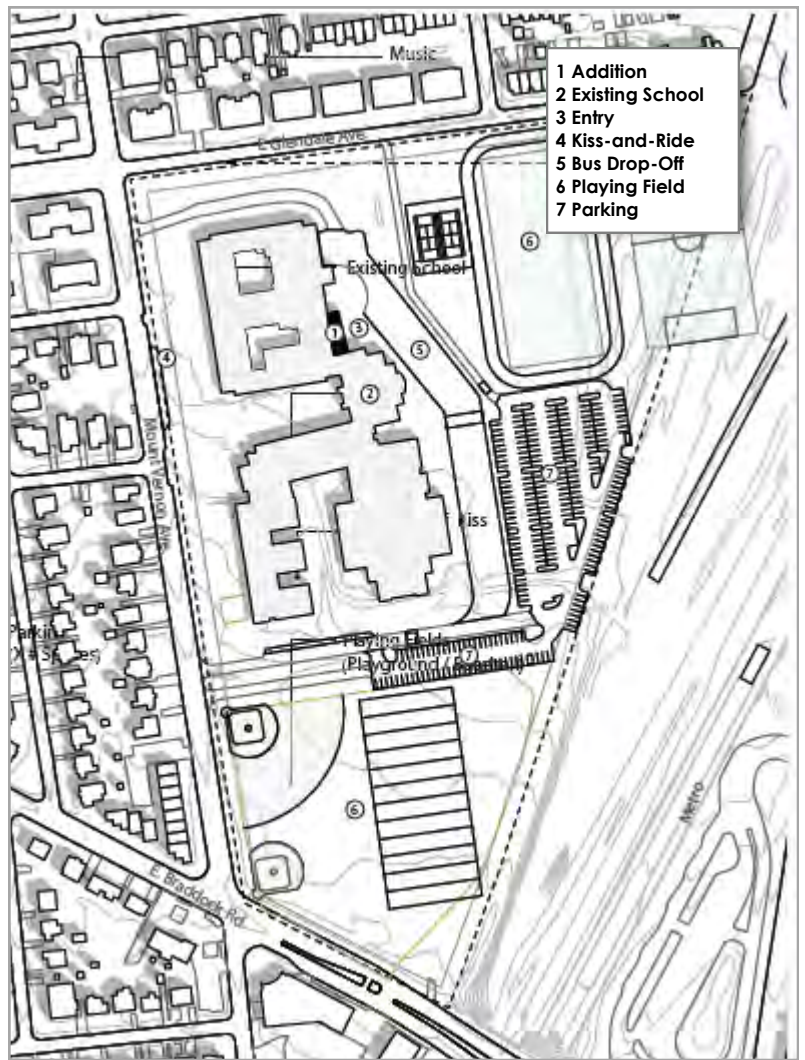
GEORGE WASHINGTON MIDDLE SCHOOL



Neighborhood context looking north across Braddock Road and Metro and CSX rail lines.



School site looking north across Braddock Road and the Metro and CSX rail lines. The Braddock Road Metro Station is at the lower right.

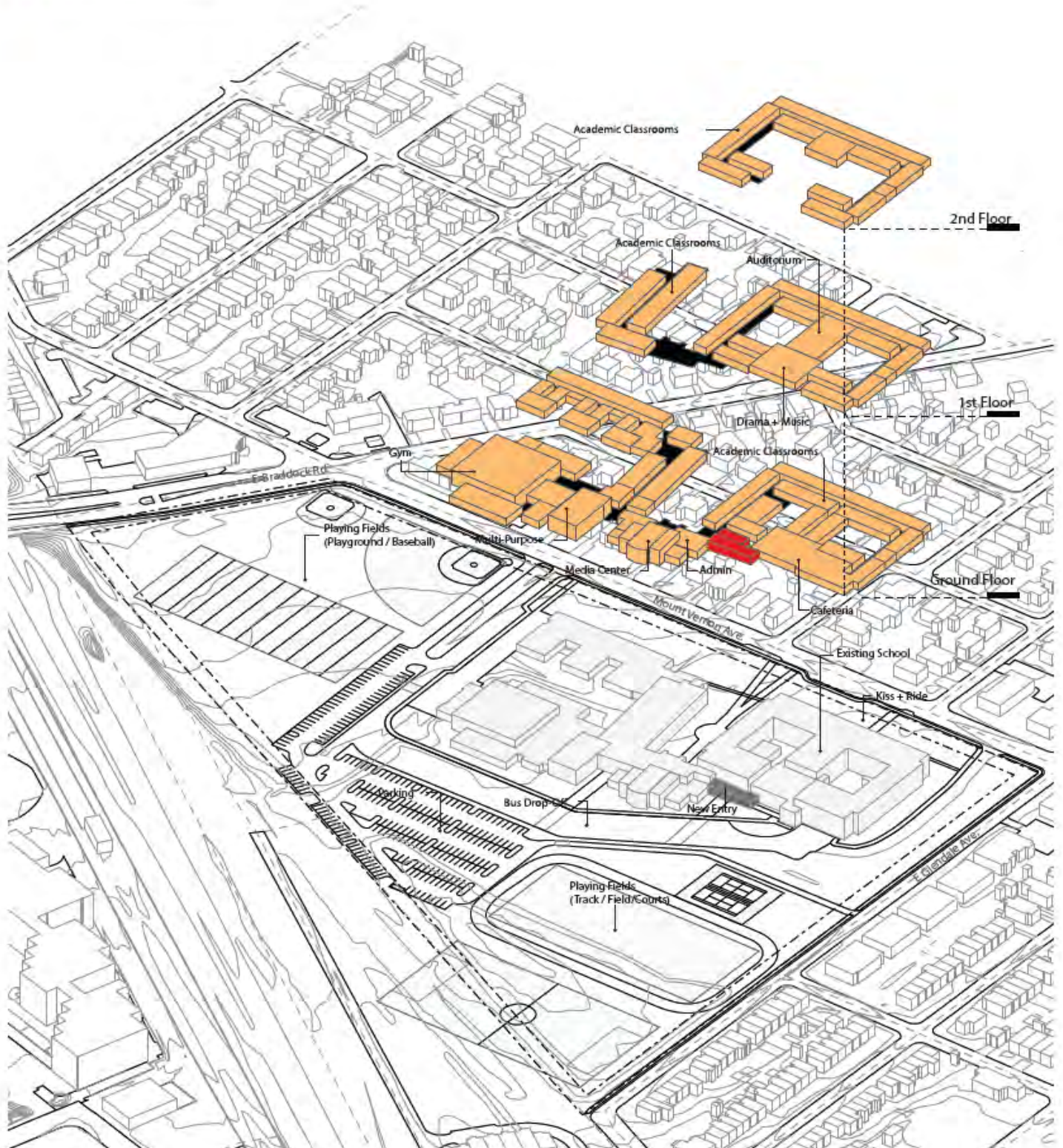


Master Plan Concept

George Washington

Conceptual Master Plan

- New Construction/Addition
- Existing
- Renovation



T.C. WILLIAMS: KING STREET CAMPUS

3330 King Street Alexandria, VA 22302

| | | |
|---|--|--|
| Year Built: 2007 | Current School Floor Area: 461,147 sq ft | Current Lot Size: 19.88 acres |
| Zoning: R20 | Floor Area Permitted by Zoning: 547,000 | Floor to Area Ratio: .51 per DSUP |
| Classroom Count: 169 | Ed Spec Capacity @ 86% Efficiency: 2,928 | Projected Utilization (2022): 125% |
| Space Adequacy: | Alignment: | Current Efficiency: |
| Exceeds Space Requirements: classrooms are greater than 110% of space requirements | 38 classrooms - 23% | <p>ACPS Target Efficiency: 86% Generally this rate means rooms are used seven out of eight periods each day. See the "Schedule Efficiency" section for additional detail.</p> <p>A-Day Schedule Average: 77% The average efficiency for A-Day is based on the following class periods: 1, 3, 5, and 7.</p> <p>B-Day Schedule Average: 78% The average efficiency for B-Day is based on the following class periods: 1, 2, 4, and 6.</p> |
| Satisfactory: classrooms are between 90% to 110% of space requirements outlined in the Ed Spec | 20 classrooms - 12% | |
| Borderline: classrooms are between 80% to 89% of space requirements | 75 classrooms - 44% | |
| Inadequate: classrooms are between 70% to 79% of space requirements | 10 classrooms - 6% | |
| Very Inadequate: classrooms are within less than 69% of space requirements | 26 classrooms - 15% | |

Student Counts:

| | FY 2017 Enrollment | FY 2022 Projected |
|--|-----------------------|----------------------|
| Student Count | 2943 | 3654 |
| Capacity | 2928 | 2928 |
| Utilization Rate (Student Count / Capacity) | 101% | 125% |

Utilization Rate Categories:

| Enrollment as % of Capacity | Definition |
|-----------------------------|------------------|
| < 89 | Underutilized |
| 90 - 110% | Ideally Utilized |
| > 111 % | Over Capacity |

BACKGROUND

T.C. Williams, Alexandria's only public high school, is a comprehensive high school comprised of two campuses: the Minnie Howard Campus and the King Street Campus. In September 2016, T.C. Williams High School had a total enrollment of 3,754 students across both campuses.

The Minnie Howard Campus serves grade 9, and the King Street Campus serves grades 10 – 12 and grade 9 students who participate in the International Academy program. Some 9th grade students from Minnie Howard travel to the King Street Campus during school hours on ACPS provided buses to attend specific class offerings, often in the afternoon.

The King Street Campus was built in 1965 and modernized in 2007 with a new facility at its present site. The modernized building is a state-of-the-art facility that provides smaller learning communities, as well as flexible academic space capable of meeting the evolving secondary school curriculum requirements. In fall 2008, the second phase of the campus modernization project was completed and included an artificial turf sports field, renovated stadium, new athletic track, new playing field, new bus driveway, and a two-story parking garage. The project received a LEED Gold rating.

ACADEMIC PROGRAM

The academic program at T.C. Williams High School includes 188 courses in reading, language arts, mathematics, social studies, and science, as well as fine arts, performing arts, physical education, and health. The school also offers the following special academic programs:

- Academy of Finance
- Advanced Placement/Honors/Dual Enrollment
- AVID
- International Academy
- Special Education/Inclusion Program
- STEM Academy
- Career and Technical Programs

The King Street and Minnie Howard campuses operate as one high school. The King Street campus serves all 10th-12th grade students and all 9th-12th grade students enrolled in the International Academy. The King Street campus serves 9th grade students from the Minnie Howard campus in instances where a course is not offered at the Minnie Howard campus. Over one-third of the Minnie Howard enrollment in 2016-2017 school year took one or multiple courses at the King Street campus, at some point during the day, typically during the afternoon. These students are provided transportation from the Minnie Howard campus to the King Street campus.

ENROLLMENT AND UTILIZATION

The King Street Campus had a September 2016 enrollment of 2,943 students. The calculated capacity of the King Street Campus is 2,928 students based on an 86% efficiency rate, yielding a utilization rate (enrollment vs. capacity) of 101% in September 2016. Enrollment projections indicate the King Street Campus school population will increase to 3,654 by the year 2022, resulting in a utilization of 125% at the King Street Campus, which equates to a gap of 726 seats if seeking 100% utilization. ACPS considers ideal utilization as a range of 90% to 110%.

KEY FINDINGS

SUMMARY

The design of the King Street Campus was informed by older standards. ACPS has since developed Educational Specifications (Ed Specs) which were approved by the School Board in January 2017 and are reflective of current program and practices and represent ACPS's ideal 21st century high school.

Only 35% of classrooms meet or exceed the 2017 board approved educational adequacy benchmarks. The remaining 65% of classrooms are smaller than the prescribed minimum size requirements set in the Ed Specs. Additionally, based on the 2016-17 course schedule, the current use of classrooms averages below the ACPS benchmark efficiency rate of 86%.

EDUCATIONAL ADEQUACY

Educational adequacy is the measure of existing educational spaces in comparison to ACPS's desired space requirements and standards set forth in the 2017 School Board-approved high school Ed Specs. The educational adequacy assessment of the school also helps to calculate the capacity of the school.

Based upon the data collected, only 35% of classrooms at the King Street Campus meet or exceed the educational adequacy benchmarks for an ideal 21st century high school. Spaces that are non-conforming to the Ed Specs impact the potential capacity of the school and utilization of space.

Of 169 total teaching spaces, only 20 spaces fall within 10% of the space requirements set forth in the Ed Specs. Despite having more room, larger spaces can only hold up to the maximize class size; therefore the 38 spaces that exceed the size requirement hold the same number of students as a standard Ed Specs classroom, as Board policy caps the class size per teacher. The remaining 111 classrooms are undersized. Per the Ed Specs, spaces that are smaller by more than 10% of the standard classroom space should hold fewer students.

SCHEDULE EFFICIENCY

Schedule efficiency examines how classroom spaces are used throughout the school day. ACPS's Ed Specs strive for an 86% efficiency rate on a regular basis. Generally this rate means rooms are used seven out of eight periods a day and teachers utilize an alternative space such as a teacher collaboration suite for their planning period.

Analysis of course scheduling and room use based on the 2016-2017 schedule reveals that T.C. Williams' instructional spaces are used slightly less than the desired rate, as shown in the Current Efficiency box. Classroom efficiency is specific to each day's schedule and can vary annually. For the purposes of this analysis, only blocks 1 through 7 were considered, as these are the core academic blocks of the school day. T.C. Williams employs a Red/Blue block schedule, which impacts the instruction within a classroom each day. A classroom may be utilized for four periods during Red Day and only three periods during Blue Day, depending on the scheduling need. Specialty classrooms, such as for culinary courses, impact the efficiency as they may not be needed for every block. The day-to-day utilization of a classroom impacts the average schedule efficiency for that day. The average efficiency of classrooms at the King Street Campus during a Red Day schedule is 77% while the average efficiency during a Blue Day schedule is 78% based on the 2016-2017 schedule. Opportunities to improve schedule efficiency should be explored.

T.C. WILLIAMS: MINNIE HOWARD CAMPUS

3801 West Braddock Road, Alexandria, VA 22302

| | | |
|--|---|--|
| Year Built: 1954 | Current School Floor Area: 130,435 sq ft | Floor Area Permitted by Zoning 146,623 sq ft |
| Zoning: R12 (031.02-02-05) POS | Lot Size (acres): 6.6 5.4 For fields adjacent to the school | Floor to Area Ratio: 0.51 Not Applicable for POS |
| Classroom Count: 47 | Ed Spec Capacity @ 86% Efficiency: 859 | Projected Utilization (2022): 122% |
| Space Adequacy: | Alignment: | Current Efficiency: |
| Exceeds Space Requirements: classrooms are greater than 110% of space requirements | 1 classroom - 2% | <p>ACPS Target Efficiency: 86% Generally this rate means rooms are used seven out of eight periods each day. See the "Schedule Efficiency" section for additional detail.</p> <p>A-Day Schedule Average: 70% The average efficiency for A-Day is based on the following class periods: 1, 3, 5, and 7.</p> <p>B-Day Schedule Average: 66% The average efficiency for B-Day is based on the following class periods: 1, 2, 4, and 6.</p> |
| Satisfactory: classrooms are within 10% +/- of the Ed Spec space requirements | 7 classrooms - 15% | |
| Borderline: classrooms are between 80% to 89% of space requirements | 5 classrooms - 11% | |
| Inadequate: classrooms are between 70% to 79% of space requirements | 23 classrooms - 49% | |
| Very Inadequate: classrooms are within less than 69% of space requirements | 11 classrooms - 23% | |

Student Counts:

| | FY 2017 Enrollment | FY 2022 Projected |
|--|-----------------------|----------------------|
| Student Count | 811 | 1044 |
| Capacity | 859 | 859 |
| Utilization Rate (Student Count / Capacity) | 94% | 122% |

Utilization Rate Categories:

| Enrollment as % of Capacity | Definition |
|-----------------------------|------------------|
| < 89 | Underutilized |
| 90 - 110% | Ideally Utilized |
| > 111 % | Over Capacity |

BACKGROUND

T.C. Williams, Alexandria's only public high school, is a comprehensive high school comprised of two campuses: the Minnie Howard Campus and the King Street Campus. In September 2016, T.C. Williams High School had a

total enrollment of 3,754 students across both campuses. The Minnie Howard Campus serves grade 9 and the King Street Campus serves grades 10 – 12. A portion of 9th grade students travel to the King Street Campus during school hours on ACPS provided buses to attend specific class offerings.

The Minnie Howard School building was originally constructed in 1954 as an elementary school. There was a major classroom and gymnasium addition in 1969 when it was converted to a middle school. The facility served as the central administrative offices from 1981 to 1993, when it was again renovated and became the 9th grade center. ACPS has had several plans to modernize the campus in recent CIPs and is currently looking to assess the feasibility of the site for a new high school building.

ACADEMIC PROGRAM

The academic program at T.C. Williams High School includes 188 courses in reading, language arts, mathematics, social studies, and science, as well as fine arts, performing arts, physical education, and health. The school also offers the following special academic programs:

- Academy of Finance
- Advanced Placement/Honors
- AVID
- English Learners
- Special Education/Inclusion Program
- STEM Academy
- Career and Technical Programs

The Minnie Howard campus serves all 9th grade students except for those enrolled in the International Academy. The Minnie Howard campus does not provide all of the advanced courses 9th grade students may be eligible to take. Over one-third of the Minnie Howard enrollment in 2016-2017 school year attended the King Street campus for courses not offered at Minnie Howard at some point during the day, typically during the afternoon. These students are provided transportation from the Minnie Howard campus to the King Street campus.

ENROLLMENT AND UTILIZATION

The Minnie Howard Campus had a September 2016 enrollment of 811 students. The estimated capacity of the Campus is 859, yielding a utilization rate (enrollment vs. capacity) of 94%. Enrollment projections indicate the Minnie Howard school population will increase to 1,044 students by the year 2022, resulting in a utilization of 122%, which equates to a gap of 185 seats if seeking 100% utilization. ACPS considers ideal utilization as a range of 90 to 110%.

KEY FINDINGS

EDUCATIONAL ADEQUACY

Educational adequacy is the measure of existing educational spaces in comparison to ACPS's desired space

requirements and standards set forth in the 2017 School Board-approved high school Ed Specs. The educational adequacy assessment of the school helps to calculate its capacity, and is specific to square footage measurements.

Only 17% of classrooms meet or exceed the 2017 board approved educational adequacy benchmarks. The remaining 83% of classrooms are smaller than the sizes identified as adequate in the Ed Specs. Additionally, based on the 2016-2017 course schedule, the current use of classrooms averages below the ACPS benchmark efficiency rate of 86%.

SCHEDULE EFFICIENCY

Schedule efficiency examines how spaces are used throughout the school day. ACPS's Ed Specs strive for an 86% efficiency rate of classroom use on a regular basis. Generally this rate means teachers use their assigned rooms seven out of eight periods a day and utilize an alternative space, such as a teacher collaboration suite for their planning period.

Analysis of the 2016-2017 course scheduling and room use reveals that T.C. Williams: Minnie Howard Campus' instructional spaces are used less than the desired rate, as shown in the Current Efficiency box. As is the case with the King Street campus, classroom efficiency is specific to each day's schedule and can vary annually. For the purposes of this analysis, only blocks 1 through 7 were considered, as these are the core academic blocks of the school day. T.C. Williams employs a Red/Blue block schedule, which impacts the instruction within a classroom each day. A classroom may be utilized for four periods during Red Day and only three periods during Blue Day, depending on the scheduling need. Specialty classrooms impact the efficiency as they may not be needed for every block. The day-to-day utilization of a classroom impacts the average schedule efficiency for that day. The average efficiency of classrooms at the King Street Campus during a Red Day schedule is 70% while the average efficiency during a Blue Day schedule is 66%, based on the 2016-2017 course schedule. Opportunities to improve schedule efficiency should be explored.

RECOMMENDATIONS

The capacity of T.C. Williams High School's two campuses cannot meet the projected growth in enrollment, nor do the majority of classrooms meet the minimum recommended size requirements per the Ed Specs. Options to provide additional student capacity at one or both campuses or a new site should be explored. Work group members and stakeholders emphasized their desire that short-term recommendations, often identified as an early priority, do not become long-term recommendations for the Division. Rather, short-term recommendations should serve a specific purpose for a given timeframe. Based on the analysis of the data collected and meetings with the work group and stakeholders, the following recommendations for the King Street and Minnie Howard Campuses are provided.

These recommendations are meant to serve as a guideline for future proposed Capital Improvement Program projects and should be re-evaluated based on need and feasibility at the time of implementation. Recommendations were made to align with City Strategic plan goals and ACPS 2020 Strategic Plan goals and should be implemented in alignment with these goals.

GROUP 1 — REQUIRED PLANNING

- Conduct further analysis of the master schedule and use of space at both campuses to explore ways to maximize existing space. The analysis should include studying how to increase the number of teacher collaboration suites and/or reconfiguring existing space to improve the enrollment capacity.
- Study the potential outcomes of a shifted schedule (e.g. multiple tracks of students with alternating start and end times).
- Study the possibility of transporting 10 – 12 grade students to the Minnie Howard Campus for classes to relieve capacity constraints at T.C. Williams.
- Conduct analysis to determine if either site can accommodate additional square footage to support more students. This analysis should include the impacts to shared and core spaces such as dining.
- Conduct an analysis of adjusting grade-level pairings throughout the Division.
- Study the combined use of both campuses. Determine how specialty classrooms can be efficiently used across both.
- Study/evaluate options for building additional capacity.
- New high school graduation requirements within the Commonwealth of Virginia are currently in development, known as the "Profile of a Virginia Graduate." The profile is the framework for the Virginia Board of Education's revision of graduation requirements, which will go into effect for freshmen entering high school in the fall of the 2018-19 (the graduating class of 2022). The requirements will likely affect the number of required program and support spaces, as well as the types of spaces needed for high school programs. Once the requirements are approved, the division should conduct an analysis of high school spaces to ensure instructional spaces are in alignment with the new high school program requirements.

GROUP 2 — SHORT TERM RECOMMENDATIONS

- Continue and expand partnerships with local entities, such as NOVA Community College, to increase off-campus learning opportunities.
- Determine how much capacity can be provided at off-campus locations to inform future utilization of T.C. Williams.
- Ensure that future programs and priorities for the Minnie Howard Campus are in alignment with the site's capacity analysis.
- If applicable, adjust the master schedule based on analysis.
- In order to maximize capacity at both campuses, explore how students can travel between the two without significantly adding to the Division's transportation costs or local traffic levels.
- Utilize relocatables to accommodate more students as enrollment increases.
- Build additional capacity for T.C. Williams High School at the King Street Campus, at the Minnie Howard Campus, and/or at another location within the City.

GROUP 3 — INTERMEDIATE RECOMMENDATIONS

- If applicable, reassign grade-level pairings throughout the division based on analysis and ACPS priorities.

GROUP 4 — LONG TERM RECOMMENDATIONS

EARLY CHILDHOOD EDUCATION (PRE-K)

BACKGROUND

ACPS Early Childhood Programs consist of three components: Virginia Preschool Initiative (VPI), Preschoolers Learning Together (PLT), and Early Childhood Special Education (ECSE). ACPS also has partnerships with local early care providers such as the Campagna Center, which provides Head Start and other programs. Some of these programs occur within ACPS schools and partner locations.

VPI is provided by a State grant and local funding. The purpose of VPI is to provide quality early childhood programs for children, whom the State of Virginia defines as “at-risk four-year olds.” VPI is a program designed for families who might not otherwise be able to access quality early childhood education opportunities.

PLT is a half-day preschool program offered to eligible children ages two years and six months thru four years (by September 30). This is an opportunity for developing children from the Alexandria community to be integrated into an early childhood special education (ECSE) classroom for the purpose of providing typical role models to students with disabilities.

ECSE provides special education services to students between the ages of two to five who are identified as having a developmental delay or disability.

Head Start is provided by a federal grant and local funding through partners. Head Start, similar to VPI, provides quality early childhood education for students who meet certain socioeconomic criteria.

The City of Alexandria has an Early Care and Education Workgroup (ECEW), which is a cross-sector workgroup made up of leaders from across ACPS, city agencies, partners, and the non-profit community. The group was convened to explore how Alexandria can build an early care and early childhood education system that is high quality, culturally and financially accessible, and comprehensive (including health, education, socio-emotional, family, and community support).

| School | Table 1: 2016-2017 Pre-K in ACPS Elementary Schools | | | | |
|---------------------|---|----------------------------------|------------------|------------------------|---------------------------|
| | ACPS Enrollment | HeadStart/ Partner Enrollment | Total Enrollment | Ed Spec Pre-K Capacity | Ed Spec Pre-K Utilization |
| Charles Barrett | 21 | 0 | 21 | 22 | 95% |
| Cora Kelly | 3 | 36 | 39 | 45 | 88% |
| Jefferson - Houston | 49 | 78 | 127 | 116 | 109% |
| John Adams | 123 | 92 | 197 | 144 | 137% |
| Patrick Henry | 96 | 60 | 156 | 124 | 126% |
| William Ramsay | 32 | 0 | 32 | 29 | 110% |
| George Washington | 0 | 41 | 41 | 45 | 91% |
| T.C. Williams | 0 | 24 | 24 | 40 | 60% |
| Total | 324 | 331 | 637 | 565 | 113% |

As shown in Table 1, ACPS currently offers early childhood education spaces in six elementary schools, one of the middle schools and at the high school. The location of programs has been informed by available capacity. Please note that all enrollment numbers included in Table 1 are for school year 2016 - 2017.

Historically, division-wide pre-K student forecasts have not been calculated as part of student projections since ACPS is limited in the amount of space that can be offered. ACPS currently provides as much space as possible throughout the City for current programs.

The State of Virginia uses a formula to project the number of disadvantaged four-year olds, which determines the amount of VPI slots to fund for a given municipality. The formula multiplies total kindergarten enrollment by the division-wide free lunch percentage and subtracts the number of slots provided through Head Start. Using the State’s formula, ACPS estimates there are 746 disadvantaged four-year olds in the City of Alexandria. In 2017, there were 569 pre-school slots provided through VPI and Head Start, leaving a deficit of 177. Projections indicate the disadvantaged four-year old population will

increase to 790 by 2022, leaving a deficit of 209 if no additional slots are provided.

VISION FOR EARLY CHILDHOOD PROGRAMS

The City of Alexandria is committed to making pre-K accessible to all families with pre-K age students and understands that this will require ACPS and partner support. The LREFP work group sought to explore the best ways to provide the maximum amount of pre-K spaces throughout the division. Programs could be provided within existing elementary schools, at new centers, or a combination of both.

ACPS Ed Specs provide guidelines for classroom design. The standard for a pre-K room is the same for a kindergarten classroom due to the similar emphasis on play and programmatic needs in the two grade levels. The similar classroom configuration also allows for flexibility year-to-year as student enrollment and program needs change. At schools that house Head Start, classes can be held in standard pre-K or kindergarten classrooms, provided the classroom meets the licensing criteria.

ACPS developed Ed Specs for a pre-K center as part of the LREFP. The Ed Specs outline space recommendations for a pre-K classroom, and are used to evaluate current capacity within existing pre-K classrooms already being used by ACPS. There are other partners who provide pre-K throughout the City and utilize their own private facilities.

FUTURE PRE-K SPACE

Currently, ACPS elementary schools have limited capacity within existing space to accommodate kindergarten through grade five enrollment, let alone additional pre-K. As additional elementary capacity is added and as enrollments are updated based on boundary changes, ACPS should explore additional opportunities to provide pre-K spaces within existing elementary schools.

ACPS is committed to work with pre-K partners, the City and organizations which are active in the community to increase pre-K capacity as much and as quickly as possible to align with available funding. Possible solutions to be explored should include:

- ACPS should work with the City to re-analyze future elementary school projects within the FY 2019-2028 CIP to determine if pre-K capacity could physically and affordably be added to projects.

- ACPS, the City and partners should establish a plan for addressing the gap in pre-K capacity within the City. This plan should consider the timing of available CIP funding and offer alternatives to address the pre-K capacity gap promptly, if additional pre-K capacity is not able to be achieved through the CIP.
- ACPS, the City and partners should make every effort to solicit space from external organizations and partners to add pre-K capacity.
- Timelines and goals need to be established and agreed upon by ACPS, the City and partners to meet the pre-K capacity need city-wide and draw down on all available pre-K funding sources (i.e. Virginia Preschool Initiative).

The Ed Specs, developed jointly by ACPS and pre-K partners, should be used to determine the adequacy and proposed use of space for future solutions. Any solution pursued should promote joint professional development and collaboration of staff employed by ACPS and the Campagna Center (Head Start) and support the Early Care in Education Workgroup's mission of seamless points of entry for parents seeking services. Solutions should also promote joint program development and delivery within VPI, ECSE, and Head Start, while maintaining critical funding streams and other policy requirements needed for state and federal funding.

RECOMMENDATIONS

The capacity of pre-K spaces throughout Alexandria cannot serve the current or projected population of disadvantaged four-year olds. This reality is supported by the waitlists reported by partners. Because of this, access should be expanded to serve all families within the City. These recommendations are specific to pre-K within ACPS facilities. Options to provide additional pre-K capacity at individual sites and/or a new pre-K center should be explored to meet this vision. Work group members and stakeholders emphasized their desire that short-term recommendations do not become long-term solutions for the division. Rather, short-term recommendations should serve a specific purpose for a given timeframe. Based on the analysis of the data collected and meetings with the work group and stakeholders, the following considerations for early childhood spaces are recommended.

These recommendations are meant to serve as a guideline for future proposed Capital Improvement Program projects and should be re-evaluated based on need and feasibility at the time of implementation. Recommendations were made to align with City Strategic plan goals and ACPS 2020 Strategic Plan goals and should be implemented in alignment with these goals.

GROUP 1 — REQUIRED PLANNING

- Analyze the impact of new elementary schools, capacity projects, and redistricting for providing capacity at elementary schools, develop a potential distribution plan for early childhood classrooms.
- Study the available capacity within City-owned buildings for space conversion and potential co-location. If capacity exists, analyze whether spaces can be converted to meet Ed Spec standards.
- Study the availability of privately-owned buildings/institutions for space conversion and potential co-location. If capacity exists, analyze whether spaces can be converted to meet Ed Spec standards.
- Evaluate implementation of co-located pre-K center to be open in 2018 to determine if additional centers would be beneficial.
- Study the possibility of co-location on City-owned sites. Perform feasibility analysis to see if build out can occur to provide space.
- Analyze the potential for/impact of providing density increases to developers who accommodate additional building capacity within new developments. Determine if land use solutions (i.e.: parking incentives, increased density, etc.) can provide additional pre-K capacity.

GROUP 2 — SHORT TERM RECOMMENDATIONS

- Calculate pre-K projections annually
- Maintain and expand, where possible, current pre-K capacity at existing elementary schools strategically located in areas of highest need.
- Expand pre-K capacity with private partners.
- Determine the amount of additional capacity that private partners can provide.
- Promote multi-story and urban school models to optimize real estate and provide maximum pre-K spaces within elementary schools.
- Identify and analyze potential land acquisition, co-location, or leasing opportunities for pre-K .

GROUP 3 — INTERMEDIATE RECOMMENDATIONS

- Analyze the feasibility of previously identified sites for additional pre-K capacity that aligns with the Board-approved Ed Specs.
- Explore feasibility of additional pre-K centers as a model based on the School Board-approved Ed Specs and after review and analysis of the initial co-located pre-K center.
- Configure spaces within existing elementary schools to meet Ed Specs for early childhood and/or incorporate into design for future capital projects.

GROUP 4 — LONG TERM RECOMMENDATIONS

FISCAL CHALLENGES

OVERVIEW

As part of the Long Range Educational Facilities Plan (LREFP), mini-master plans have been developed for thirteen Alexandria City Public Schools (ACPS) facilities which include capital improvement recommendations to ensure existing facilities meet the School Board’s educational adequacy requirements, also known as the “Ed Specs”, and address future capacity needs. While the final scope and cost estimate of each of the thirteen mini-master plans has yet to be finalized or incorporated into the City’s capital plans, it is estimated that full implementation of the modernization, educational specification, and capacity related improvements will require the development of a long term fiscal plan for the years 2018 until 2040.

The following chart outlines the possible projects and range of estimated construction/ renovation costs for facilities identified in the LREFP in five year increments. Of the thirteen facilities for which mini-master plans were completed and a cost estimate developed, eleven are included in the table below for fiscal planning purposes through 2040, along

| POTENTIAL LREFP CAPITAL PROJECT COSTS (THROUGH 2040) | |
|--|---|
| INCLUDED IN CURRENT CIP AND PROPOSED IN LREFP 2018 – 2022* | INCLUDED IN CURRENT CIP AND PROPOSED IN LREFP 2023 – 2027* |
| <ul style="list-style-type: none"> ▪ Douglas MacArthur ▪ New Middle School ▪ Cora Kelly <p>Unconstrained LREFP Mini-Master Plan Cost: \$130.2M <i>(compounded at 2.5% over 5 years: \$147.3M)</i></p> <p>Note: Current ACPS CIP budget includes \$131.9M</p> | <ul style="list-style-type: none"> ▪ George Mason ▪ Matthew Maury <p>Unconstrained LREFP Mini-Master Plan Cost Range**: \$51.0M - \$64.6M <i>(compounded at 2.5% over 10 years: \$65.3M - \$82.7M)</i></p> <p>Note: Current ACPS CIP budget includes \$35.8M</p> |
| PROPOSED IN LREFP 2028 – 2032*** | PROPOSED IN LREFP 2033 – 2037*** |
| <ul style="list-style-type: none"> ▪ Mount Vernon ▪ William Ramsay ▪ Lyles-Crouch <p>Unconstrained LREFP Mini-Master Plan Cost Range: \$66.9M - \$90.2M <i>(compounded at 2.5% over 20 years: \$96.9M - \$130.6M)</i></p> | <ul style="list-style-type: none"> ▪ Francis Hammond ▪ Charles Barrett ▪ New Elementary School <p>Unconstrained LREFP Mini-Master Plan Cost Range: \$103.0M - \$107.3M <i>(compounded at 2.5% over 20 years: \$168.8M - \$175.9M)</i></p> |
| PROPOSED IN LREFP 2038 – 2040*** | |
| <ul style="list-style-type: none"> ▪ George Washington ▪ James K. Polk <p>Unconstrained LREFP Mini-Master Plan Cost Range: \$92.1M - \$104.2M <i>(compounded at 2.5% over 25 years: \$170.7M - \$193.1M)</i></p> | |

* Proposed order based on the ACPS FY 2016-2025 CIP scheduled for final adoption May 2015.

** The low end of the cost range is based on implementing the renovation only option when available and the high end is based on implementing the total mini-master plan to include all additions.

*** Proposed order based on the average priority of site, building assessment & individual spaces score shown in Table 5.4. Given the high average scores (80 or above) of John Adams and Samuel Tucker coupled with the time horizon through 2040, these schools are not included in the summary shown above.

¹Full mini-master plans were not developed for Jefferson-Houston (recently rebuilt), Patrick Henry (in active reconstruction design phase), Minnie Howard (capacity addition proposed by ACPS in FY 2016 – 2017), and T.C. Williams (the LREFP will report the high school educational specifications in 2016.)

with a new elementary school and a new middle school. The range of costs for the eleven existing facilities and two new facilities on an unconstrained basis over the next 25 years is \$443.2M to \$496.5M in 2015 dollars.¹

The cost estimates provided for each mini-master plan are based on implementing the suggested plan in its entirety and in certain cases, breaks out costs for renovation versus new construction (additions). These are conceptual cost estimates, based on the option illustrated in the mini-master plans and are subject to change through the community engagement process that would occur with each project. Future costs will be affected by market conditions, timing and phasing of the projects to be balanced with fiscal resources, staff capacity, and alignment with instructional programming priorities. Projects and cost estimates will be reevaluated and refined through the development of the annual capital improvement budget.

While the table on the previous page provides a cost estimate for the eleven existing facilities and two new facilities as identified in the LREFP, it is important to acknowledge that these costs do not include all ACPS capital needs. Projects such as Patrick Henry and T.C. Williams – Minnie Howard, additional high school and pre-K capacity projects, and the maintenance of existing capital infrastructure are also other future identified capital needs which will need to be considered as part of future financial planning.

The results of the LREFP and identification of other capital infrastructure needs demonstrate the need for the City and ACPS to continue a strong, ongoing partnership in order to create a sustainable, fiscal plan to address the financing and timing of implementing the LREFP.

BASELINE ASSUMPTIONS

Through the LREFP, existing buildings were evaluated by assessments of building interiors and exteriors that established a baseline for existing learning conditions, including: square footages, light and acoustic levels, presence of technology, natural resources, parking, circulation, recreation features and utilities. However, the LREFP did not assess the physical building conditions. Facility Condition Assessments evaluate the condition of building systems such as mechanical, electrical, plumbing and structural, through an on-site inspection by technical experts. ACPS is currently in the process of evaluating all building conditions. The results from that effort, as well as the recommendations of the LREFP should inform the development of future Capital Improvement Programs (CIPs). The cost of improvements identified in the Facility Condition Assessment is due to be published by the end of 2015.

Additionally, baseline assumptions for this LREFP included existing attendance zone boundaries and existing enrollment projections to address future capacity issues. Potential changes to school boundaries or enrollment policies were not included in the assessment of capacity needs at each facility in the LREFP.

SCHOOLS CAPITAL FUNDING PROCESS

As part of the annual CIP approval process, funding is appropriated by City Council for ACPS capital infrastructure needs. Each year, ACPS provides City Council with a ten-year plan of projected capital infrastructure needs, focusing on projects to address projected enrollment increases. City Council considers the ACPS request – along with all of the capital needs Citywide – and approves a ten-year plan for ACPS project funding, with financing identified for each year of the plan.

CITY DEBT POLICY HISTORY AND GUIDELINES

City Council passed a set of debt-related financial policies in 1987 and has operated under specific established debt-related financial policies since then. The City was an early adopter of such policies, with the City policy used by the bond rating agencies as a model policy that should be adopted by other localities. During FY 1998, the Budget and Fiscal Affairs Advisory Committee (BFAAC), a City Council appointed citizen committee, analyzed these debt-related financial policies, and examined the City's financial condition in comparison to other jurisdictions with superior credit ratings (other double-triple A rated jurisdictions). The BFAAC and the City Manager recommended that City Council reaffirm the updated debt-related financial policies, incorporating BFAAC's recommended updates to the policies to establish a consistent set of appropriate relationships between debt targets and limits.

City Council reaffirmed its commitment to sound financial management and adopted updated debt-related financial policies in 1997, 1999, and 2008. The ratios that can be studied in Appendix E represent the General Fund, or tax rate supported portion of debt issued by the City which includes debt to support the needs of the schools.

These debt policies have been utilized by City Council for nearly three decades to ensure the long-term affordability and sustainability of the City's CIP (which includes ACPS capital projects). Changing upward City debt ratios to accommodate additional debt to support a greater investment in the City's capital needs would involve a careful study including determining potential impacts to the City's AAA/Aaa credit ratings and the prioritization of capital funding in relation to infrastructure needs Citywide.

FINANCING/PROCUREMENT OPTIONS TO FUND LREFP

The following details four different funding/procurement options to help inform the long-range financial plan for funding the projects included in the LREFP.

Option 1: *Constrained Funding with Bonds and Cash Capital*

This option is a constrained option, in that funding for the LREFP would be considered and prioritized against all other capital needs, within the constraints of City Council's approved debt policies. This requires the capital programs of ACPS and the City to fit within funding levels approved by City Council and may require the elimination of other capital projects. Unrestricted funding includes cash contributions from the General Fund and General Obligation Bonds which can be utilized for any eligible capital projects.

Option 2: *Raise Debt Limits*

City Council has the policy option of raising taxes to support increased debt service payments for General Obligation Bonds to support additional capital improvement projects. In order to support additional General Obligation Bonds, City Council would also be required to adjust upward the long-standing City Council approved debt ratios (i.e. limits) to accommodate additional borrowing.

Option 3: *Fund Improvements with Cash*

This option is similar to option 2, except that taxes would be raised to a level to provide cash funding for school building capital improvements. In this option, City Council would raise the real estate tax rate to support the implementation of the LREFP.

Option 4: *Consideration of Public Private Partnership Opportunities for Addressing the City's Educational Facilities Needs*

The term public-private partnership (P3), broadly refers to a variety of contractual agreements in which a public entity (e.g., a municipal or Commonwealth agency) transfers "some degree of control and responsibility for development and operation of a facility to be used by the public" to a private entity. These partnerships have been applied to a variety of services including water/wastewater, transportation, urban development and education. The P3 project delivery method allows public entities to spread the cost of public projects over the course of their useful life, rather than paying the entire project cost upfront. While P3 is not a funding source, it

often reduces or eliminates the initial financial burden, enabling construction of the public project to occur sooner.

P3 can be structured in many ways and customized to fit individual projects and programs. Commonly used structures range from Design-Build, where a single private partner designs and constructs a project as contracted by a public entity, to Design-Build-Finance-Operate-Maintain, where the private entity designs, constructs, funds the construction and operating costs, and provides operations and maintenance services for the facility in exchange for payment, to Sale/Leaseback where the public entity sells a facility to a private entity and then leases it back from the new owner. P3 partnerships also allow for the possibility of the private partner to take advantage of Federal Tax Credits, thus increasing the financial incentives of the private partner to participate in the project.

RECOMMENDATIONS FOR ADDRESSING FISCAL CHALLENGES

To address the feasibility of implementing the plan, it is recommended that City and ACPS staff work on a comprehensive financial plan through the Long Range Planning Committee in the 2015-2016 year. Some areas to consider are as follows:

- Determine the length of time to complete the recommendations as detailed in the LREFP
- Determine cost estimates for the LREFP projects and consider incorporating those estimates into future CIPs
- Begin discussions around the possible financing options to fund capital infrastructure improvements
- Further strengthen the partnership between ACPS and City staff, and the ACPS School Board and City Council, to achieve consensus on a long-term, sustainable, and affordable plan to modernize, address educational specifications, and add capacity at ACPS facilities to address long-term enrollment projections for discussion as part of the FY 2017 budget
- Review of the City's debt policy guidelines by the Budget and Fiscal Affairs Advisory Commission (BFAAC) which has historically helped frame and update the guidelines.

²A summary of unrestricted funding sources and all proposed CIP projects are located on pages 39-47 of the City Manager's Proposed CIP, which can be found on the City's website at: <http://www.alexandriava.gov/budget/info/default.aspx?id=83131>

CONCLUSION

DIVISION-WIDE ISSUES AND STRATEGIES**WE ARE NEARING THE MIDDLE OF A PERIOD OF RAPID GROWTH, NOT THE END**

Current ACPS projections and city forecasts indicate that ACPS is now not quite to the middle of a period of rapid growth expected to last another 10 to 15 years. While growth may be decelerating based on 2014 enrollment data, which confirms a significant slowing in growth of kindergarten enrollment, students are staying in Alexandria schools longer. This means that total enrollment is expected to continue to increase rapidly, even if kindergarten enrollment begins to decline, as today's much larger elementary school classes move up through the grades.

INCREMENTAL MEASURES ARE NO LONGER SUFFICIENT

While the educational adequacy assessment shows a number of improvements needed in the city's schools, the immediate crisis about to face the schools is the number of classrooms and support space capacity to meet growing enrollment. The run-up from the 2006 K-12 enrollment of 10,246 to 13,847 in 2014 added about 3,600 K-12 students to ACPS schools, a 35% increase in eight years.

ACPS has increased class size caps by two students at each grade in 2013, built a number of additional classrooms at some schools, and rebuilt one school for more capacity to address this increase. Eight more classrooms are to be added in the summer of 2015, and Patrick Henry School is proposed to be reconstructed as a preK-8 school beginning in 2017.

However, the next increments of growth are coming up against harder limits. Many current classrooms, particularly at older schools, are substantially undersized on the basis of target floor area per student for the current allowable class size, and many elementary schools are now or will soon be against an absolute number-of-classroom limit at this current class size cap. There are few places left to reassign students as schools reach this absolute capacity based on current class size caps. As enrollment continues to increase by an estimated 400 to 500 students per year through 2024, approximately 20 additional classrooms and their related support spaces and facilities will be needed *each year*, with a slowly declining annual need thereafter to 2030 or beyond. This is equivalent to one new full-sized elementary school every two to three years.

Current mid-range projections show an increase to 17,419 students by 2024, an additional 3,572 students over today's enrollment. The long-term forecast through 2040, based on overall population growth at about 1% per year, a decline in the City's birth rate over time, and a substantial increase in the share of population over 65 years of age, shows an estimated peak enrollment of just over 18,000 in 2031, a total increase of almost 4,300 students over today's enrollment and almost 7,900 more than the recent low enrollment in 2006.

CURRENT CLASSROOMS ARE UNDERSIZED, AND LACK SUPPORT SPACES

The current crisis is new classrooms, and expansion of cafeterias, extended learning areas, specialized classrooms for art, science and music, and other spaces to support the additional students in them. Existing schools will not only need expansion to provide additional classrooms to meet their projected enrollment, but will also need to accommodate resizing and redesign of existing undersized classrooms for current educational needs. If schools are simply remodeled within their current floor area, their capacity will be reduced as spaces are reconfigured to meet current educational specifications, so both remodeling or reconstruction and expansion are needed at most schools if new schools are not added.

MANY SCHOOLS EXCEED THE MAXIMUM DESIRABLE ENROLLMENT FOR THEIR GRADE LEVEL

ACPS will have difficulty enlarging some schools just to accept their current enrollment under up-to-date educational specifications. In addition, some schools already exceed the maximum desirable size for their type. Seven out of the division's 13 elementary schools are expected to exceed 700 students by 2020.

Because some schools are now larger than the desirable maximum size for their type, additional schools at additional school sites will also be required to meet enrollment projections. Depending on where these sites can be found and where additional capacity can be developed on existing school sites, enrollment boundaries will need to be modified so population in those enrollment areas matches student generation.

WHEN WILL THIS ENROLLMENT GROWTH END?

Enrollment growth is expected to continue, though with declining percentage rates of growth, until at least 2025 or 2030.

While universal Pre-K would exacerbate the capacity problem in elementary schools, it would provide value to the community. It is also likely to increase the kindergarten capture rate and therefore the peak enrollment ultimately achieved.

WHAT SHOULD BE ADDRESSED FIRST?

There is a significant long-term problem particularly in our oldest schools in the size of classrooms and flexibility of spaces to accommodate current and future educational specifications. A phased program of renovation or replacement is appropriate regardless of current capacity issues. However, these oldest schools typically have the most constrained sites, so expansion potential with renovation is minimal. Simply renovating these schools to provide modern facilities will reduce their student capacity unless floor area is substantially increased at the same time.

Capacity is currently a big problem primarily in elementary grades. As the recent enrollment boom in elementary schools proceeds through the grades, middle schools will be next (starting now), followed by high school. Enrollment in elementary schools should see the first decline. Assuming the current high rate of cohort survival throughout the grades continues, the middle and high school decline will come much later.

Capacity shortfalls are currently greatest in the west and central area elementary schools. New development is not expected to change this situation in the short to mid term (2024).

A decline in the levels of kindergarten capture and cohort survival that resulted from the local housing market bubble and produced the enrollment decline from 2000 to 2006 was an unusual condition that is unlikely to recur in the next 15 years while the current high elementary enrollment proceeds through the grades.

CAPACITY STRATEGIES

- **Remodel/Replace Patrick Henry School** as a K-8 school to provide space to accommodate substantial increases in middle-school enrollment in the next 5 years.
- **Construct one new 600-700-student elementary or K-8 school** in the West End to accommodate further increases in elementary school enrollment, relieve over-capacity elementary schools in the west end and central portion of the city, and provide swing space for renovation of existing elementary schools over time.

- **Consider construction of additional capacity for upper grades** to relieve anticipated increases in enrollment in secondary schools.
- **Anticipate providing additional elementary or K-8 school space opportunistically** with temporary classroom facilities on existing school sites or a temporary elementary school in leased space. This is expected to be needed for 10 to 15 years to accommodate a peak enrollment of up to 18,000 students from 2025 to 2035.
- **Decide which elementary schools should be substantially expanded permanently** based on site capacity, maximum and minimum desirable school capacity, location and need. Program these expansions over time to add 600 to 1,200 students total capacity by 2024.
- **Review boundaries as facilities are modified.**

EDUCATIONAL EXCELLENCE RECOMMENDATIONS

During this expansion program, **program the renovation and replacement** as appropriate of existing elementary schools, beginning with (1) those with highest priority for addressing existing deficiencies identified in this plan and (2) those that can provide the greatest additional capacity through renovation or reconstruction to the maximum appropriate size for an elementary school.

PROCESS OVERVIEW

LONG RANGE EDUCATIONAL FACILITIES PLAN PROCESS OVERVIEW

In 2012, the City of Alexandria and Alexandria City Public Schools (ACPS) initiated the development of a work program for a Long Range Educational Facilities Plan (LREFP) to improve facilities planning, accommodate the growing student population, and enhance educational programs and services. Funds to support this planning effort were approved in the ACPS Funding Year 2013 Capital Improvements Plan.

WORK GROUP

As part of the program, a work group was established in November, 2012 and was comprised of members from the ACPS School Board, City Council, Campagna Center, PTA Council, and the community. This effort was supported by ACPS and City of Alexandria staff. The work group met quarterly to explore major issues that could impact public school facilities over the long-term, and to guide staff in the development of the draft LREFP for consideration by the School Board and City Council.



General objectives included:

- Gaining a better understanding of current and future enrollment and capacity challenges
- Updating middle and K-5 educational specifications
- Recommending solutions for ACPS capacity problems, including alternative space utilization models
- Understanding of ACPS budget needs and priorities
- Identifying future school sites/locations
- Reaching a shared understanding of the “school of the future”
- Producing plan components which are flexible and can be updated annually as needs arise

SUBCOMMITTEES

In an effort to conduct the in-depth research and analysis necessary to address the program's goals, work group members were assigned to serve on each of three subcommittees to investigate a prudent path to best manage present and future pressures within ACPS. Subcommittee members were selected exclusively from the working group membership and assigned based on their knowledge in such subcommittee's area of expertise. Generally, subcommittee's met on a monthly basis.

Enrollment Forecasts/Demographics Subcommittee

Developed an 'up-datable' student enrollment projection methodology by examining the details of the forecasting elements proposed in the work plan; collaborated on the development of a short- mid-, and long-term enrollment forecast.

Facility Capacity Needs Analysis Subcommittee

Ascertained existing conditions within ACPS educational facilities in terms of their appropriateness and viability as educational environments; examined the factors necessary to develop a more robust capacity analysis methodology.



Educational Specifications/School of the Future Subcommittee

Reviewed and updated educational specifications for elementary and middle schools; determined the upgrades necessary to bring all ACPS buildings and programs in line with the new benchmarks.

COMMUNITY INVOLVEMENT

All meetings of the LREFP work group (approx. 12) and subcommittees (approx. 16) were open to the public and the community was encouraged to participate.

The project website posted all materials distributed at each meeting as well as the LREFP work group program and schedule, individual subcommittee work programs and schedules, and links to topics and groups of interest to this plan. Audio and video recordings of meetings were also linked to the project site.



At various stages during the plan process, staff conducted “roadshows” throughout the community. The purpose of these roadshows was to share information learned with community members who may not have had the opportunity to attend formal meetings, as well as to provide the community with an opportunity to ask questions.

Community members were also invited to participate in online engagement opportunities to provide feedback on various elements of the LREFP, including the Draft ACPS Elementary and Middle School Educational Specifications and the draft final LREFP report. Comments received informed the final versions of these documents presented to the ACPS School Board and City Council for review.

Efforts to communicate information and meeting times to all project stakeholders (students, parents and families, faculty and administrators, civic leaders and community members) included posting information to the City and ACPS websites, sending eNews and social media notifications, and distributing flyers in several languages to recreation centers, libraries, schools, places of worship and other community facilities.

ENDORSEMENT/ADOPTIONS

Following the conclusion of this group effort, the draft plan was forwarded to the School Board, City Council and presented to the community as well as various boards and commissions for review and comment. On Thursday, June

11, 2015 the ACPS School Board adopted the Long Range Educational Facilities Plan, followed by City Council’s endorsement on Tuesday, June 23, 2015.

LREFP WORK GROUP MEMBERS (2012-2015)

SCHOOL BOARD

- Ronnie Campbell
- Karen A. Graf
- Justin P. Keating

ALEXANDRIA CITY PUBLIC SCHOOLS

- Dr. Alvin Crawley, *Superintendent*
- Dr. Morton Sherman, *Superintendent (2008-2013)*

ALEXANDRIA CITY COUNCIL

- Mayor William D. Euille
- Councilman Justin Wilson

CAMPAGNA CENTER

- Dr. Tammy L. Mann

PTA COUNCIL

- Yvonne Folkerts
- Julie Rocchio
- Melynda Wilcox

COMMUNITY MEMBERS

- Herb Berg
- Ken Billingsley
- Mark Eisenhour
- Chris Hartman
- Judy Noritake

ACPS/CITY STAFF

- Debra Collins, *Deputy City Manager*
- Tammy Ignacio, *Chief of Staff, ACPS*

ADDITIONAL STAFF SUPPORT (EX-OFFICIO):

ALEXANDRIA CITY PUBLIC SCHOOLS

- Elijah Gross, *Director, Planning Design & Construction*
- Laurel Hammig, *Facilities Planner/GIS Specialist*
- Clarence Stukes, *Chief Operations Officer*
- Andrea Feniak, *Director, Planning Design & Construction (2013-2014)*
- William Finn, *Director of Facilities (2012-2014)*
- Dr. William Holley, *Director of Facilities (2014)*

CITY OF ALEXANDRIA

- Mark Jinks, *City Manager*
- Karl Moritz, *Director, Planning and Zoning*
- Susan Eddy, *Deputy Director, Planning and Zoning*
- Chris Bever, *Assistant Director, Office of Management & Budget*
- Steve Chozick, *Division Chief, GIS*
- Ron Kagawa, *Division Chief, RPCA*
- James Bryant, *GIS Analyst, ITS*
- Katherine Carraway, *Planner, Planning and Zoning*
- Nathan Imm, *Planner, Planning and Zoning*
- Pat Mann, *Planner, Planning and Zoning*
- Ryan Price, *Planner, Development Review*
- Dana Wedeles, *Planner, RPCA*
- Amber Wheeler, *Planner, Planning and Zoning (2012-2014)*

JOINT WORK PROGRAM (OCTOBER 2012)

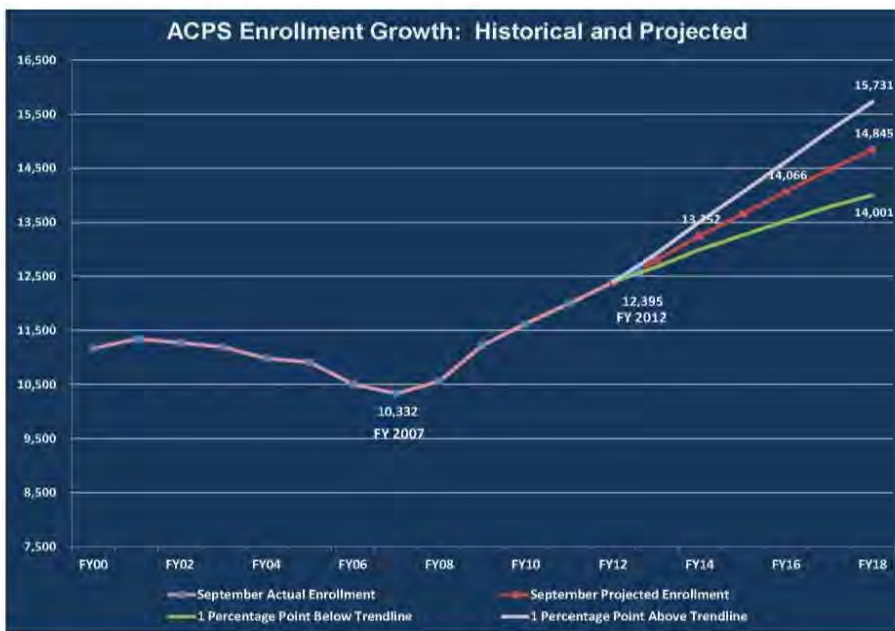
Statement of Purpose

ACPS and the City of Alexandria will jointly conduct a long-range educational facility planning effort to develop policy guidance and recommendations to accommodate the growing student population and improve facility planning in order to support and enhance the delivery of educational programs and services in the most efficient, cost effective manner possible.

Background

ACPS student enrollment gradually declined from FY 2001 through FY 2007, but the trend has reversed during the past five years. From FY 2007 to FY 2012, enrollment has increased by 2,063 students, for an overall increase of 20.0% and an average increase of 3.8% per year. Over the next six years through FY 2018, enrollment growth is projected to increase by over 2,450 students, or a total growth of 19.8% compared to the current level. Growth rates of 3.1% on average are expected to continue through FY 2018. The growth to date has been highest at elementary schools and is projected to continue above 3.0% through FY 2016. Middle schools will experience the impact of the larger elementary grade-level cohorts beginning in FY 2014, while the high school level sees most of the impact in FY 2017 and beyond. *(See trend illustrated in figure 1 below):*

Figure 1:



Source: FY2013-2022 Proposed Capital Improvement Program Budget

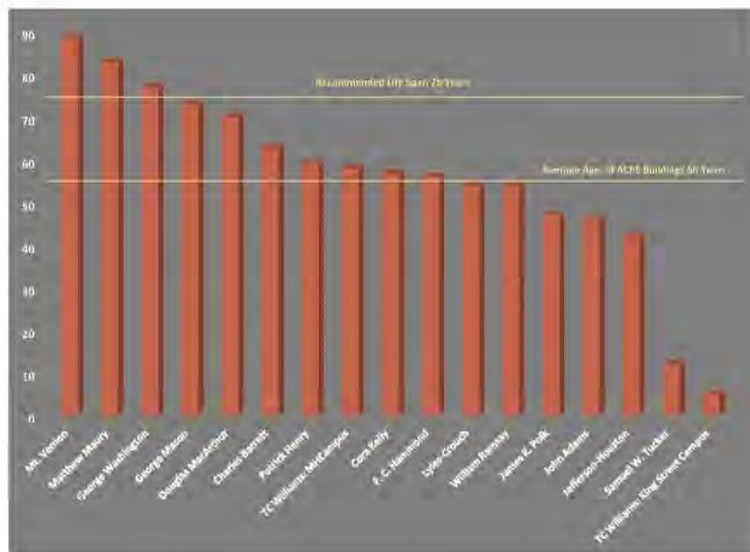
If this growth materializes, ACPS will need substantial additional classroom space. Even if growth rates slow, ACPS will need additional space. ACPS has tried to estimate growth conservatively, using the historical cohort survival rates, population birth rates, and making no assumptions about development in Alexandria or declines in drop-out rates. Even with this conservative approach to enrollment projections, significant space constraints are imminent.

These trends may be impacted by the economic climate; changes in school programs and quality (e.g., increasing numbers of students from private schools and/or decreases in dropouts), and development activities in the City of Alexandria. Redevelopment of property such as garden apartments, which have a high student yield to high-rise apartments, will lower the trend rate. Redevelopment of the Potomac Yard properties will increase the trend rate.

With no modification in program, class-size, or enrollment policies, ACPS will not be able to accommodate the projected elementary student population. Within the ten year period, ACPS will also need to address capacity issues at middle and high schools.

Most ACPS school buildings were built in the 1940's through the 1960's. (See Figure 2). Seven ACPS school buildings will exceed 75 years of age over the next 10 years. With the construction of the 20 additional classrooms scheduled to open in FY 2012, ACPS elementary schools have available a total of 16.5 classrooms throughout the City. With continued enrollment growth of the level experienced over the past four years, this additional capacity will be utilized by the end of FY 2013.

Figure 2:



Source: FY2013-2022 Proposed Capital Improvement Program Budget

Through this long-range facilities planning effort, alternative space utilization models will also be analyzed in an effort to use space as efficiently as possible while still maintaining quality instruction within the parameters of School Board approved programs.

At the November 28, 2011 City Council/School Board Sub-Committee meeting, the City and Board agreed to move forward in developing a School Capacity Plan and that ACPS/City staff would jointly develop a proposed work program. Funds to support ACPS long-range facilities planning were approved in the ACPS FY2013 CIP. This planning effort will begin immediately and will continue through the FY 2014 CIP budget cycle (June 2014), with a detailed long-range facilities plan being the output.

Work Plan

1. Plan Goals

- a.** Develop a long-range educational facilities plan to be adopted by the Alexandria City School Board and City Council. The Plan will include several key “up-datable” elements:
 - Long Range Enrollment Projections (10-year time horizon)
 - Determine Facility Capacity needs and how they will be met, including
 - (1) Availability of existing and new capacity
 - (2) Need for additional real estate
 - (3) Non-school requirements such as Central Office, Transportation, Maintenance, etc.
 - Define future educational specifications
 - Shape diverse and vibrant schools through continual analysis of ACPS enrollment practices
 - Schools of the future - Explore modernization/renovation options and determine factors that affect new schools as well as off-site academic programs and alternative school locations.

- b.** Develop policies to be approved by the School Board regarding:
 - a. Analysis of enrollment forecast components
 - b. Capacity needs analysis
 - c. Review of educational specifications

- c. Ensure that demographic information and educational facility needs will feed into City planning process.
- d. Educate and inform the community.
- e. Improve coordination and conduct fiscal analysis on capital funding for (new, expanded and modernized) school construction.



2. Plan Objectives

Objective A: Updatable Elements

- a. Collaboration with City staff, ACPS, and external partners such as regional demographers and local universities to develop a real-estate, land-use based projection methodology that will then be able to incorporate future residential development explicitly into the ACPS enrollment projections.
- b. Review and possible revision of educational specifications for all grade levels, and assessment of the required renovations and upgrades to bring all ACPS buildings up to the standard set by the educational specifications.
- c. Explore opportunities for prek-8 schools, off-site academics, and alternative satellite school locations.
- d. Through school site surveys by an A/E firm to assess the comprehensive feasibility of adding capacity at existing sites beyond the ones already included in the CIP; including a real estate analysis of existing and potential new sites and short and long-term project recommendations
- e. Conduct fiscal analysis and strategic review of short and long term project recommendations as part of CIP development and review.
- f. Development of updateable as-is plans for all sites.
- g. Development of a more robust space utilization database of all school rooms, sizes, and uses to serve as the basis for capacity analysis.

-
- h.** In collaboration with school staff and external partners, develop a more nuanced capacity analysis for elementary schools and a more sophisticated capacity analysis for secondary schools.

Objective B: Feed into City Planning Process

- a.** Small Area planning process incorporates demographic information to evaluate current conditions and forecast future growth for infrastructure needs and service demands (schools) within the Plan Area
- b.** Small Area planning process uses enrollment data/forecasts to determine current/future enrollment patterns, potential impacts on attendance zones, transportation routing and school facility needs and opportunities for shared services.
- c.** Development of current/future demographic information and enrollment forecasts are used to determine existing and future educational facility needs which are then considered for inclusion in the City's 10 year Capital Improvements Program.

Objective C: Community Engagement

- a.** Re-establishment of the Long-Range Facilities Plan Work Group, to meet on a quarterly basis to review and advise on the work being done.
- b.** At key points in the process, additional community input will be solicited and periodic reports to the Board and City Council will be prepared.

Objective D: Capital Funding Coordination

- a.** Development of an improved Capital Improvements planning process between the City and ACPS.
- b.** Creation of a Fiscal Analysis Sub-Committee to review short and long term project recommendations for cost estimates, affordability, potential for reduced costs, improved efficiency, and project timing as part of CIP development and review.

3. Outcomes/Products/Benefits

- a.** Solutions to ACPS capacity problems both short and long term project recommendations.
- b.** Shared understanding of ACPS budget needs and priorities.
- c.** Update middle and K-5 educational specifications.

-
- d. Identification of future school sites/locations including satellite school sites.
 - e. Shared understanding of the “school of the future.”
 - f. Shared understanding of project costs, affordability, timing and impact on the CIP

4. *Proposed Recommendations*

a. 18 month Plan preparation Timeline

a. Interim Deliverables by December 2012

- i. Analysis of Enrollment Projection Methodology
- ii. Capacity Analysis
- iii. Preliminary Recommendations for Interim/Short Term Projects

b. Staff Contribution

- ACPS
 - Department of Educational Facilities -Planning Design & Construction
 - Department of Curriculum & Instruction
 - Department of Technology Services
 - Department of Financial Services
- Alexandria City Government
 - Department of Planning & Zoning –Neighborhood Planning & Community Development and Geographic information Services
 - Department of Recreation, Parks and Cultural Activities –
 - Department of General Services
 - City Manager’s Office
 - Office of Housing

Work Program Elements

1. Enrollment Forecasts/Demographics –

| | |
|------------------------------|--|
| Goal | <ul style="list-style-type: none">• Develop an up-datable real estate, land-use based student enrollment projection methodology. |
| Community Outreach Mechanism | <ul style="list-style-type: none">• Long-Range Educational Facilities Plan Work Group |
| Report Out Mechanism | <ul style="list-style-type: none">• Position Paper/Updatable element of the Long Range Educational Facilities Plan |
| Participating Staff | <ul style="list-style-type: none">• Alexandria City Public Schools<ul style="list-style-type: none">• Educational Facilities• Technology Services• Financial Services• Alexandria City Government<ul style="list-style-type: none">• Planning and Zoning/NPCD & GIS• Recreation, Parks and Cultural Activities |
| Methodology | <ul style="list-style-type: none">• Review and analyze factors for predicting K enrollment• Analyze factors used for 1st-12th grade enrollment projections including aging, migration, and annual change in K enrollment |
| Interim Deliverables | <ul style="list-style-type: none">• Review projection factors• Prepare short-mid term enrollment projections (system-wide and by school, by grade) |
| Final Out-Puts | <ul style="list-style-type: none">• Prepare short – and long – term enrollment projections (system wide and by school, by grade)• Use new methodology to incorporate future residential development explicitly into the ACPS enrollment projections. |

2. Facility Capacity Needs Analysis –

| | |
|--|--|
| <p>Goal</p> | <ul style="list-style-type: none"> • Define existing conditions, and determine a more robust capacity analysis methodology. Determine factors that affect new schools and explore modernization/renovation options |
| <p>Community Outreach Mechanism</p> | <ul style="list-style-type: none"> • Long-Range Educational Facilities Plan Work Group |
| <p>Report Out Mechanism</p> | <ul style="list-style-type: none"> • Position paper/updatable element of the the Long Range Educational Facilities Plan |
| <p>Participating Staff</p> | <ul style="list-style-type: none"> • Alexandria City Public Schools <ul style="list-style-type: none"> • Educational Facilities • Alexandria City Government <ul style="list-style-type: none"> • Planning and Zoning/NPCD & GIS • Recreation, Parks and Cultural Activities • General Services |
| <p>Methodology</p> | <ul style="list-style-type: none"> • Analyze the existing educational program/facilities <ul style="list-style-type: none"> • Existing school size (ES, MS and HS) • Existing/averaged class size for classrooms (ES, MS and HS) • Specialized classroom program area space needs: (Art, Music, PE, Science/Laboratory and special needs) • Non-classroom space: (ie., recreational, auditorium, meeting space media center, library, health services, cafeteria, restroom, office, parking...etc) • Additional Services (i.e. , Talented and Gifted, ELL, Special Education) • Grade levels served <ul style="list-style-type: none"> • Preschool • K-5th • 6th – 8th • High School • Adult Education Programs • Determine “open/modified enrollment” practice impacts (20% currently) of out of district enrollment on system/by district. |

Interim Deliverables

- Convert enrollment projections into teacher staffing required (Determines number/type of classrooms).
- Development of a more robust database of all school rooms, sizes, and uses to serve as the basis for capacity analysis.
- Quantify current space utilization of existing facilities
 - Full-size, resource and small classroom space
 - Dedicated space for other uses, such as science labs, existing preschool programs, special education and adult education programs
 - Determine need/applicability of modular/portable classroom
 - Conduct Fiscal Analysis of recommendations

Final Out-Puts

- Convert enrollment projections into teacher staffing required (Determines number/type of classrooms).
- In collaboration with school staff and external partners, developing a more nuanced capacity analysis for elementary schools and a more sophisticated capacity analysis for secondary schools.
- Development of a more robust database of all school rooms, sizes, and uses to serve as the basis for capacity analysis.
- Development of as-is plans for all sites. Because of the age of most ACPS buildings, as-is documents do not exist (from ACPS)
- Quantify current space utilization of existing facilities
 - Full-size, resource and small classroom space
 - Dedicated space for other uses, such as science labs, existing preschool programs, special education and adult education programs
 - Determine need/applicability of modular/portable classroom
 - Conduct Fiscal Analysis of recommendations

3. Educational Specifications– Determining the School of the Future

Goal

- Define future Educational Specifications.

Community Outreach Mechanism

- Long-Range Educational Facilities Plan Work Group

Report Out Mechanism

- Position paper/updatable element of the the Long Range Educational Facilities Plan

Participating Staff

- Alexandria City Public Schools
 - Educational Facilities
 - Curriculum and Instruction
 - Technology Services
- Alexandria City Government
 - Planning and Zoning/NPCD &GIS
 - Recreation, Parks and Cultural Activities
 - General Services

Methodology

- Define the future educational program
- Optimal School size (ES, MS and HS)
- Class size for classrooms (ES, MS and HS)
- Specialized classroom program area space needs: (Art, Music, PE, Science/Laboratory and special needs)
- Non-classroom space: (ie., Recreational, Auditorium, Meeting Space Media Center, Library, Health Services, Cafeteria, Restrooms, Administrative Office, Parking...etc)
- Additional Services (i.e. , Talented and Gifted, ELL, Special Education)
- Grade levels served
 - Preschool
 - K-5th
 - 6th – 8th
 - High School
 - Adult Education Programs
- Determine “open/modified enrollment” practice impacts (20% currently) of out of district enrollment on system/by division.
- Conduct Fiscal Analysis of recommendations

Interim Deliverables

- Review and possible revision of draft educational specifications for all grade levels, and assessment of the required renovations and upgrades to bring all ACPS buildings up to the standard set by the educational specifications.
- Analyze buildings based on current/draft educational specifications.
- Fiscal Impact of Recommendations

Out-Puts

- Review and possible revision of draft educational specifications for all grade levels, and assessment of the required renovations and upgrades to bring all ACPS buildings up to the standard set by the educational specifications.
- Analyze buildings based on current/draft educational specifications.
- Conduct Fiscal Analysis of recommendations
- Identify organizational components necessary to implement educational specification objectives.
- Develop Educational Specifications (ie., school size, teaching stations, students /teaching station, program capacity ...etc)
 - Flexible facilities
 - Universal design
 - Maximize community connectivity
 - Cost effective and efficient
 - Community buy-in

4. Analysis of ACPS Enrollment Practices: Shaping Diverse and Vibrant Schools through Enrollment Practices

| | |
|-------------------------------------|--|
| Goal | <ul style="list-style-type: none">• Shape diverse and vibrant schools through enrollment practices and make policy recommendations to ensure diverse and vibrant schools. |
| Community Outreach Mechanism | <ul style="list-style-type: none">• Long-Range Educational Facilities Plan Work Group; Any significant recommended changes will require broader community involvement |
| Report Out Mechanism | <ul style="list-style-type: none">• Position paper/updatable element of the the Long Range Educational Facilities Plan |
| Participating Staff | <ul style="list-style-type: none">• Alexandria City Public Schools• Educational Facilities• Curriculum and Instruction• Technology Services• Alexandria City Government• Planning and Zoning/NPCD & GIS |
| Methodology | <ul style="list-style-type: none">• Development of historical enrollment practice summation (formal and informal practices).• Identification of factors (Legislative, No-child-left-behind, Special education, Administrative placements ...other) that influence enrollment practices.• Modified enrollment impact on the school system as a whole and by school attendance area. |
| Out-Puts | <ul style="list-style-type: none">• Estimate of current enrollments practices impact on school enrollment in next 10 years.• Enrollments impact on transportation, capacity needs and CIP.• Proposed changes to enrollments practices. |

5. School of the Future

| | |
|-------------------------------------|---|
| Goal | <ul style="list-style-type: none"> • Explore modernization/renovation options and determine factors that affect new schools. |
| Community Outreach Mechanism | <ul style="list-style-type: none"> • Long-Range Facilities Planning Group/Broader Community involvement |
| Report Out Mechanism | <ul style="list-style-type: none"> • Position paper/updatable element of the the Long Range Educational Facilities Plan |

| | |
|----------------------------|---|
| Participating Staff | <ul style="list-style-type: none"> • Alexandria City Public Schools • Educational Facilities • Curriculum and Instruction • Technology Services • Financial Services • Alexandria City Government • Planning and Zoning/NPCD • Planning and Zoning/GIS • Recreation, Parks and Cultural Activities • General Services |
|----------------------------|---|

| | |
|--------------------|--|
| Methodology | <ul style="list-style-type: none"> • New School <ul style="list-style-type: none"> • Determine what “types” of schools will be constructed <ul style="list-style-type: none"> • Program based • Magnate • Size (standard capacity template) • Location/geographic considerations • Swing space • Urban vs. traditional • Conduct Fiscal Analysis of recommendations • Determine feasibility of keeping existing facilities operational after a new school has been constructed • Land Analysis <ul style="list-style-type: none"> • Existing sites • Adjacent sites • New locations • Land analysis based on school program needs (traditional vs. urban schools) • Conduct Fiscal Analysis of recommendations • Funding Options <ul style="list-style-type: none"> • CIP • Operating • Development of a policy on revenue sharing • Developer Contributions/Proffers |
|--------------------|--|

Methodology
(cont.)

- Modernization/Renovation Options
- Thorough school site surveys by an A/E firm to assess the feasibility of adding capacity at existing sites beyond the ones already included in the CIP.

Out-Puts

- Feasibility Study of modernizing existing facilities

Addendum I

Alexandria City Public Schools/City of Alexandria - Long Range Educational Facilities Plan Work Group

Purpose

The work group will review and advise on the work being done to develop a long-range educational facilities plan.

Responsibilities

- **To define ACPS short, medium, and long-term facilities' needs and to subsequently identify solutions.** (Short term is defined as 1 to 5 years, medium as 6 to 10 years, and long-term as 11 to 30 years.) This will include:
 - Analyze programmatic, enrollment, and facility capacity trends
 - Identify the impact of City planning and development processes and decisions on ACPS facilities and enrollment
 - Determine options including but not limited to construction of new buildings for meeting short term facility needs
 - Define the medium and long-term requirements for the number, type, capacity, and general locations of ACPS facilities
 - Identify the investment required to meet the identified needs
 - Identify constraints, obstacles, and facilitators of change
 - Propose options to achieve the recommendations of the subcommittee
 - Prepare a report for the committee of the whole (the Long Range Educational Facilities Plan Work Group) to discuss and approve, for inclusion in a final report to the Superintendent

- **To articulate a vision of future ACPS elementary and middle school facilities to serve students, parents, staff and community through the 22nd century.** This will include:
 - Define the functions to be included in a future ACPS school
 - Research programmatic, land use, architectural, engineering, and ecological innovations to be included in an ACPS school of the future
 - Identify the construction and operational cost parameters of the school of the future
 - Prepare a report for the (the Long Range Educational Facilities Plan Work Group) to discuss and approve, for inclusion in a final report to the Superintendent

- **To serve as a representative of ACPS and its facilities' needs at City of Alexandria small area plan meetings, with City Council, and with City of Alexandria Civic Associations.** This will include:
 - Attend Potomac Yard, Braddock Metro, Arlandria, Waterfront, Beauregard implementation meetings and other small area plan meetings as a representative of school division interests

- Attend relevant civic association meetings
- Consult with ACPS staff prior to and following attendance at such meetings
- Support the work of the Long Range Educational Facilities Plan through presentations at public and private meetings in the City
- Report to the committee of the whole (the Long Range Educational Facilities Plan Work Group) on the issues discussed and activities of the subcommittee, particularly as they impact the work of the other subcommittees
- Prepare a report on future issues and actions to go to the Long Range Educational Facilities Plan Work Group for discussion and approval, for inclusion in a final report to the Superintendent

The Long Range Educational Facilities Planning Work Group (Work Group)

The Work Group will consist of 19 members and meet at least quarterly. The Work Groups Co-Chairs will be responsible for meeting coordination, logistics and administrative support.

Membership

Elected Officials

| | |
|-------------------------|--------------|
| School Board District A | City Council |
| School Board District B | City Council |

Staff

| | |
|---|---------------------------------------|
| Co-Chair Laurel Hammig, ACPS | Co-Chair Steve Kaii-Ziegler, P&Z, COA |
| Bill Finn, Educational Facilities, ACPS | Karl Moritz, P&Z, COA |
| Dr. Mayde Henson, ACPS | Debra Collins, CM Office, COA |

Community Members

| |
|-------------------|
| Campagna Center |
| PTA Rep |
| PTA Rep |
| Community Rep (6) |

Support Staff (not official members of the work group)

| | |
|---------------------------|---|
| C&I Staff, TBD | Ron Kagawa, RPCA, COA (Parks) |
| C&I Staff, TBD | Steve Sindiong, T&ES, COA |
| Elementary Principal, TBD | Donna Poillucci, General Services, COA |
| Elementary Teacher, TBD | Laura Triggs, OMB, COA |
| Secondary Teacher, TBD | Debra Collins, City Manager's Office, COA |
| | William Chesley, RPCA, COA (Recreation) |

Long Range Educational Facilities Planning Sub-Committee (Sub-Committees)

A Sub-committee for each work plan element will be created. Additionally, a separate fiscal analysis Sub-Committee will be created to review short and long term project recommendations for cost estimates, affordability, and potential for reduced costs, improved efficiency, and project timing as part of CIP development and review. At least one staff member from both the City and ACPS staff with expertise in a Sub-Committee's area of responsibility will serve as staff to each Sub-Committee.

- 1) Enrollment Forecasts/Demographics
- 2) Facility Capacity Needs Analysis
- 3) Educational Specifications
- 4) Analysis of ACPS Enrollment Practices
- 5) School of the Future
- 6) Fiscal Analysis

Sub-Committees will identify a chairperson and a communications person. The chairperson will be responsible for ensuring that agenda items and any associated materials to be considered at a regular the monthly meeting of the Work Group are sent out at least 4 business days prior to the meeting. The communications person will be responsible for writing subcommittee documents and managing subcommittee communications. The subcommittee may identify any other functional positions/tasks required to conduct the business of the Sub-Committee.

It is the responsibility of the Work Group and Sub-Committees to conduct the required analysis and prepare the working documents of the group. The function of staff is to provide documents and data that already exist; offer professional expertise and advice; and help identify resources

that committee members might otherwise not be aware of. Subcommittee meetings and participation may be electronic at the discretion of a majority of the subcommittee members

Communication

Communication will be via email or closed list-serve

Schedule

TBD

Next Steps

- Identification and appointment of Work Group and Sub-Committee members. A meeting of key ACPS/City staff is being organized for the week of October 1, 2012 to address.
- Next City/Schools Sub-Committee meeting is scheduled for October 29, 2012. The Work Groups Co-Chairs will present an update on progress.

LREFP WORK PROGRAM SUPPLEMENT

Long Range Educational Facilities Plan Work Program – Supplement 1 Revised 11/27/12

This supplement is intended to provide additional information, detail and guidance to implement the Long Range Educational Facilities Work Program

Senior Management Team

The City and ACPS will create a Long Range Educational Facilities Work Program “Senior Management Team” to help guide/communicate the long range planning effort. The team will consist of Dr. Madye Henson, Bill Finn and Laurel Hammig from ACPS and Debra Collins and Karl Moritz from Planning and Zoning. The senior management team will meet regularly – typically, one week prior to a monthly City/Schools Subcommittee meeting.

The Long Range Educational Facilities Planning Work Group (Work Group)

The Long Range Educational Facilities Planning Work Group (Work Group) will be made up of 19 members. 2 - School Board Members, 2- City Council Members, 1-Campagna Center Member, 2-PTA Members and 6-Community Members, 3-City Staff and 3-ACPS Staff. The work plan has been revised to reflect a 19 member work group.

ACPS/City staff will select potential candidates and forward to the Superintendent of Schools and City Manager for consideration. The Work Group will meet as a group every 60-90 days for duration of approximately 18 months. Additionally, the Senior Management Team we will need to identify potential candidates for the various sub-committees that will be integral to the planning effort. It is anticipated that sub-committees will consist of City/ACPS staff and some of the selected community members from the work group. This Supplement includes several recommended candidates for consideration in the work group.

19-Member Work Group

- 2-School Board members – Yvonne Folkerts and Ronnie Campbell
- 2-City Council members – Mayor Euille and Vice Mayor Donley
- 1-Campagna Center member
 - President and CEO – Dr. Tammy L. Mann
- 2-PTA Council Designees Members
 - PJ Lepp or her designee
 - Julie Rocchio

-
- 6-Community Members
 - Ken Billingsley – Director of Demographics and Information Northern Virginia Regional Commission
 - Judy Noritake
 - Chris Hartman
 - Mark Eisenhour
 - Herb Berg- former ACPS Superintendent
 - Keith Jabati

 - 3- ACPS staff to include Dr. Madye Henson, Bill Finn and Laurel Hammig (ex-officio)

 - 3-City staff to include Debra Collins, Karl Moritz and Steve Chozick (ex-officio)

Sub-Committees (ACPS/City Departments – Divisions)

Note: Communications to be included for internal/external dissemination of information

- Enrollment Forecasting/Demographics
 - ACPS
 - Educational Facilities
 - Technology Services
 - Financial Services
 - City
 - Planning and Zoning
 - RCPA

- Facility Capacity Needs Analysis
 - ACPS
 - Educational Facilities
 - Elementary/Middle Schools
 - City
 - Planning and Zoning
 - RCPA
 - General Services

- Educational Specifications
 - ACPS
 - Educational Facilities
 - Curriculum and Instruction
 - Technology Services
 - City
 - Planning and Zoning
 - RCPA
 - General Services

-
- ACPS Enrollment Practices
 - ACPS
 - Educational Facilities
 - Curriculum and Instruction
 - Technology Services
 - City
 - TBD

 - School of the Future
 - ACPS
 - Educational Facilities
 - Curriculum and Instruction
 - Technology Services
 - Financial Services
 - City
 - Planning and Zoning
 - RCPA
 - General Services

 - Fiscal Analysis
 - ACPS
 - Educational Facilities
 - Financial Services
 - City
 - Planning and Zoning
 - General Services
 - OMB

Key Dates

- October 26th - Initial draft by school by grade projections due to ACPS Financial Services
- October 29th - City/Schools meeting
- November 26th- City/School meeting
- December 6th- School Board meeting on joint recommendation for capacity projects to include in the FY14-23 CIP
- January 24th- ACPS presents CIP to School Board


LREFP WORK PROGRAM UPDATE

City of Alexandria, Virginia

MEMORANDUM

DATE: OCTOBER 15, 2012

TO: THE HONORABLE MAYOR AND MEMBERS OF CITY COUNCIL

FROM: RASHAD M. YOUNG, CITY MANAGER 

SUBJECT: LONG RANGE EDUCATIONAL FACILITIES WORK PROGRAM – UPDATE

As you are aware, staff for the City and ACPS has been jointly developing a work program for a Long Range Educational Facilities Plan. The purpose of the planning effort is to develop recommendations to improve facilities planning and accommodate the growing student population in order to support and enhance the delivery of educational programs and services in the most efficient, cost effective manner possible.

Several weeks ago, I forwarded an initial draft of that document to City Council. In addition, the draft work program was presented at the September 18th City Council/School Board Subcommittee meeting with generally favorable feedback. The Subcommittee had an excellent discussion and offered suggestions for inclusion of additional items in the work program. City and ACPS staff have incorporated those suggestions into the final version of the Work Program, reflected in the following changes:

- Inclusion of fiscal analysis and/or strategic review language to various parts of the work program. Staff also modified the work program to allow for the creation of a fiscal analysis subcommittee.
- Revision of the Staff Contribution section of the work program to reflect Department/Division only, not individual staff positions.
- Modification of the work group composition to increase citizen members and to emphasize that staff's role is to advise and support. The work group will consist of a total of 19 members, two from the City Council, two from the School Board, a representative of the Campagna Center, and eight community members, including PTA representatives. ACPS and City staff will each have three members assigned to the work group with other ACPS/City staff acting as support staff, not official members of the work group.
- Modification of some of the work group's attendance and meeting process requirements.

ACPS and City staff have been meeting regularly and have initiated work on student enrollment and forecasting, as well as coordinating the process to identify and select work group and subcommittee members. It is envisioned that membership in the work group and subcommittees will be selected by the Superintendent of Schools and the City Manager. Attached is a copy of the revised work program for your review. As the process continues, staff will continue to keep Council informed.

cc: Debra R. Collins, Deputy City Manager

LREFP WORK PROGRAM SCHEDULE

Long Range Education Facilities Planning Work Program Schedule

| | Calendar 2013 | | | | | | | | | | | | Calendar 2014 | | | | | | | | | | | | | |
|---|---------------|-----|-----|-----|-----|-----|--------|-----|-----|-----|-----|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | FY2013 | | | | | | FY2014 | | | | | | FY2015 | | | | | | | | | | | | | |
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | JAN | FEB |
| Enrollment Forecasts/Demographics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Initial review, identification of issues and key factors | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | | | | | | |
| Subcommittee: exploration of key factors | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | |
| Update enrollment and short/mid-range forecasts for budget, draft findings for long range forecasts | | | | | | | | | | | ★ | ■ | | | | | | | | | | | | | | |
| Develop draft high, medium and low long range forecasts based on findings | | | | | | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | | | |
| Refine and confirm long range forecasts and process for regular updating | | | | | | | | | | | | | ★ | ■ | ■ | ■ | ■ | ■ | | | | | | | | |
| Facility Capacity Needs Analysis | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Assessment of Existing Conditions - school sites and buildings by type of use | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| <i>Building interior inventory</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Capacity and utilization assessment for each school by type of use</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Building space needs by type of use, both classroom and non-classroom</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Site (outdoor) space assessment and needs analysis</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Educational Adequacy Assessment and Future Recommendations | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Allocation of existing capacity to meet current demand</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Recommendations for guidelines for adding capacity</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Operational Issues, short and long term</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Cost estimates</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Potential future school sites</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Educational Specifications/School of the Future | | | | | | | | | | | | | | | | | | | | | | | | | | |
| K-12 Issues and Opportunities | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Setting the framework (including relevant guidance in adopted policies and plans)</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Data collection and review</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Program options</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Architectural design considerations</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Recommended educational specifications</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pre-K Issues and Opportunities | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Review existing conditions, practices; identify gaps in service</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Prepare general forecasts of future demand</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Program options</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Architectural design considerations</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Integrate into recommended educational specifications</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Final Long Range Education Facilities Plan | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Decide on Final Report Outline/Format/Contents | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Provide initial drafts of main chapters to Work Group | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Provide final draft to Work Group | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Public hearings, review by City Council and approval by School Board | | | | | | | | | | | | | | | | | | | | | | | | | | |

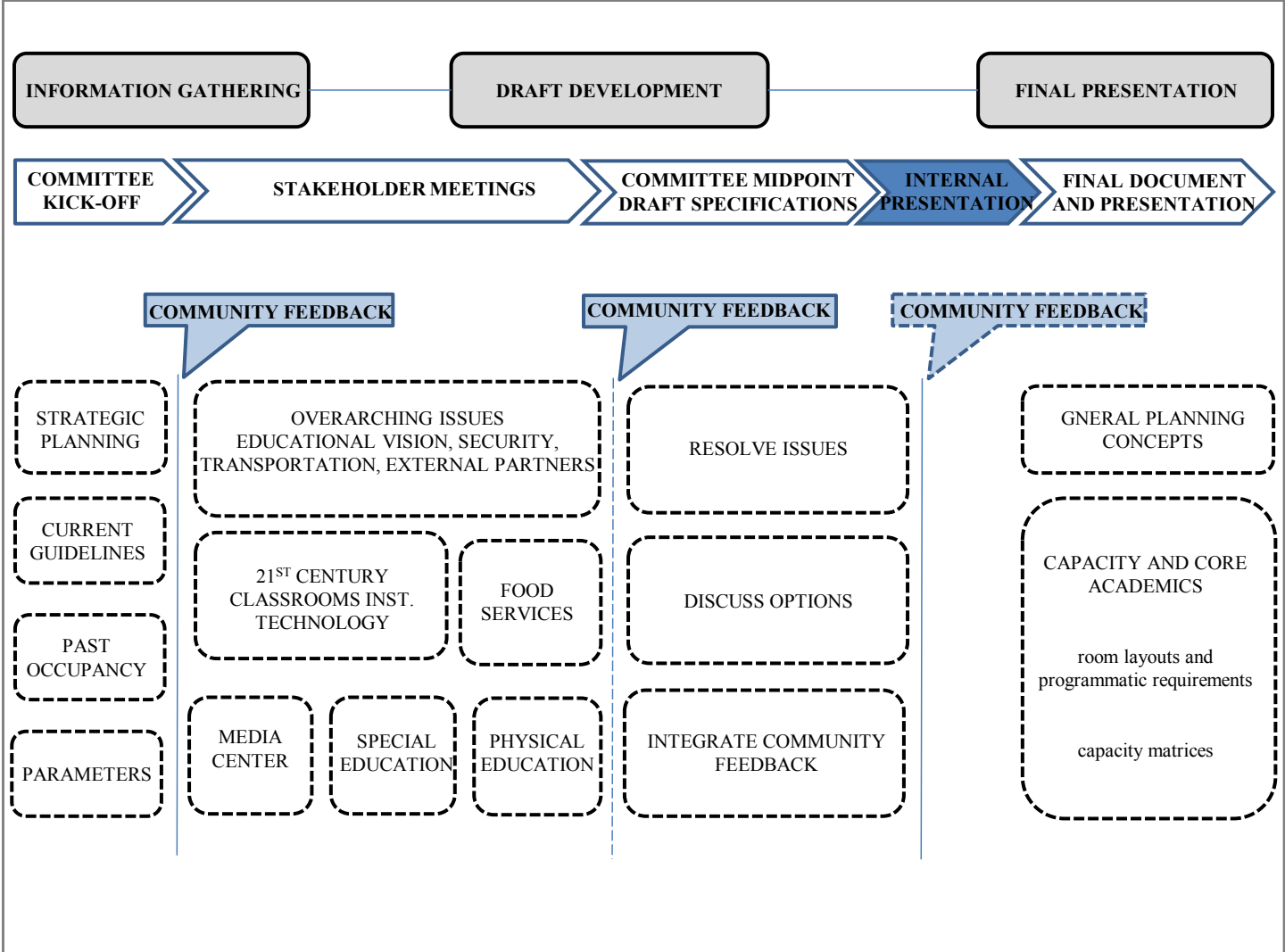
KEY

- Active work by Work Group, Subcommittee and Staff
- ★ Subcommittee reports to Work Group/Work Group decisions
- Work Group quarterly meetings
- ★ Review by City Council/Approval by School Board

as of 6/13/14

APPENDIX B-1

EDUCATIONAL SPECIFICATIONS DEVELOPMENT WORKFLOW



APPENDIX B-2

ACPS ELEMENTARY AND MIDDLE SCHOOL EDUCATIONAL SPECIFICATIONS

The ACPS Elementary and Middle School Educational Specifications developed during this planning process were adopted by the ACPS School Board on January 29, 2015.

These documents can be viewed from the Long Range Educational Facilities Plan webpage, <http://www.alexandriava.gov/68540> or by contacting the ACPS Facilities Department, 703.619.8038.

| Appraisal Summary for : | | Charles Barrett | | | |
|--|-------------------|------------------------|----------|------------------------|--|
| Summary | | | | | |
| | Unweighted Points | Tier | Priority | Rating Category | |
| 1.0 School Site | 71 | | | Satisfactory | |
| 2.0 Building Assessment | 75 | | | Satisfactory | |
| 3.0 Instructional and Support Spaces | 74 | | | Satisfactory | |
| 4.0: Utilization | 68 | | | Very Inadequate | |
| Average | 72 | | | Satisfactory | |
| 1.0 School Site | | | | | |
| Section 1 | Unweighted Points | Tier | Priority | Rating Category | |
| A Site Circulation. | 54 | 4 | 14 | Borderline | |
| B Play areas / fields | 88 | 3 | 18 | Satisfactory | |
| Average : School Site | 71 | | | Satisfactory | |
| 2.0 Building Assessment | | | | | |
| Section 2 | Unweighted Points | Tier | Priority | Rating Category | |
| A Building Organization | 75 | 4 | 19 | Satisfactory | |
| B Technology and Supporting Infrastructure | 50 | 4 | 14 | Borderline | |
| C Accessibility | 100 | 4 | 24 | Excellent | |
| Average : Building Assessment | 75 | | | Satisfactory | |
| 3.0 Instructional and Support Spaces | | | | | |
| Section 3 | Unweighted Points | Tier | Priority | Rating Category | |
| Core Classrooms | | | | | |
| Meets Size Requirements | 37 | 2 | 7 | Inadequate | |
| Internal Organization and Ancillary Spaces | 72 | 4 | 19 | Satisfactory | |
| Loose Furnishings | 63 | 4 | 14 | Borderline | |
| Fixed Equipment and Infrastructure | 73 | 4 | 19 | Satisfactory | |
| Lighting Quality | 97 | 3 | 23 | Excellent | |
| Natural Lighting | 97 | 3 | 23 | Excellent | |
| Acoustics | 94 | 3 | 23 | Excellent | |
| Air Quality and Temperature | 73 | 3 | 18 | Satisfactory | |
| Specialty Classrooms | | | | | |
| Meets Size Requirements | 20 | 2 | 2 | Very Inadequate | |
| Internal Organization and Ancillary Spaces | 59 | 4 | 14 | Borderline | |
| Loose Furnishings | 53 | 4 | 14 | Borderline | |
| Fixed Equipment and Infrastructure | 44 | 4 | 9 | Inadequate | |
| Lighting Quality | 60 | 3 | 13 | Borderline | |
| Natural Lighting | 100 | 3 | 23 | Excellent | |
| Acoustics | 100 | 3 | 23 | Excellent | |
| Air Quality and Temperature | 72 | 3 | 18 | Satisfactory | |
| Support and Admin | | | | | |
| Meets Size Requirements | 20 | 2 | 2 | Very Inadequate | |
| Internal Organization and Ancillary Spaces | 74 | 5 | 20 | Satisfactory | |
| Loose Furnishings | 100 | 5 | 25 | Excellent | |
| Fixed Equipment and Infrastructure | 75 | 5 | 20 | Satisfactory | |
| Lighting Quality | 100 | 4 | 24 | Excellent | |
| Natural Lighting | 100 | 3 | 23 | Excellent | |
| Acoustics | 60 | 5 | 15 | Borderline | |
| Air Quality and Temperature | 83 | 4 | 19 | Satisfactory | |
| Shared Spaces | | | | | |
| Meets Size Requirements | 65 | 2 | 12 | Borderline | |
| Internal Organization and Ancillary Spaces | 80 | 4 | 19 | Satisfactory | |
| Loose Furnishings | 84 | 4 | 19 | Satisfactory | |
| Fixed Equipment and Infrastructure | 72 | 4 | 19 | Satisfactory | |
| Lighting Quality | 85 | 3 | 18 | Satisfactory | |
| Natural Lighting | 78 | 3 | 18 | Satisfactory | |
| Acoustics | 87 | 3 | 18 | Satisfactory | |
| Air Quality and Temperature | 76 | 3 | 18 | Satisfactory | |
| Average: Instructional and Support Spaces | 74 | | | Satisfactory | |
| 4.0: Utilization | | | | | |
| Section 4 : Utilization | Unweighted Points | Tier | Priority | Rating Category | |
| A Core Classrooms (Capacity Drivers) | 80 | 2 | 7 | Inadequate | |
| B Specialty Classrooms (Core A) | 56 | 3 | 3 | Very Inadequate | |
| C Shared Spaces (Core B) | 133 | 3 | 3 | Very Inadequate | |
| Average : Utilization | 68 | | | Very Inadequate | |

| Key | |
|-----|-----------------|
| 1 | Excellent |
| 2 | Satisfactory |
| 3 | Borderline |
| 4 | Inadequate |
| 5 | Very Inadequate |

| Appraisal Summary for : | | Cora Kelly | | |
|--|-------------------|------------|----------|------------------------|
| Summary | | | | |
| | Unweighted Points | Tier | Priority | Rating Category |
| 1.0 School Site | 87 | | | Satisfactory |
| 2.0 Building Assessment | 49 | | | Inadequate |
| 3.0 Instructional and Support Spaces | 75 | | | Satisfactory |
| 4.0: Utilization | 19 | | | Very Inadequate |
| Average | 58 | | | Borderline |
| 1.0 School Site | | | | |
| Section 1 | Unweighted Points | Tier | Priority | Rating Category |
| A Site Circulation. | 74 | 4 | 19 | Satisfactory |
| B Play areas / fields | 100 | 3 | 23 | Excellent |
| Average : School Site | 87 | | | Satisfactory |
| 2.0 Building Assessment | | | | |
| Section 2 | Unweighted Points | Tier | Priority | Rating Category |
| A Building Organization | 55 | 4 | 14 | Borderline |
| B Technology and Supporting Infrastructure | 43 | 4 | 9 | Inadequate |
| C Accessibility | 50 | 4 | 14 | Borderline |
| Average : Building Assessment | 49 | | | Inadequate |
| 3.0 Instructional and Support Spaces | | | | |
| Section 3 | Unweighted Points | Tier | Priority | Rating Category |
| Core Classrooms | | | | |
| Meets Size Requirements | 37 | 2 | 7 | Inadequate |
| Internal Organization and Ancillary Spaces | 72 | 4 | 19 | Satisfactory |
| Loose Furnishings | 73 | 4 | 19 | Satisfactory |
| Fixed Equipment and Infrastructure | 74 | 4 | 19 | Satisfactory |
| Lighting Quality | 87 | 3 | 18 | Satisfactory |
| Natural Lighting | 93 | 3 | 23 | Excellent |
| Acoustics | 80 | 3 | 18 | Satisfactory |
| Air Quality and Temperature | 64 | 3 | 13 | Borderline |
| Specialty Classrooms | | | | |
| Meets Size Requirements | 60 | 2 | 12 | Borderline |
| Internal Organization and Ancillary Spaces | 67 | 4 | 14 | Borderline |
| Loose Furnishings | 62 | 4 | 14 | Borderline |
| Fixed Equipment and Infrastructure | 57 | 4 | 14 | Borderline |
| Lighting Quality | 87 | 3 | 18 | Satisfactory |
| Natural Lighting | 89 | 3 | 18 | Satisfactory |
| Acoustics | 75 | 3 | 18 | Satisfactory |
| Air Quality and Temperature | 68 | 3 | 13 | Borderline |
| Support and Admin | | | | |
| Meets Size Requirements | 50 | 2 | 12 | Borderline |
| Internal Organization and Ancillary Spaces | 58 | 5 | 15 | Borderline |
| Loose Furnishings | 100 | 5 | 25 | Excellent |
| Fixed Equipment and Infrastructure | 60 | 5 | 15 | Borderline |
| Lighting Quality | 100 | 4 | 24 | Excellent |
| Natural Lighting | 100 | 3 | 23 | Excellent |
| Acoustics | 100 | 5 | 25 | Excellent |
| Air Quality and Temperature | 100 | 4 | 24 | Excellent |
| Shared Spaces | | | | |
| Meets Size Requirements | 74 | 2 | 17 | Satisfactory |
| Internal Organization and Ancillary Spaces | 77 | 4 | 19 | Satisfactory |
| Loose Furnishings | 86 | 4 | 19 | Satisfactory |
| Fixed Equipment and Infrastructure | 51 | 4 | 14 | Borderline |
| Lighting Quality | 79 | 3 | 18 | Satisfactory |
| Natural Lighting | 84 | 3 | 18 | Satisfactory |
| Acoustics | 85 | 3 | 18 | Satisfactory |
| Air Quality and Temperature | 63 | 3 | 13 | Borderline |
| Average: Instructional and Support Spaces | 75 | | | Satisfactory |
| 4.0: Utilization | | | | |
| Section 4 : Utilization | Unweighted Points | Tier | Priority | Rating Category |
| A Core Classrooms (Capacity Drivers) | 98 | 2 | 17 | Satisfactory |
| B Specialty Classrooms (Core A) | 296 | 3 | 3 | Very Inadequate |
| C Shared Spaces (Core B) | 146 | 3 | 3 | Very Inadequate |
| Average : Utilization | 19 | | | Very Inadequate |

| Key | |
|-----|-----------------|
| 1 | Excellent |
| 2 | Satisfactory |
| 3 | Borderline |
| 4 | Inadequate |
| 5 | Very Inadequate |

| Appraisal Summary for : Douglas MacArthur | | | | |
|--|-------------------|------|----------|------------------------|
| Summary | | | | |
| | Unweighted Points | Tier | Priority | Rating Category |
| 1.0 School Site | 84 | | | Satisfactory |
| 2.0 Building Assessment | 58 | | | Borderline |
| 3.0 Instructional and Support Spaces | 63 | | | Borderline |
| 4.0: Utilization | 68 | | | Very Inadequate |
| Average | 68 | | | Borderline |
| 1.0 School Site | | | | |
| Section 1 | Unweighted Points | Tier | Priority | Rating Category |
| A Site Circulation. | 68 | 4 | 14 | Borderline |
| B Play areas / fields | 100 | 3 | 23 | Excellent |
| Average : School Site | 84 | | | Satisfactory |
| 2.0 Building Assessment | | | | |
| Section 2 | Unweighted Points | Tier | Priority | Rating Category |
| A Building Organization | 75 | 4 | 19 | Satisfactory |
| B Technology and Supporting Infrastructure | 50 | 4 | 14 | Borderline |
| C Accessibility | 50 | 4 | 14 | Borderline |
| Average : Building Assessment | 58 | | | Borderline |
| 3.0 Instructional and Support Spaces | | | | |
| Section 3 | Unweighted Points | Tier | Priority | Rating Category |
| Core Classrooms | | | | |
| Meets Size Requirements | 48 | 2 | 7 | Inadequate |
| Internal Organization and Ancillary Spaces | 72 | 4 | 19 | Satisfactory |
| Loose Furnishings | 69 | 4 | 14 | Borderline |
| Fixed Equipment and Infrastructure | 81 | 4 | 19 | Satisfactory |
| Lighting Quality | 69 | 3 | 13 | Borderline |
| Natural Lighting | 82 | 3 | 18 | Satisfactory |
| Acoustics | 93 | 3 | 23 | Excellent |
| Air Quality and Temperature | 65 | 3 | 13 | Borderline |
| Specialty Classrooms | | | | |
| Meets Size Requirements | 30 | 2 | 7 | Inadequate |
| Internal Organization and Ancillary Spaces | 42 | 4 | 9 | Inadequate |
| Loose Furnishings | 49 | 4 | 9 | Inadequate |
| Fixed Equipment and Infrastructure | 39 | 4 | 9 | Inadequate |
| Lighting Quality | 53 | 3 | 13 | Borderline |
| Natural Lighting | 36 | 3 | 8 | Inadequate |
| Acoustics | 76 | 3 | 18 | Satisfactory |
| Air Quality and Temperature | 69 | 3 | 13 | Borderline |
| Support and Admin | | | | |
| Meets Size Requirements | 20 | 2 | 2 | Very Inadequate |
| Internal Organization and Ancillary Spaces | 26 | 5 | 5 | Very Inadequate |
| Loose Furnishings | 100 | 5 | 25 | Excellent |
| Fixed Equipment and Infrastructure | 20 | 5 | 5 | Very Inadequate |
| Lighting Quality | 60 | 4 | 14 | Borderline |
| Natural Lighting | 20 | 3 | 3 | Very Inadequate |
| Acoustics | 100 | 5 | 25 | Excellent |
| Air Quality and Temperature | 100 | 4 | 24 | Excellent |
| Shared Spaces | | | | |
| Meets Size Requirements | 36 | 2 | 7 | Inadequate |
| Internal Organization and Ancillary Spaces | 79 | 4 | 19 | Satisfactory |
| Loose Furnishings | 90 | 4 | 24 | Excellent |
| Fixed Equipment and Infrastructure | 69 | 4 | 14 | Borderline |
| Lighting Quality | 76 | 3 | 18 | Satisfactory |
| Natural Lighting | 74 | 3 | 18 | Satisfactory |
| Acoustics | 87 | 3 | 18 | Satisfactory |
| Air Quality and Temperature | 72 | 3 | 18 | Satisfactory |
| Average: Instructional and Support Spaces | 63 | | | Borderline |
| 4.0: Utilization | | | | |
| Section 4 : Utilization | Unweighted Points | Tier | Priority | Rating Category |
| A Core Classrooms (Capacity Drivers) | 69 | 2 | 2 | Very Inadequate |
| B Specialty Classrooms (Core A) | 78 | 3 | 8 | Inadequate |
| C Shared Spaces (Core B) | 57 | 3 | 3 | Very Inadequate |
| Average : Utilization | 68 | | | Very Inadequate |

| Key | |
|-----|-----------------|
| 1 | Excellent |
| 2 | Satisfactory |
| 3 | Borderline |
| 4 | Inadequate |
| 5 | Very Inadequate |

| Appraisal Summary for : Francis C. Hammond | | | | | |
|--|-------------------|------|----------|------------------------|--|
| Summary | Unweighted Points | Tier | Priority | Rating Category | |
| 1.0 School Site | 81 | | | Satisfactory | |
| 2.0 Building Assessment | 33 | | | Inadequate | |
| 3.0 Instructional and Support Spaces | 68 | | | Borderline | |
| 4.0: Utilization | 66 | | | Very Inadequate | |
| Average | 62 | | | Borderline | |
| <u>1.0 School Site</u> | | | | | |
| Section 1 | Unweighted Points | Tier | Priority | Rating Category | |
| A Site Circulation. | 74 | 4 | 19 | Satisfactory | |
| B Play areas / fields | 88 | 3 | 18 | Satisfactory | |
| Average : School Site | 81 | | | Satisfactory | |
| <u>2.0 Building Assessment</u> | | | | | |
| Section 2 | Unweighted Points | Tier | Priority | Rating Category | |
| A Building Organization | 35 | 4 | 9 | Inadequate | |
| B Technology and Supporting Infrastructure | 43 | 4 | 9 | Inadequate | |
| C Accessibility | 20 | 4 | 4 | Very Inadequate | |
| Average : Building Assessment | 33 | | | Inadequate | |
| <u>3.0 Instructional and Support Spaces</u> | | | | | |
| Section 3 | Unweighted Points | Tier | Priority | Rating Category | |
| Core Classrooms | | | | | |
| Meets Size Requirements | 32 | 2 | 7 | Inadequate | |
| Internal Organization and Ancillary Spaces | 62 | 4 | 14 | Borderline | |
| Loose Furnishings | 68 | 4 | 14 | Borderline | |
| Fixed Equipment and Infrastructure | 56 | 4 | 14 | Borderline | |
| Lighting Quality | 85 | 3 | 18 | Satisfactory | |
| Natural Lighting | 95 | 3 | 23 | Excellent | |
| Acoustics | 88 | 3 | 18 | Satisfactory | |
| Air Quality and Temperature | 64 | 3 | 13 | Borderline | |
| Shared Spaces | | | | | |
| Meets Size Requirements | 35 | 2 | 7 | Inadequate | |
| Internal Organization and Ancillary Spaces | 63 | 4 | 14 | Borderline | |
| Loose Furnishings | 66 | 4 | 14 | Borderline | |
| Fixed Equipment and Infrastructure | 49 | 4 | 9 | Inadequate | |
| Lighting Quality | 89 | 3 | 18 | Satisfactory | |
| Natural Lighting | 90 | 3 | 23 | Excellent | |
| Acoustics | 85 | 3 | 18 | Satisfactory | |
| Air Quality and Temperature | 66 | 3 | 13 | Borderline | |
| Average: Instructional and Support Spaces | 68 | | | Borderline | |
| <u>4.0: Utilization</u> | | | | | |
| Section 4 : Utilization | Unweighted Points | Tier | Priority | Rating Category | |
| A Core Classrooms (Capacity Drivers) | 64 | 2 | 2 | Very Inadequate | |
| B Specialty Classrooms (Core A) | | 3 | FALSE | Not Rated | |
| C Shared Spaces (Core B) | 131 | 3 | 3 | Very Inadequate | |
| Average : Utilization | 66 | | | Very Inadequate | |

| Key | |
|-----|-----------------|
| 1 | Excellent |
| 2 | Satisfactory |
| 3 | Borderline |
| 4 | Inadequate |
| 5 | Very Inadequate |

| Appraisal Summary for : | | George Mason | | | |
|--|-------------------|---------------------|----------|-------------------|--|
| Summary | | | | | |
| | Unweighted Points | Tier | Priority | Rating Category | |
| 1.0 School Site | 64 | | | Borderline | |
| 2.0 Building Assessment | 57 | | | Borderline | |
| 3.0 Instructional and Support Spaces | 63 | | | Borderline | |
| 4.0: Utilization | 73 | | | Inadequate | |
| Average | 64 | | | Borderline | |
| 1.0 School Site | | | | | |
| Section 1 | Unweighted Points | Tier | Priority | Rating Category | |
| A Site Circulation. | 52 | 4 | 14 | Borderline | |
| B Play areas / fields | 75 | 3 | 18 | Satisfactory | |
| Average : School Site | 64 | | | Borderline | |
| 2.0 Building Assessment | | | | | |
| Section 2 | Unweighted Points | Tier | Priority | Rating Category | |
| A Building Organization | 28 | 4 | 4 | Very Inadequate | |
| B Technology and Supporting Infrastructure | 43 | 4 | 9 | Inadequate | |
| C Accessibility | 100 | 4 | 24 | Excellent | |
| Average : Building Assessment | 57 | | | Borderline | |
| 3.0 Instructional and Support Spaces | | | | | |
| Section 3 | Unweighted Points | Tier | Priority | Rating Category | |
| Core Classrooms | | | | | |
| Meets Size Requirements | 45 | 2 | 7 | Inadequate | |
| Internal Organization and Ancillary Spaces | 70 | 4 | 19 | Satisfactory | |
| Loose Furnishings | 70 | 4 | 19 | Satisfactory | |
| Fixed Equipment and Infrastructure | 76 | 4 | 19 | Satisfactory | |
| Lighting Quality | 78 | 3 | 18 | Satisfactory | |
| Natural Lighting | 97 | 3 | 23 | Excellent | |
| Acoustics | 68 | 3 | 13 | Borderline | |
| Air Quality and Temperature | 75 | 3 | 18 | Satisfactory | |
| Specialty Classrooms | | | | | |
| Meets Size Requirements | 64 | 2 | 12 | Borderline | |
| Internal Organization and Ancillary Spaces | 53 | 4 | 14 | Borderline | |
| Loose Furnishings | 47 | 4 | 9 | Inadequate | |
| Fixed Equipment and Infrastructure | 54 | 4 | 14 | Borderline | |
| Lighting Quality | 61 | 3 | 13 | Borderline | |
| Natural Lighting | 64 | 3 | 13 | Borderline | |
| Acoustics | 87 | 3 | 18 | Satisfactory | |
| Air Quality and Temperature | 72 | 3 | 18 | Satisfactory | |
| Support and Admin | | | | | |
| Meets Size Requirements | 20 | 2 | 2 | Very Inadequate | |
| Internal Organization and Ancillary Spaces | 68 | 5 | 15 | Borderline | |
| Loose Furnishings | 40 | 5 | 10 | Inadequate | |
| Fixed Equipment and Infrastructure | 90 | 5 | 25 | Excellent | |
| Lighting Quality | 35 | 4 | 9 | Inadequate | |
| Natural Lighting | 20 | 3 | 3 | Very Inadequate | |
| Acoustics | 100 | 5 | 25 | Excellent | |
| Air Quality and Temperature | 50 | 4 | 14 | Borderline | |
| Shared Spaces | | | | | |
| Meets Size Requirements | 43 | 2 | 7 | Inadequate | |
| Internal Organization and Ancillary Spaces | 55 | 4 | 14 | Borderline | |
| Loose Furnishings | 63 | 4 | 14 | Borderline | |
| Fixed Equipment and Infrastructure | 45 | 4 | 9 | Inadequate | |
| Lighting Quality | 65 | 3 | 13 | Borderline | |
| Natural Lighting | 87 | 3 | 18 | Satisfactory | |
| Acoustics | 63 | 3 | 13 | Borderline | |
| Air Quality and Temperature | 82 | 3 | 18 | Satisfactory | |
| Average: Instructional and Support Spaces | 63 | | | Borderline | |
| 4.0: Utilization | | | | | |
| Section 4 : Utilization | Unweighted Points | Tier | Priority | Rating Category | |
| A Core Classrooms (Capacity Drivers) | 50 | 2 | 2 | Very Inadequate | |
| B Specialty Classrooms (Core A) | 99 | 3 | 18 | Satisfactory | |
| C Shared Spaces (Core B) | 69 | 3 | 3 | Very Inadequate | |
| Average : Utilization | 73 | | | Inadequate | |

| Key | |
|-----|-----------------|
| 1 | Excellent |
| 2 | Satisfactory |
| 3 | Borderline |
| 4 | Inadequate |
| 5 | Very Inadequate |

| Appraisal Summary for : | | George Washington | | | |
|--|-------------------|--------------------------|----------|------------------------|--|
| Summary | | | | | |
| | Unweighted Points | Tier | Priority | Rating Category | |
| 1.0 School Site | 82 | | | Satisfactory | |
| 2.0 Building Assessment | 66 | | | Borderline | |
| 3.0 Instructional and Support Spaces | 70 | | | Satisfactory | |
| 4.0: Utilization | 50 | | | Very Inadequate | |
| Average | 67 | | | Borderline | |
| <u>1.0 School Site</u> | | | | | |
| Section 1 | Unweighted Points | Tier | Priority | Rating Category | |
| A Site Circulation. | 64 | 4 | 14 | Borderline | |
| B Play areas / fields | 100 | 3 | 23 | Excellent | |
| Average : School Site | 82 | | | Satisfactory | |
| <u>2.0 Building Assessment</u> | | | | | |
| Section 2 | Unweighted Points | Tier | Priority | Rating Category | |
| A Building Organization | 48 | 4 | 9 | Inadequate | |
| B Technology and Supporting Infrastructure | 50 | 4 | 14 | Borderline | |
| C Accessibility | 100 | 4 | 24 | Excellent | |
| Average : Building Assessment | 66 | | | Borderline | |
| <u>3.0 Instructional and Support Spaces</u> | | | | | |
| Section 3 | Unweighted Points | Tier | Priority | Rating Category | |
| Core Classrooms | | | | | |
| Meets Size Requirements | 34 | 2 | 7 | Inadequate | |
| Internal Organization and Ancillary Spaces | 65 | 4 | 14 | Borderline | |
| Loose Furnishings | 64 | 4 | 14 | Borderline | |
| Fixed Equipment and Infrastructure | 48 | 4 | 9 | Inadequate | |
| Lighting Quality | 99 | 3 | 23 | Excellent | |
| Natural Lighting | 99 | 3 | 23 | Excellent | |
| Acoustics | 84 | 3 | 18 | Satisfactory | |
| Air Quality and Temperature | 75 | 3 | 18 | Satisfactory | |
| Shared Spaces | | | | | |
| Meets Size Requirements | 50 | 2 | 12 | Borderline | |
| Internal Organization and Ancillary Spaces | 65 | 4 | 14 | Borderline | |
| Loose Furnishings | 51 | 4 | 14 | Borderline | |
| Fixed Equipment and Infrastructure | 45 | 4 | 9 | Inadequate | |
| Lighting Quality | 94 | 3 | 23 | Excellent | |
| Natural Lighting | 93 | 3 | 23 | Excellent | |
| Acoustics | 85 | 3 | 18 | Satisfactory | |
| Air Quality and Temperature | 69 | 3 | 13 | Borderline | |
| Average: Instructional and Support Spaces | 70 | | | Satisfactory | |
| <u>4.0: Utilization</u> | | | | | |
| Section 4 : Utilization | Unweighted Points | Tier | Priority | Rating Category | |
| A Core Classrooms (Capacity Drivers) | 69 | 2 | 2 | Very Inadequate | |
| B Specialty Classrooms (Core A) | | 3 | FALSE | Not Rated | |
| C Shared Spaces (Core B) | 169 | 3 | 3 | Very Inadequate | |
| Average : Utilization | 50 | | | Very Inadequate | |

| Key | |
|-----|-----------------|
| 1 | Excellent |
| 2 | Satisfactory |
| 3 | Borderline |
| 4 | Inadequate |
| 5 | Very Inadequate |

| Appraisal Summary for : | | James K. Polk | | |
|--|-------------------|---------------|----------|------------------------|
| Summary | | | | |
| | Unweighted Points | Tier | Priority | Rating Category |
| 1.0 School Site | 89 | | | Satisfactory |
| 2.0 Building Assessment | 70 | | | Satisfactory |
| 3.0 Instructional and Support Spaces | 73 | | | Satisfactory |
| 4.0: Utilization | 68 | | | Very Inadequate |
| Average | 75 | | | Satisfactory |
| 1.0 School Site | | | | |
| Section 1 | Unweighted Points | Tier | Priority | Rating Category |
| A Site Circulation. | 90 | 4 | 24 | Excellent |
| B Play areas / fields | 88 | 3 | 18 | Satisfactory |
| Average : School Site | 89 | | | Satisfactory |
| 2.0 Building Assessment | | | | |
| Section 2 | Unweighted Points | Tier | Priority | Rating Category |
| A Building Organization | 68 | 4 | 14 | Borderline |
| B Technology and Supporting Infrastructure | 43 | 4 | 9 | Inadequate |
| C Accessibility | 100 | 4 | 24 | Excellent |
| Average : Building Assessment | 70 | | | Satisfactory |
| 3.0 Instructional and Support Spaces | | | | |
| Section 3 | Unweighted Points | Tier | Priority | Rating Category |
| Core Classrooms | | | | |
| Meets Size Requirements | 42 | 2 | 7 | Inadequate |
| Internal Organization and Ancillary Spaces | 72 | 4 | 19 | Satisfactory |
| Loose Furnishings | 85 | 4 | 19 | Satisfactory |
| Fixed Equipment and Infrastructure | 74 | 4 | 19 | Satisfactory |
| Lighting Quality | 99 | 3 | 23 | Excellent |
| Natural Lighting | 91 | 3 | 23 | Excellent |
| Acoustics | 94 | 3 | 23 | Excellent |
| Air Quality and Temperature | 67 | 3 | 13 | Borderline |
| Specialty Classrooms | | | | |
| Meets Size Requirements | 47 | 2 | 7 | Inadequate |
| Internal Organization and Ancillary Spaces | 70 | 4 | 19 | Satisfactory |
| Loose Furnishings | 74 | 4 | 19 | Satisfactory |
| Fixed Equipment and Infrastructure | 63 | 4 | 14 | Borderline |
| Lighting Quality | 91 | 3 | 23 | Excellent |
| Natural Lighting | 65 | 3 | 13 | Borderline |
| Acoustics | 85 | 3 | 18 | Satisfactory |
| Air Quality and Temperature | 72 | 3 | 18 | Satisfactory |
| Support and Admin | | | | |
| Meets Size Requirements | | 2 | FALSE | ERROR |
| Internal Organization and Ancillary Spaces | | 5 | FALSE | ERROR |
| Loose Furnishings | | 5 | FALSE | ERROR |
| Fixed Equipment and Infrastructure | | 5 | FALSE | ERROR |
| Lighting Quality | | 4 | FALSE | ERROR |
| Natural Lighting | | 3 | FALSE | ERROR |
| Acoustics | | 5 | FALSE | ERROR |
| Air Quality and Temperature | | 4 | FALSE | ERROR |
| Shared Spaces | | | | |
| Meets Size Requirements | 58 | 2 | 12 | Borderline |
| Internal Organization and Ancillary Spaces | 65 | 4 | 14 | Borderline |
| Loose Furnishings | 78 | 4 | 19 | Satisfactory |
| Fixed Equipment and Infrastructure | 59 | 4 | 14 | Borderline |
| Lighting Quality | 80 | 3 | 18 | Satisfactory |
| Natural Lighting | 48 | 3 | 8 | Inadequate |
| Acoustics | 94 | 3 | 23 | Excellent |
| Air Quality and Temperature | 82 | 3 | 18 | Satisfactory |
| Average: Instructional and Support Spaces | 73 | | | Satisfactory |
| 4.0: Utilization | | | | |
| Section 4 : Utilization | Unweighted Points | Tier | Priority | Rating Category |
| A Core Classrooms (Capacity Drivers) | 68 | 2 | 2 | Very Inadequate |
| B Specialty Classrooms (Core A) | 68 | 3 | 3 | Very Inadequate |
| C Shared Spaces (Core B) | 67 | 3 | 3 | Very Inadequate |
| Average : Utilization | 68 | | | Very Inadequate |

| Key | |
|-----|-----------------|
| 1 | Excellent |
| 2 | Satisfactory |
| 3 | Borderline |
| 4 | Inadequate |
| 5 | Very Inadequate |

| Appraisal Summary for : | | John Adams | | |
|--|-------------------|------------|----------|---------------------|
| Summary | | | | |
| | Unweighted Points | Tier | Priority | Rating Category |
| 1.0 School Site | 100 | | | Excellent |
| 2.0 Building Assessment | 72 | | | Satisfactory |
| 3.0 Instructional and Support Spaces | 74 | | | Satisfactory |
| 4.0: Utilization | 85 | | | Borderline |
| Average | 83 | | | Satisfactory |
| 1.0 School Site | | | | |
| Section 1 | Unweighted Points | Tier | Priority | Rating Category |
| A Site Circulation. | 100 | 4 | 24 | Excellent |
| B Play areas / fields | 100 | 3 | 23 | Excellent |
| Average : School Site | 100 | | | Excellent |
| 2.0 Building Assessment | | | | |
| Section 2 | Unweighted Points | Tier | Priority | Rating Category |
| A Building Organization | 80 | 4 | 19 | Satisfactory |
| B Technology and Supporting Infrastructure | 35 | 4 | 9 | Inadequate |
| C Accessibility | 100 | 4 | 24 | Excellent |
| Average : Building Assessment | 72 | | | Satisfactory |
| 3.0 Instructional and Support Spaces | | | | |
| Section 3 | Unweighted Points | Tier | Priority | Rating Category |
| Core Classrooms | | | | |
| Meets Size Requirements | 28 | 2 | 2 | Very Inadequate |
| Internal Organization and Ancillary Spaces | 66 | 4 | 14 | Borderline |
| Loose Furnishings | 74 | 4 | 19 | Satisfactory |
| Fixed Equipment and Infrastructure | 67 | 4 | 14 | Borderline |
| Lighting Quality | 81 | 3 | 18 | Satisfactory |
| Natural Lighting | 95 | 3 | 23 | Excellent |
| Acoustics | 95 | 3 | 23 | Excellent |
| Air Quality and Temperature | 91 | 3 | 23 | Excellent |
| Specialty Classrooms | | | | |
| Meets Size Requirements | 51 | 2 | 12 | Borderline |
| Internal Organization and Ancillary Spaces | 61 | 4 | 14 | Borderline |
| Loose Furnishings | 58 | 4 | 14 | Borderline |
| Fixed Equipment and Infrastructure | 49 | 4 | 9 | Inadequate |
| Lighting Quality | 70 | 3 | 18 | Satisfactory |
| Natural Lighting | 90 | 3 | 23 | Excellent |
| Acoustics | 90 | 3 | 23 | Excellent |
| Air Quality and Temperature | 96 | 3 | 23 | Excellent |
| Support and Admin | | | | |
| Meets Size Requirements | 50 | 2 | 12 | Borderline |
| Internal Organization and Ancillary Spaces | 52 | 5 | 15 | Borderline |
| Loose Furnishings | 50 | 5 | 15 | Borderline |
| Fixed Equipment and Infrastructure | 60 | 5 | 15 | Borderline |
| Lighting Quality | 60 | 4 | 14 | Borderline |
| Natural Lighting | 100 | 3 | 23 | Excellent |
| Acoustics | 60 | 5 | 15 | Borderline |
| Air Quality and Temperature | 100 | 4 | 24 | Excellent |
| Shared Spaces | | | | |
| Meets Size Requirements | 81 | 2 | 17 | Satisfactory |
| Internal Organization and Ancillary Spaces | 80 | 4 | 19 | Satisfactory |
| Loose Furnishings | 78 | 4 | 19 | Satisfactory |
| Fixed Equipment and Infrastructure | 51 | 4 | 14 | Borderline |
| Lighting Quality | 95 | 3 | 23 | Excellent |
| Natural Lighting | 100 | 3 | 23 | Excellent |
| Acoustics | 97 | 3 | 23 | Excellent |
| Air Quality and Temperature | 85 | 3 | 18 | Satisfactory |
| Average: Instructional and Support Spaces | 74 | | | Satisfactory |
| 4.0: Utilization | | | | |
| Section 4 : Utilization | Unweighted Points | Tier | Priority | Rating Category |
| A Core Classrooms (Capacity Drivers) | 82 | 2 | 12 | Borderline |
| B Specialty Classrooms (Core A) | 123 | 3 | 3 | Very Inadequate |
| C Shared Spaces (Core B) | 98 | 3 | 18 | Satisfactory |
| Average : Utilization | 85 | | | Borderline |

| Key | |
|-----|-----------------|
| 1 | Excellent |
| 2 | Satisfactory |
| 3 | Borderline |
| 4 | Inadequate |
| 5 | Very Inadequate |

| Appraisal Summary for : | | Lyles-Crouch | | | |
|--|-------------------|---------------------|----------|---------------------|--|
| Summary | | | | | |
| | Unweighted Points | Tier | Priority | Rating Category | |
| 1.0 School Site | 49 | | | Inadequate | |
| 2.0 Building Assessment | 61 | | | Borderline | |
| 3.0 Instructional and Support Spaces | 71 | | | Satisfactory | |
| 4.0: Utilization | 84 | | | Borderline | |
| Average | 66 | | | Borderline | |
| 1.0 School Site | | | | | |
| Section 1 | Unweighted Points | Tier | Priority | Rating Category | |
| A Site Circulation. | 42 | 4 | 9 | Inadequate | |
| B Play areas / fields | 55 | 3 | 13 | Borderline | |
| Average : School Site | 49 | | | Inadequate | |
| 2.0 Building Assessment | | | | | |
| Section 2 | Unweighted Points | Tier | Priority | Rating Category | |
| A Building Organization | 40 | 4 | 9 | Inadequate | |
| B Technology and Supporting Infrastructure | 43 | 4 | 9 | Inadequate | |
| C Accessibility | 100 | 4 | 24 | Excellent | |
| Average : Building Assessment | 61 | | | Borderline | |
| 3.0 Instructional and Support Spaces | | | | | |
| Section 3 | Unweighted Points | Tier | Priority | Rating Category | |
| Core Classrooms | | | | | |
| Meets Size Requirements | 20 | 2 | 2 | Very Inadequate | |
| Internal Organization and Ancillary Spaces | 63 | 4 | 14 | Borderline | |
| Loose Furnishings | 79 | 4 | 19 | Satisfactory | |
| Fixed Equipment and Infrastructure | 77 | 4 | 19 | Satisfactory | |
| Lighting Quality | 71 | 3 | 18 | Satisfactory | |
| Natural Lighting | 100 | 3 | 23 | Excellent | |
| Acoustics | 94 | 3 | 23 | Excellent | |
| Air Quality and Temperature | 60 | 3 | 13 | Borderline | |
| Specialty Classrooms | | | | | |
| Meets Size Requirements | 36 | 2 | 7 | Inadequate | |
| Internal Organization and Ancillary Spaces | 59 | 4 | 14 | Borderline | |
| Loose Furnishings | 65 | 4 | 14 | Borderline | |
| Fixed Equipment and Infrastructure | 52 | 4 | 14 | Borderline | |
| Lighting Quality | 71 | 3 | 18 | Satisfactory | |
| Natural Lighting | 84 | 3 | 18 | Satisfactory | |
| Acoustics | 95 | 3 | 23 | Excellent | |
| Air Quality and Temperature | 67 | 3 | 13 | Borderline | |
| Support and Admin | | | | | |
| Meets Size Requirements | 20 | 2 | 2 | Very Inadequate | |
| Internal Organization and Ancillary Spaces | 52 | 5 | 15 | Borderline | |
| Loose Furnishings | 100 | 5 | 25 | Excellent | |
| Fixed Equipment and Infrastructure | 100 | 5 | 25 | Excellent | |
| Lighting Quality | 60 | 4 | 14 | Borderline | |
| Natural Lighting | 100 | 3 | 23 | Excellent | |
| Acoustics | 100 | 5 | 25 | Excellent | |
| Air Quality and Temperature | 73 | 4 | 19 | Satisfactory | |
| Shared Spaces | | | | | |
| Meets Size Requirements | 42 | 2 | 7 | Inadequate | |
| Internal Organization and Ancillary Spaces | 55 | 4 | 14 | Borderline | |
| Loose Furnishings | 81 | 4 | 19 | Satisfactory | |
| Fixed Equipment and Infrastructure | 59 | 4 | 14 | Borderline | |
| Lighting Quality | 92 | 3 | 23 | Excellent | |
| Natural Lighting | 90 | 3 | 23 | Excellent | |
| Acoustics | 77 | 3 | 18 | Satisfactory | |
| Air Quality and Temperature | 76 | 3 | 18 | Satisfactory | |
| Average: Instructional and Support Spaces | 71 | | | Satisfactory | |
| 4.0: Utilization | | | | | |
| Section 4 : Utilization | Unweighted Points | Tier | Priority | Rating Category | |
| A Core Classrooms (Capacity Drivers) | 91 | 2 | 17 | Satisfactory | |
| B Specialty Classrooms (Core A) | 71 | 3 | 8 | Inadequate | |
| C Shared Spaces (Core B) | 91 | 3 | 18 | Satisfactory | |
| Average : Utilization | 84 | | | Borderline | |

| Key | |
|-----|-----------------|
| 1 | Excellent |
| 2 | Satisfactory |
| 3 | Borderline |
| 4 | Inadequate |
| 5 | Very Inadequate |

| Appraisal Summary for : | | Matthew Maury | | |
|--|-------------------|----------------------|----------|---------------------|
| Summary | | | | |
| | Unweighted Points | Tier | Priority | Rating Category |
| 1.0 School Site | 52 | | | Borderline |
| 2.0 Building Assessment | 74 | | | Satisfactory |
| 3.0 Instructional and Support Spaces | 72 | | | Satisfactory |
| 4.0: Utilization | 72 | | | Inadequate |
| Average | 68 | | | Borderline |
| 1.0 School Site | | | | |
| Section 1 | Unweighted Points | Tier | Priority | Rating Category |
| A Site Circulation. | 36 | 4 | 9 | Inadequate |
| B Play areas / fields | 68 | 3 | 13 | Borderline |
| Average : School Site | 52 | | | Borderline |
| 2.0 Building Assessment | | | | |
| Section 2 | Unweighted Points | Tier | Priority | Rating Category |
| A Building Organization | 48 | 4 | 9 | Inadequate |
| B Technology and Supporting Infrastructure | 75 | 4 | 19 | Satisfactory |
| C Accessibility | 100 | 4 | 24 | Excellent |
| Average : Building Assessment | 74 | | | Satisfactory |
| 3.0 Instructional and Support Spaces | | | | |
| Section 3 | Unweighted Points | Tier | Priority | Rating Category |
| Core Classrooms | | | | |
| Meets Size Requirements | 28 | 2 | 2 | Very Inadequate |
| Internal Organization and Ancillary Spaces | 71 | 4 | 19 | Satisfactory |
| Loose Furnishings | 64 | 4 | 14 | Borderline |
| Fixed Equipment and Infrastructure | 76 | 4 | 19 | Satisfactory |
| Lighting Quality | 98 | 3 | 23 | Excellent |
| Natural Lighting | 89 | 3 | 18 | Satisfactory |
| Acoustics | 86 | 3 | 18 | Satisfactory |
| Air Quality and Temperature | 70 | 3 | 18 | Satisfactory |
| Specialty Classrooms | | | | |
| Meets Size Requirements | 20 | 2 | 2 | Very Inadequate |
| Internal Organization and Ancillary Spaces | 54 | 4 | 14 | Borderline |
| Loose Furnishings | 62 | 4 | 14 | Borderline |
| Fixed Equipment and Infrastructure | 48 | 4 | 9 | Inadequate |
| Lighting Quality | 93 | 3 | 23 | Excellent |
| Natural Lighting | 47 | 3 | 8 | Inadequate |
| Acoustics | 87 | 3 | 18 | Satisfactory |
| Air Quality and Temperature | 78 | 3 | 18 | Satisfactory |
| Support and Admin | | | | |
| Meets Size Requirements | 20 | 2 | 2 | Very Inadequate |
| Internal Organization and Ancillary Spaces | 58 | 5 | 15 | Borderline |
| Loose Furnishings | 75 | 5 | 20 | Satisfactory |
| Fixed Equipment and Infrastructure | 100 | 5 | 25 | Excellent |
| Lighting Quality | 100 | 4 | 24 | Excellent |
| Natural Lighting | 100 | 3 | 23 | Excellent |
| Acoustics | 100 | 5 | 25 | Excellent |
| Air Quality and Temperature | 73 | 4 | 19 | Satisfactory |
| Shared Spaces | | | | |
| Meets Size Requirements | 80 | 2 | 17 | Satisfactory |
| Internal Organization and Ancillary Spaces | 77 | 4 | 19 | Satisfactory |
| Loose Furnishings | 79 | 4 | 19 | Satisfactory |
| Fixed Equipment and Infrastructure | 34 | 4 | 9 | Inadequate |
| Lighting Quality | 70 | 3 | 18 | Satisfactory |
| Natural Lighting | 80 | 3 | 18 | Satisfactory |
| Acoustics | 100 | 3 | 23 | Excellent |
| Air Quality and Temperature | 100 | 3 | 23 | Excellent |
| Average: Instructional and Support Spaces | 72 | | | Satisfactory |
| 4.0: Utilization | | | | |
| Section 4 : Utilization | Unweighted Points | Tier | Priority | Rating Category |
| A Core Classrooms (Capacity Drivers) | 69 | 2 | 2 | Very Inadequate |
| B Specialty Classrooms (Core A) | 68 | 3 | 3 | Very Inadequate |
| C Shared Spaces (Core B) | 80 | 3 | 8 | Inadequate |
| Average : Utilization | 72 | | | Inadequate |

| Key | |
|-----|-----------------|
| 1 | Excellent |
| 2 | Satisfactory |
| 3 | Borderline |
| 4 | Inadequate |
| 5 | Very Inadequate |

| Appraisal Summary for : | | Mount Vernon | | | |
|--|-------------------|---------------------|----------|-------------------|--|
| Summary | | | | | |
| | Unweighted Points | Tier | Priority | Rating Category | |
| 1.0 School Site | 56 | | | Borderline | |
| 2.0 Building Assessment | 38 | | | Inadequate | |
| 3.0 Instructional and Support Spaces | 64 | | | Borderline | |
| 4.0: Utilization | 73 | | | Inadequate | |
| Average | 58 | | | Borderline | |
| 1.0 School Site | | | | | |
| Section 1 | Unweighted Points | Tier | Priority | Rating Category | |
| A Site Circulation. | 36 | 4 | 9 | Inadequate | |
| B Play areas / fields | 75 | 3 | 18 | Satisfactory | |
| Average : School Site | 56 | | | Borderline | |
| 2.0 Building Assessment | | | | | |
| Section 2 | Unweighted Points | Tier | Priority | Rating Category | |
| A Building Organization | 20 | 4 | 4 | Very Inadequate | |
| B Technology and Supporting Infrastructure | 43 | 4 | 9 | Inadequate | |
| C Accessibility | 50 | 4 | 14 | Borderline | |
| Average : Building Assessment | 38 | | | Inadequate | |
| 3.0 Instructional and Support Spaces | | | | | |
| Section 3 | Unweighted Points | Tier | Priority | Rating Category | |
| Core Classrooms | | | | | |
| Meets Size Requirements | 51 | 2 | 12 | Borderline | |
| Internal Organization and Ancillary Spaces | 74 | 4 | 19 | Satisfactory | |
| Loose Furnishings | 59 | 4 | 14 | Borderline | |
| Fixed Equipment and Infrastructure | 65 | 4 | 14 | Borderline | |
| Lighting Quality | 81 | 3 | 18 | Satisfactory | |
| Natural Lighting | 92 | 3 | 23 | Excellent | |
| Acoustics | 43 | 3 | 8 | Inadequate | |
| Air Quality and Temperature | 66 | 3 | 13 | Borderline | |
| Specialty Classrooms | | | | | |
| Meets Size Requirements | 20 | 2 | 2 | Very Inadequate | |
| Internal Organization and Ancillary Spaces | 68 | 4 | 14 | Borderline | |
| Loose Furnishings | 67 | 4 | 14 | Borderline | |
| Fixed Equipment and Infrastructure | 69 | 4 | 14 | Borderline | |
| Lighting Quality | 69 | 3 | 13 | Borderline | |
| Natural Lighting | 73 | 3 | 18 | Satisfactory | |
| Acoustics | 52 | 3 | 13 | Borderline | |
| Air Quality and Temperature | 64 | 3 | 13 | Borderline | |
| Support and Admin | | | | | |
| Meets Size Requirements | 20 | 2 | 2 | Very Inadequate | |
| Internal Organization and Ancillary Spaces | 80 | 5 | 20 | Satisfactory | |
| Loose Furnishings | 75 | 5 | 20 | Satisfactory | |
| Fixed Equipment and Infrastructure | 50 | 5 | 15 | Borderline | |
| Lighting Quality | 60 | 4 | 14 | Borderline | |
| Natural Lighting | 50 | 3 | 13 | Borderline | |
| Acoustics | 100 | 5 | 25 | Excellent | |
| Air Quality and Temperature | 83 | 4 | 19 | Satisfactory | |
| Shared Spaces | | | | | |
| Meets Size Requirements | 52 | 2 | 12 | Borderline | |
| Internal Organization and Ancillary Spaces | 65 | 4 | 14 | Borderline | |
| Loose Furnishings | 55 | 4 | 14 | Borderline | |
| Fixed Equipment and Infrastructure | 57 | 4 | 14 | Borderline | |
| Lighting Quality | 63 | 3 | 13 | Borderline | |
| Natural Lighting | 74 | 3 | 18 | Satisfactory | |
| Acoustics | 74 | 3 | 18 | Satisfactory | |
| Air Quality and Temperature | 90 | 3 | 23 | Excellent | |
| Average: Instructional and Support Spaces | 64 | | | Borderline | |
| 4.0: Utilization | | | | | |
| Section 4 : Utilization | Unweighted Points | Tier | Priority | Rating Category | |
| A Core Classrooms (Capacity Drivers) | 85 | 2 | 12 | Borderline | |
| B Specialty Classrooms (Core A) | 65 | 3 | 3 | Very Inadequate | |
| C Shared Spaces (Core B) | 130 | 3 | 3 | Very Inadequate | |
| Average : Utilization | 73 | | | Inadequate | |

| Key | |
|-----|-----------------|
| 1 | Excellent |
| 2 | Satisfactory |
| 3 | Borderline |
| 4 | Inadequate |
| 5 | Very Inadequate |

| Appraisal Summary for : | | Samuel W. Tucker | | |
|--|-------------------|------------------|----------|------------------------|
| Summary | | | | |
| | Unweighted Points | Tier | Priority | Rating Category |
| 1.0 School Site | 85 | | | Satisfactory |
| 2.0 Building Assessment | 77 | | | Satisfactory |
| 3.0 Instructional and Support Spaces | 77 | | | Satisfactory |
| 4.0: Utilization | 30 | | | Very Inadequate |
| Average | 67 | | | Borderline |
| 1.0 School Site | | | | |
| Section 1 | Unweighted Points | Tier | Priority | Rating Category |
| A Site Circulation. | 90 | 4 | 24 | Excellent |
| B Play areas / fields | 80 | 3 | 18 | Satisfactory |
| Average : School Site | 85 | | | Satisfactory |
| 2.0 Building Assessment | | | | |
| Section 2 | Unweighted Points | Tier | Priority | Rating Category |
| A Building Organization | 75 | 4 | 19 | Satisfactory |
| B Technology and Supporting Infrastructure | 55 | 4 | 14 | Borderline |
| C Accessibility | 100 | 4 | 24 | Excellent |
| Average : Building Assessment | 77 | | | Satisfactory |
| 3.0 Instructional and Support Spaces | | | | |
| Section 3 | Unweighted Points | Tier | Priority | Rating Category |
| Core Classrooms | | | | |
| Meets Size Requirements | 50 | 2 | 12 | Borderline |
| Internal Organization and Ancillary Spaces | 87 | 4 | 19 | Satisfactory |
| Loose Furnishings | 83 | 4 | 19 | Satisfactory |
| Fixed Equipment and Infrastructure | 85 | 4 | 19 | Satisfactory |
| Lighting Quality | 94 | 3 | 23 | Excellent |
| Natural Lighting | 95 | 3 | 23 | Excellent |
| Acoustics | 88 | 3 | 18 | Satisfactory |
| Air Quality and Temperature | 74 | 3 | 18 | Satisfactory |
| Specialty Classrooms | | | | |
| Meets Size Requirements | 89 | 2 | 17 | Satisfactory |
| Internal Organization and Ancillary Spaces | 68 | 4 | 14 | Borderline |
| Loose Furnishings | 61 | 4 | 14 | Borderline |
| Fixed Equipment and Infrastructure | 54 | 4 | 14 | Borderline |
| Lighting Quality | 84 | 3 | 18 | Satisfactory |
| Natural Lighting | 76 | 3 | 18 | Satisfactory |
| Acoustics | 93 | 3 | 23 | Excellent |
| Air Quality and Temperature | 70 | 3 | 18 | Satisfactory |
| Support and Admin | | | | |
| Meets Size Requirements | | 2 | FALSE | ERROR |
| Internal Organization and Ancillary Spaces | | 5 | FALSE | ERROR |
| Loose Furnishings | | 5 | FALSE | ERROR |
| Fixed Equipment and Infrastructure | | 5 | FALSE | ERROR |
| Lighting Quality | | 4 | FALSE | ERROR |
| Natural Lighting | | 3 | FALSE | ERROR |
| Acoustics | | 5 | FALSE | ERROR |
| Air Quality and Temperature | | 4 | FALSE | ERROR |
| Shared Spaces | | | | |
| Meets Size Requirements | 68 | 2 | 12 | Borderline |
| Internal Organization and Ancillary Spaces | 94 | 4 | 24 | Excellent |
| Loose Furnishings | 75 | 4 | 19 | Satisfactory |
| Fixed Equipment and Infrastructure | 69 | 4 | 14 | Borderline |
| Lighting Quality | 87 | 3 | 18 | Satisfactory |
| Natural Lighting | 48 | 3 | 8 | Inadequate |
| Acoustics | 90 | 3 | 23 | Excellent |
| Air Quality and Temperature | 60 | 3 | 13 | Borderline |
| Average: Instructional and Support Spaces | 77 | | | Satisfactory |
| 4.0: Utilization | | | | |
| Section 4 : Utilization | Unweighted Points | Tier | Priority | Rating Category |
| A Core Classrooms (Capacity Drivers) | 75 | 2 | 7 | Inadequate |
| B Specialty Classrooms (Core A) | 271 | 3 | 3 | Very Inadequate |
| C Shared Spaces (Core B) | 87 | 3 | 13 | Borderline |
| Average : Utilization | 30 | | | Very Inadequate |

| Key | |
|-----|-----------------|
| 1 | Excellent |
| 2 | Satisfactory |
| 3 | Borderline |
| 4 | Inadequate |
| 5 | Very Inadequate |

| Appraisal Summary for : | | William Ramsay | | |
|--|-------------------|----------------|----------|---------------------|
| Summary | | | | |
| | Unweighted Points | Tier | Priority | Rating Category |
| 1.0 School Site | 65 | | | Borderline |
| 2.0 Building Assessment | 37 | | | Inadequate |
| 3.0 Instructional and Support Spaces | 72 | | | Satisfactory |
| 4.0: Utilization | 74 | | | Inadequate |
| Average | 62 | | | Borderline |
| 1.0 School Site | | | | |
| Section 1 | Unweighted Points | Tier | Priority | Rating Category |
| A Site Circulation. | 54 | 4 | 14 | Borderline |
| B Play areas / fields | 75 | 3 | 18 | Satisfactory |
| Average : School Site | 65 | | | Borderline |
| 2.0 Building Assessment | | | | |
| Section 2 | Unweighted Points | Tier | Priority | Rating Category |
| A Building Organization | 55 | 4 | 14 | Borderline |
| B Technology and Supporting Infrastructure | 35 | 4 | 9 | Inadequate |
| C Accessibility | 20 | 4 | 4 | Very Inadequate |
| Average : Building Assessment | 37 | | | Inadequate |
| 3.0 Instructional and Support Spaces | | | | |
| Section 3 | Unweighted Points | Tier | Priority | Rating Category |
| Core Classrooms | | | | |
| Meets Size Requirements | 41 | 2 | 7 | Inadequate |
| Internal Organization and Ancillary Spaces | 78 | 4 | 19 | Satisfactory |
| Loose Furnishings | 75 | 4 | 19 | Satisfactory |
| Fixed Equipment and Infrastructure | 71 | 4 | 19 | Satisfactory |
| Lighting Quality | 70 | 3 | 18 | Satisfactory |
| Natural Lighting | 98 | 3 | 23 | Excellent |
| Acoustics | 92 | 3 | 23 | Excellent |
| Air Quality and Temperature | 68 | 3 | 13 | Borderline |
| Specialty Classrooms | | | | |
| Meets Size Requirements | 43 | 2 | 7 | Inadequate |
| Internal Organization and Ancillary Spaces | 65 | 4 | 14 | Borderline |
| Loose Furnishings | 66 | 4 | 14 | Borderline |
| Fixed Equipment and Infrastructure | 51 | 4 | 14 | Borderline |
| Lighting Quality | 71 | 3 | 18 | Satisfactory |
| Natural Lighting | 77 | 3 | 18 | Satisfactory |
| Acoustics | 100 | 3 | 23 | Excellent |
| Air Quality and Temperature | 65 | 3 | 13 | Borderline |
| Support and Admin | | | | |
| Meets Size Requirements | 20 | 2 | 2 | Very Inadequate |
| Internal Organization and Ancillary Spaces | 68 | 5 | 15 | Borderline |
| Loose Furnishings | 67 | 5 | 15 | Borderline |
| Fixed Equipment and Infrastructure | 68 | 5 | 15 | Borderline |
| Lighting Quality | 100 | 4 | 24 | Excellent |
| Natural Lighting | 20 | 3 | 3 | Very Inadequate |
| Acoustics | 100 | 5 | 25 | Excellent |
| Air Quality and Temperature | 67 | 4 | 14 | Borderline |
| Shared Spaces | | | | |
| Meets Size Requirements | 88 | 2 | 17 | Satisfactory |
| Internal Organization and Ancillary Spaces | 87 | 4 | 19 | Satisfactory |
| Loose Furnishings | 81 | 4 | 19 | Satisfactory |
| Fixed Equipment and Infrastructure | 72 | 4 | 19 | Satisfactory |
| Lighting Quality | 85 | 3 | 18 | Satisfactory |
| Natural Lighting | 63 | 3 | 13 | Borderline |
| Acoustics | 95 | 3 | 23 | Excellent |
| Air Quality and Temperature | 87 | 3 | 18 | Satisfactory |
| Average: Instructional and Support Spaces | 72 | | | Satisfactory |
| 4.0: Utilization | | | | |
| Section 4 : Utilization | Unweighted Points | Tier | Priority | Rating Category |
| A Core Classrooms (Capacity Drivers) | 72 | 2 | 7 | Inadequate |
| B Specialty Classrooms (Core A) | 90 | 3 | 18 | Satisfactory |
| C Shared Spaces (Core B) | 58 | 3 | 3 | Very Inadequate |
| Average : Utilization | 74 | | | Inadequate |

| Key | |
|-----|-----------------|
| 1 | Excellent |
| 2 | Satisfactory |
| 3 | Borderline |
| 4 | Inadequate |
| 5 | Very Inadequate |

APPENDIX D-1

LONG TERM ENROLLMENT FORECAST DESCRIPTION

City of Alexandria
 Department of Planning and Zoning
 301 King Street, Room 2100
 Alexandria, VA 22314

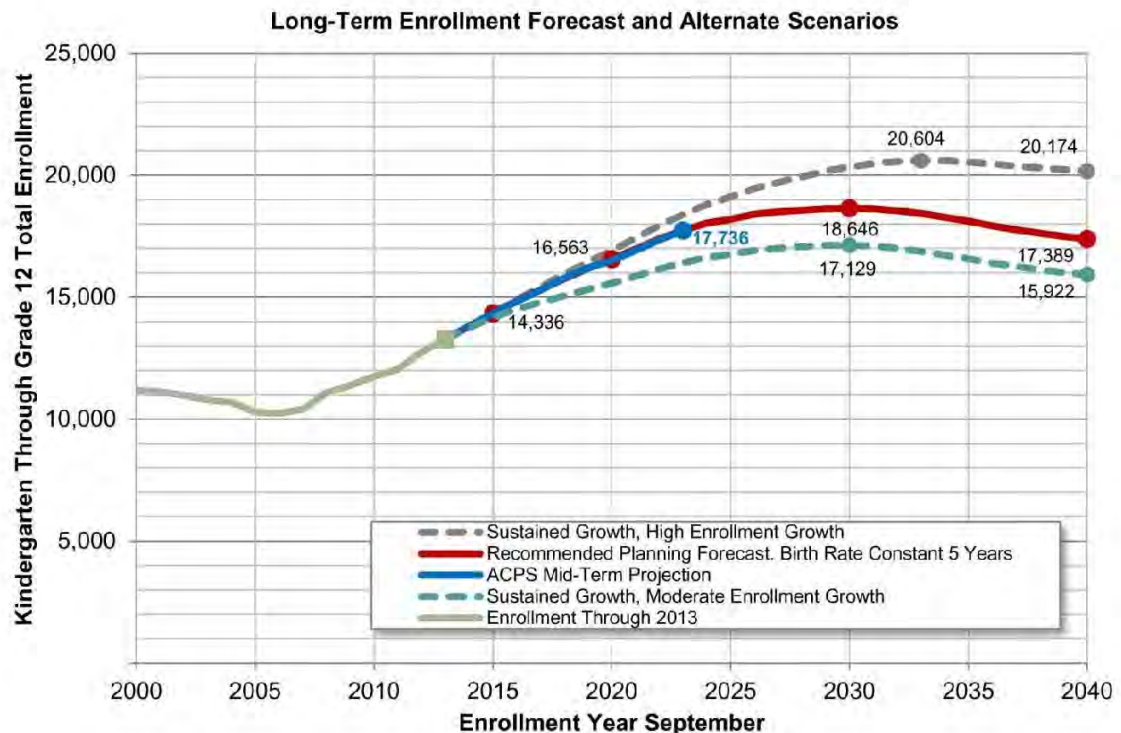
January 10, 2014

Long-Term School Enrollment Forecast

Draft for Enrollment and Forecasting Subcommittee Discussion

The long term enrollment forecast is actually a set of forecasts, one of which is recommended to guide education facilities planning over the long term. The forecasts also include two alternate scenarios based on different assumptions about economic conditions and families' responses to them over the long-range planning period through 2040. These alternate scenarios illustrate the sensitivity of the forecast to changes in basic assumptions.

The recommended forecast, shown below as a red line, has enrollment continuing to increase at a steady rate until 2020, after which growth will decelerate. Peak enrollment is forecast to occur in 2030 at approximately 18,650 students, a 40% increase over today's enrollment of 13,278 and almost double the enrollment of 2006. Enrollment is then expected to decline to about 17,400 students by 2040.



The recommended forecast assumes the current birth rate remains steady for the next five years before declining and that the rate of families with children moving from Alexandria, while remaining low, will increase to its previous long-term average over the next decades. This forecast closely matches the ACPS mid-term projection through its horizon year of 2023.

The two most significant inputs to the forecast are answers to the following questions:

- **Will Alexandria birth rates, now on the rise, continue to increase? And if so, for how long?** After holding steady for about a decade, Alexandria’s birth rates began to rise in 2007 and have continued to rise. Alexandria’s birth rate is much higher than that of the nation as a whole because we have a higher proportion of our population in the child-bearing age range. Even so, this local “baby boomlet” will eventually recede. Local and national demographic trends indicate that birth rates are likely to peak within the next five years and then retreat. Even after birth rates begin to decline, the number of actual births will remain fairly high even after the “boomlet” is officially over because the city will continue to have a high share of its population in the peak childbearing age group. *The recommended forecast assumes birth rates will hold steady for the next five years and then decline to the pre-2007 average of 16.3 per 1000 population by 2028. After that, the birth rate will decline more slowly, in line with national averages.*
- **How many families with children will move out of Alexandria before entering or completing public school?** The 2000-2006 housing bubble induced a historically high rate of out-migration of families with children from the City of Alexandria. Relatively cheap mortgages and less strict loan requirements encouraged Alexandria families with children to move out of the City to locations where single-family homes are more plentiful. The housing market correction in 2007 brought a sudden and dramatic conclusion to that out-migration – with an immediate impact on school enrollment. While the housing market has improved somewhat, enrollment has continued to increase. *Over the forecast period it is likely that some family out-migration will resume since Alexandria has a limited amount of housing for families, but the recommended forecast assumes that the rapid out-migration of the 2000-2007 period will not fully return because the financial conditions that prompted it will not return, and because it appears that families are placing a higher value on raising children in urban environments than they have in the past.*

In order for enrollment to be lower than the recommended forecast, either the City’s baby boomlet would have to end in the next 1-3 years and birth rates would have to decline at a faster pace than is assumed for the recommended forecast, or family out-migration would have to resume at an accelerated pace. The latest data show birth rates as rising (not falling) and do not show evidence of increasing family out-migration, so we have not yet seen evidence that such a change has begun.

An increase in the rate of family out-migration compared to the recommended forecast is the assumption that forms the basis of the Moderate Enrollment Growth Scenario, shown as the teal (or blue-green) dashed line below the recommended forecast. The Moderate Enrollment Growth Scenario peaks in 2030 at about 17,100 students and declines slowly to about 15,900 students by 2040.

The gray dashed line above the red recommended forecast is a high enrollment forecast that assumes Alexandria birth rates will continue to rise for the next five years, and that only a very slow increase in the rate of family out-migration will take place through 2040. All other inputs are the same as those of the recommended forecast. This scenario shows an enrollment peak of 20,600 in 2033 followed by slow decline to below 20,200 in 2040. Alexandria’s birth rate has been increasing for the past five years and though the rate of increase has moderated, the rate has not yet started to decline. Continued growth is increasingly unlikely, given anticipated changes in the size and composition of the cohort of Alexandrians in the child-bearing age range.

The table on the following page summarizes the assumptions for key factors used to estimate future enrollment on which the various forecast scenarios are based. Additional work to refine the forecasts and to allocate forecasts to different geographic areas of the city will be undertaken in 2014.

ACPS Projections, Long-Term Forecast and Alternate Scenarios Compared

| Forecast or Projection | Horizon Year | Population Growth Assumption | Birth Rate Assumption Births per 1000 People | Kindergarten Capture, Percent of Births 5 years Ago | Cohort Survival, Percent by Grade |
|---|-----------------|---|--|---|---|
| ACPS Short-Term Projection | 6 years (2019) | Used to estimate enrollment from new development only | Projected trend in average number of births of 5-year and 8-year averages to 2014 | 3-year average (60.7%) | 3-year average by school by grade |
| ACPS Mid-Term Projection | 10 years (2023) | Used to estimate enrollment from new development only. | Projected trend in average number of births of 5-year and 8-year averages to 2018 | 3-year average (60.7%) | 3-year average by school by grade |
| ACPS/COA Long Term Forecast and Alternate Scenarios. Not all scenarios are illustrated. (color for a scenario indicates change from the scenario listed above it) | | | | | |
| Sustained Growth, High Enrollment Growth ■■■■■ | 2040 | Sustained Growth (COG Round 8.2). 2040 population 191,000 | 2012 birth rate increases 0.3/1000 per year for five years, stable 1 year, then declines at 0.3/1000 until 16.3/1000 is reached, then declines at rate national birth rate declines. | 60% falls to 58% gradually over forecast period | 3-year average by grade falls gradually by 1 percentage point over forecast period |
| Sustained Growth, Recommended Enrollment Forecast ■■■■■ | 2040 | Sustained Growth (COG Round 8.2). 2040 population 191,000 | 2012 birth rate steady for five years, then declines at 0.3/1000 until 16.3/1000 is reached, then declines at rate national birth rate declines. | 60% falls to 58% in 5 years, then gradually to 56% in 2040 | 3-year average by grade falls gradually by 1 percentage point over forecast period |
| Sustained Growth, Moderate Enrollment Growth ■■■■■ | 2040 | Sustained Growth (COG Round 8.2). 2040 population 191,000 | 2012 birth rate steady for five years, then declines at 0.3/1000 until 16.3/1000 is reached, then declines at rate national birth rate declines. | 60% falls to 58% in two years, then falls gradually over forecast period to 56% in 2040 | 3-year average by grade falls by 2 percentage points in 2 years, then 2 percentage points gradually to 2040 |
| Sustained Growth, Low Enrollment Growth (not shown) | 2040 | Sustained Growth (COG Round 8.2). 2040 population 191,000 | 2012 birth rate falls now at 0.3/1000 each year until 16.3/1000 is reached, then declines at rate national birth rate declines. | 60% falls to 58% over two years, then falls gradually over forecast period to 56% in 2040 | 3-year average by grade falls by 2 percentage points in 2 years, then 2 percentage points gradually to 2040 |
| Weak Economy, Low Enrollment Growth (not shown) | 2040 | Weak Economy, 2040 population 177,000 | 2012 birth rate falls now at 0.3/1000 until 16.3/1000 is reached, then declines at rate national birth rate declines. | Falls to 58% over 5 years | Falls by 1 percentage point in each grade over 5 years |

Enrollment Forecast Assumptions Summary

The enrollment forecasts integrate:

- Short- and long-term demographic and economic trends shaping the City of Alexandria, the region, and to a limited extent, the nation, with
- The capacity for growth and change due to development and redevelopment.

The analysis of demographic and economic trends – particularly those that directly translate into changes in student enrollment – is used to make assumptions about the three key elements of any school enrollment forecasting model:

- Births: the number of births to mothers living in the City of Alexandria (regardless of the location of the birth event)
- Kindergarten capture rate: the number of enrolled ACPS kindergarteners as a percentage of the number of births five years earlier
- Cohort survival: the number of ACPS students in a grade level (for example: 1st grade) as a percentage of the number of students in the previous grade (in this example: kindergarten) a year earlier.

As a reality check on the enrollment forecast results, the enrollment forecast is compared to student generation from the expected future mix of housing types based on the city's long-term development forecast.

- Student generation: the number of ACPS students living in a particular housing unit type (for example: townhouses) divided by the number of housing units of that type in the City.

In order to incorporate all of the information gathered over the past year and to cross-check assumptions, staff looked at the forecasts from a number of different perspectives:

- A perspective based on forecast of the City's population growth, with demographic and economic factors informing birth rates and migration of families with children in and out of the City.
- A perspective based upon the expected change in the City's housing stock over time, with demographic and economic factors informing how student generation rates may change over time.
- A perspective for the mid-range based on the idea that we already know a lot about the next ten years because so many of the students who will be enrolled ten years from now are already living in Alexandria.
- A perspective based on the historic number of ACPS students per 1,000 people in the city, and by comparison, in surrounding jurisdictions.

In most cases, looking at enrollment from these different perspectives resulted in forecasts that were very similar. Where there were differences based upon reasonable assumptions, those differences were used to create the high and low scenarios in the recommended forecast.

The balance of this memorandum summarizes the key variables in the forecasts, the trends that inform them, and how they were used in the enrollment forecasts.

Population

The City of Alexandria forecasts the City's population in five-year increments to 2040. These forecasts are done in coordination with the other jurisdictions in the region through the Metropolitan Washington Council of Governments (MWCOC) and, as in the other MWCOC jurisdictions, constitute the "official" population forecasts for the City.

The City's population forecast assumes that the Washington, D.C. metropolitan region, particularly inside the Beltway, will experience sustained growth over the forecast period, so that the city will continue to attract residents to existing housing and planned development projects. Under this forecast, population in the city is expected to continue to grow at a rate of approximately 1% per year, from a 2010 population of 140,000 to a 2040 population estimated at 191,000. This rate of growth continues the city's average growth rate experienced from 1980 to 2010.

Lower rates of population growth were studied but have not been included in the long-term forecast. The rate of population growth is much less likely to diverge from long-term trends than other factors, such as births and rates of out-migration.

Enrollment Forecasting Model.

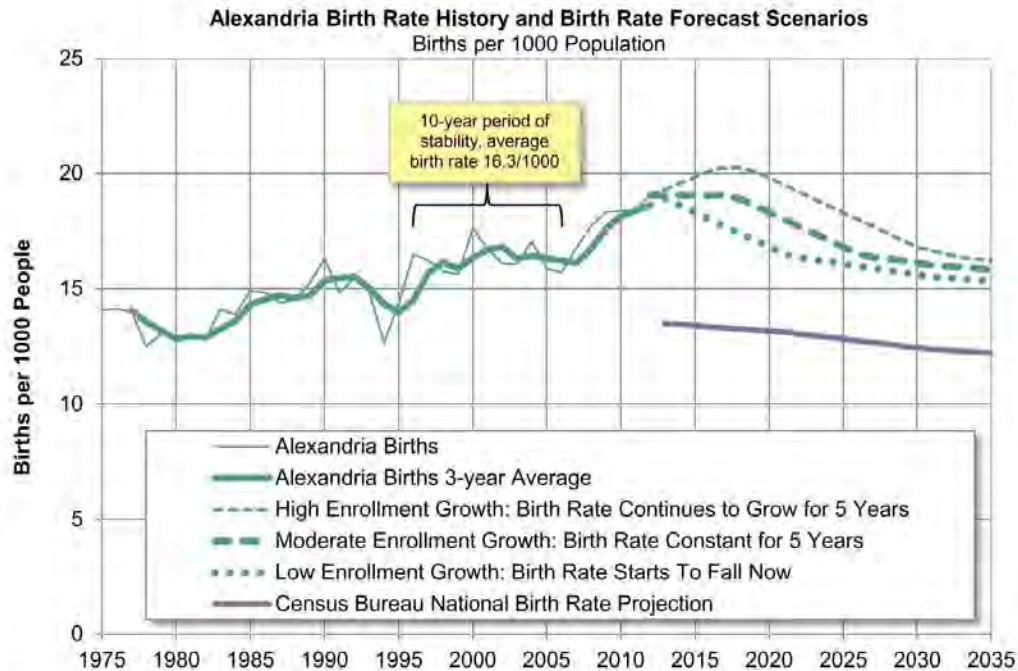
Virtually all school demographers use the same basic process to model and forecast school enrollment. What are different from jurisdiction to jurisdiction are the inputs to the model. The enrollment model uses actual births in the city, estimates of what percentage of these births will appear as kindergarten students 5 years later, and estimates of how many of these students will proceed through each grade of school to graduation. Among the reasons this model is the standard for forecasting:

- The model reflects the process by which students enter the population, enroll in school, and proceed through the grades.
- For these inputs (births, kindergarten capture, and cohort survival), we have timely and very precise data with a long historical record.

While economic and demographic factors do affect each of the primary enrollment inputs, in general data on these factors is much less precise at the city scale, data is not as timely, and these factors affect enrollment indirectly. For example, the 2000s housing price bubble and the housing finance crisis certainly affected enrollment over the past decade. However, it would be difficult if not impossible to develop an accurate enrollment forecasting model that uses housing market indicators as explicit inputs since the local housing market is affected by many factors, not all of which are easily tracked.

Births and Birth Rate

The figure below shows the birth rate per 1,000 people in Alexandria since 1975. Data have been corrected to include births that occurred to Alexandria mothers but not births to mothers living in the “Alexandria” portion of Fairfax County or elsewhere, or births that took place in Alexandria to mothers who live elsewhere.



This graph shows that the birth rate per 1000 people in the city has been slowly increasing since 1975, with a significant recent increase starting in 2007. In 2006, the birth rate was 15.7 per 1,000 people; since then it has increased by 3.4 per 1,000 people to 19.1 per 1,000 people. Alexandria’s birth rate per 1,000 people is substantially higher than the U.S. national average, primarily because the city has an unusually high percentage of its population in the 25-39 year age group, the age group with the highest rate of births.

The increase of more than 3 per 1000 population reflects a combination of factors. Two of the most important are the significant in-migration for employment and the significant increase in the Hispanic population of Alexandria in the 2000s. Many of the young people attracted to the Washington region for employment have aged into the prime family-forming years, resulting in a local “baby boom” that is reflected in increased enrollments in many school districts in the region. The Hispanic population nationally has the highest birth rate of any major racial or ethnic group, and the decade of the 2000s saw Alexandria’s Hispanic population increase by 19%, twice as fast as the population as a whole. The share of Hispanic students in APCS schools has grown by 29% since 2000 to almost one-third of the total enrollment, according to the Virginia Department of Education.

Birth Rate Forecast

In all forecast scenarios, birth rates are expected to peak and then decline over the long term for two reasons:

- The local “baby boom” is assumed not to continue indefinitely because job growth has moderated locally and local economies in other regions have recovered. The long-range forecast recommended as a planning guideline assumes that birth rates are at their peak, but that this rate will continue for approximately five years before declining. The high enrollment scenario assumes that the birth rate will continue to increase for five more years; the low enrollment scenario assumes that the birth rate is peaking now. In all cases, the peak is followed by a gradual decline to return to Alexandria’s birth rate prior to the recent increases. This would mark the end of the “local baby boom.”
- Once the local baby boom has ended, birth rates are expected to continue to decline at the same rate of decline as that of the national birth rate projection of the U.S. Census Bureau. This birth rate projection considers changes in race and ethnicity, changes in birth rates by race and ethnicity, in- and out-migration, and changes in the age distribution of population. The assumption is that these factors will affect Alexandria’s birth rate over time in the same way they affect the national birth rate.

The figure on the previous page shows these long-term forecast assumptions of the birth rate together with the trend in the national birth rate from the Census Bureau’s long-term projection (2012, central estimate).

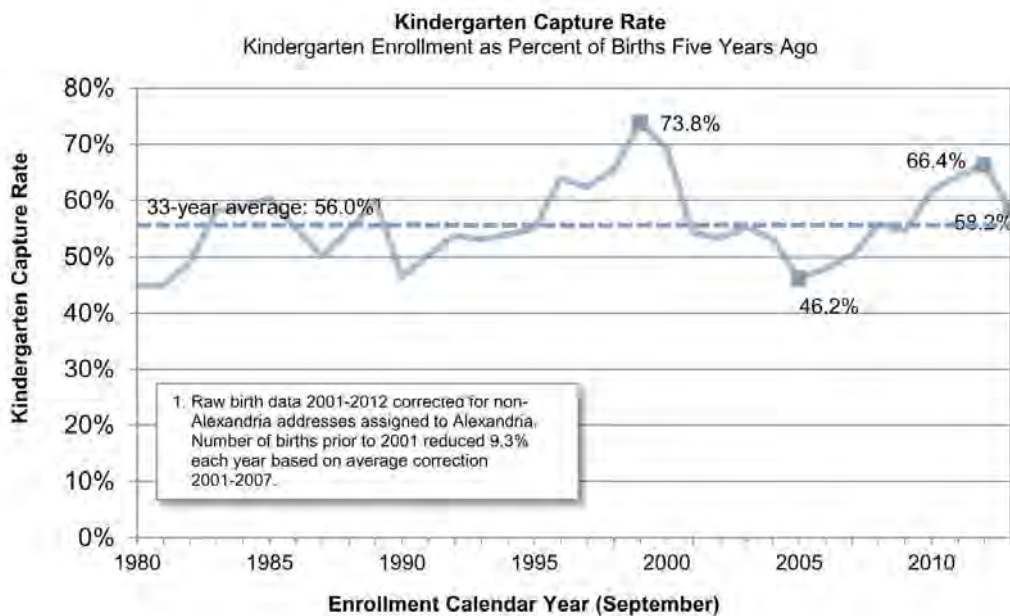
Sensitivity of Enrollment Forecast to Birth Rate. The recent increase in birth rates of approximately 3 births per 1000 people has the potential to add approximately 3000 students to ACPS enrollment if the current birth rate remains in place over the entire forecast period. A change in the birth rate begins to affect enrollment 5 years later. The change has full impact by 17 years later and beyond, when the effect has reached all grades. Much of the difference in enrollment among the forecast scenarios in the intermediate years of the forecast results from the difference in their birth rate assumptions over time. Because of the delayed impact of birth rate on enrollment, the city and ACPS have early warning of future impacts from this change in time to plan and construct facilities if needed.

Birth rate effects on enrollment can be moderated by families with children moving out of Alexandria, either prior to starting school (reflected in the kindergarten capture rate) or after starting school but prior to graduation (affecting cohort survival rates).

Kindergarten Capture

The next step in the enrollment forecast model is to estimate the percentage of Alexandria births that will enter ACPS kindergarten five years later. The figure on the following page shows the ratio of births to kindergarten enrollment in the city since 1980, based on births since 1975.

The kindergarten capture rate of enrollments compared to births five years prior has varied from less than 50% to almost 75% over the period from 1980 to 2012. After declining during the 2000 to 2005 period, the kindergarten capture rate has steadily increased in ACPS schools from 46.2% in 2005 to 66.4% in 2012. In 2013, the rate dropped substantially to 58.2%. The long-term average since 1980 is 56.0%.

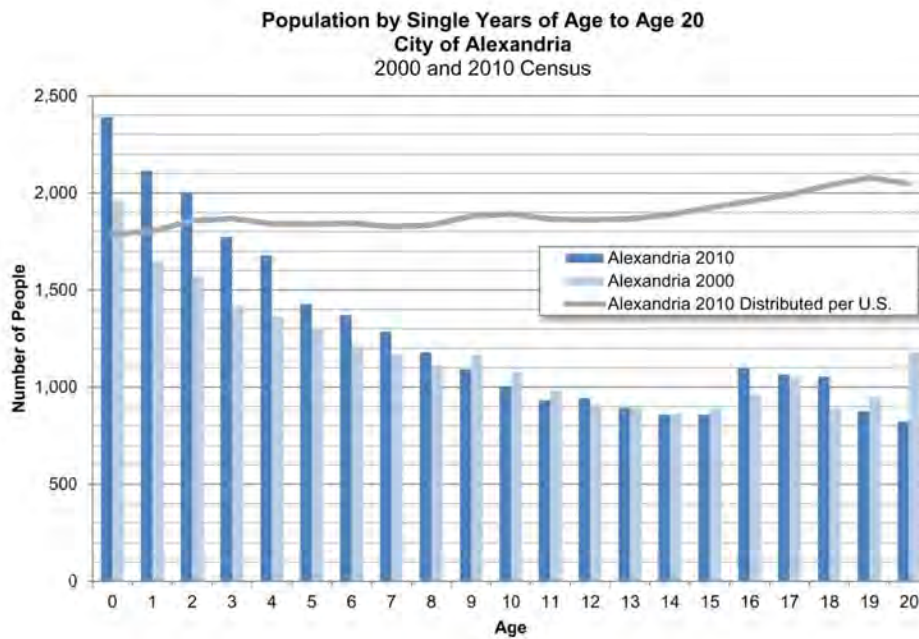


Alexandria’s kindergarten capture rate of substantially less than 100% means that people are moving out of the community before their children reach kindergarten age or are sending their children to private schools.

- Both the 2000 and 2010 Censuses show that between birth and at least age 15, the size of each Alexandria age cohort is smaller than any of the age cohorts that precede it. For example, in 2010 there were about 2,000 children age 2, under 1,800 age 3, and under 1,700 age 4, and so forth, to 850 children age 15.. The figure on the following page shows the population of the city by single years of age through age 20 for 2000 and 2010. In 2010, Alexandria’s 5-year-old population was just 60% of the population of those under one year, and the 10-year-old population was 70% of the 5-year-old population. In 2000, Alexandria’s 5-year-old population was 66% of the population of those under one year, and the 10-year-old population was 83% of the 5-year-old population. For the U.S. as a whole, the 5-year-old population was 103% of the population under

one year, and the 10-year-old population was 103% of the 5-year-old population. The gray line on the graph shows what Alexandria's population by age would be if its 2010 population were distributed by age the same way the national population was distributed by age in 2010.

- Consistently over time, the Census shows that between 12% and 15% of Alexandria's school-age children are enrolled in private school (not including population in residential schools in the city who are counted as residents). This percentage is similar to that of other jurisdictions in the region, and is not assumed to change significantly over the forecast period.



Kindergarten Capture Rate Forecast.

The kindergarten capture rate is expected to decline from the current 3-year average rate in the long term under all forecast scenarios.

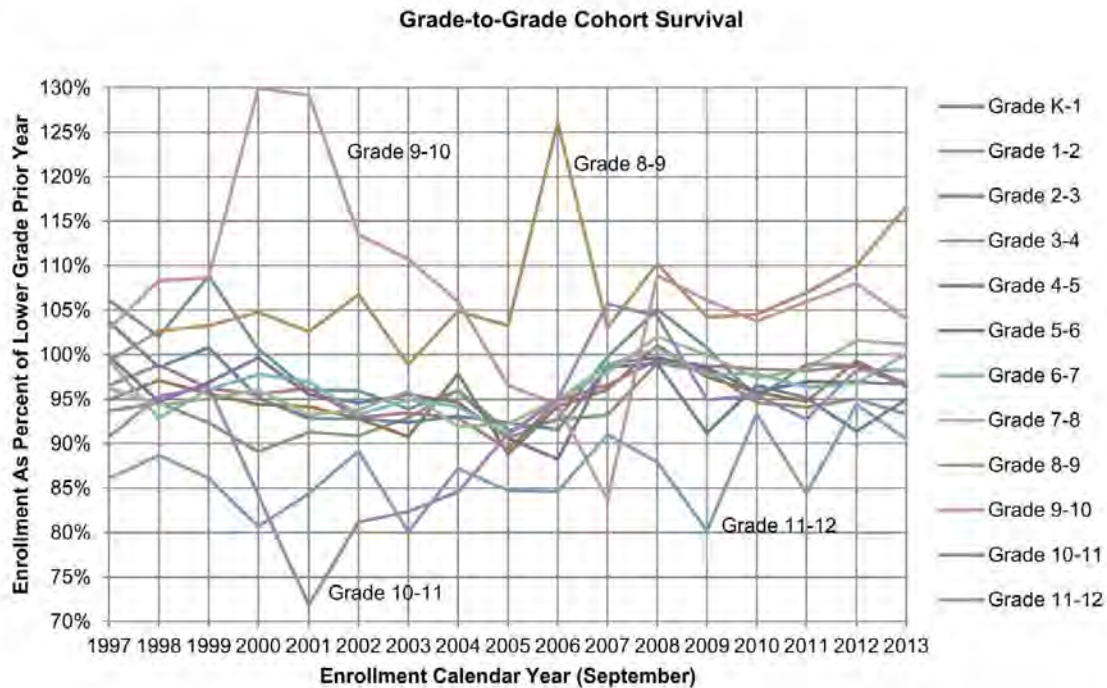
The kindergarten capture rate reflects the share of Alexandria families who choose to stay in the city and send their children to public school after having children. More families choosing urban living means a higher kindergarten capture rate. While the evidence of more people making this choice in recent years is primarily anecdotal, a number of factors are expected to be encouraging families to choose urban living now and in the future. These factors include increasing energy prices that discourage long commutes; a widening range of transportation choices including carsharing, rapid bus, bus rapid transit and streetcars within the Beltway; less emphasis on the back yard for play and recreation and greater emphasis on group activities at public and private facilities; and a desire to take advantage of the broader array of cultural opportunities for children in urban areas. There are some factors that will dampen the trend of more families raising children in Alexandria; the two most notable being higher housing prices than suburban areas, and a high proportion of housing units in Alexandria that are small multifamily units less desired by most families. Nearly all growth in housing units forecast for the future is in multifamily projects, and increases in this share are expected to reduce the city's kindergarten capture rate in the long term.

Based on these factors, the kindergarten capture share in the recommended forecast is assumed to drop from 60% to 58% in 5 years, then drop to 56% by 2040. The capture rate throughout the period is lower than the current 3-year average kindergarten capture rate of 60.7% but until the end of the forecast period is higher than the past long-term average of 56% since 1975. The kindergarten capture rate for the moderate and low enrollment scenarios is assumed to decline to 58% over two years and to further decline gradually to the long-term average of 56% by 2040.

Sensitivity of Enrollment Forecast to Kindergarten Capture Rate. A change in kindergarten capture rate has an immediate impact on enrollment, initially at the kindergarten level. As these students pass through the grades, the change in rate ultimately affects the entire enrollment, with its full effect felt in 13 years. Assuming 60% kindergarten capture in the high enrollment scenario rather than the past long-term average of 56% is responsible for about 7% of the total enrollment forecast for 2026, or about 1,000 students, the year when the change has affected all grades. This 7% effect then continues throughout the remainder of the forecast period.

Cohort Survival

Cohort survival rate is the term that compares the number of students at a grade level to the number of students who were in the previous grade in the previous year. For example, the cohort survival rate for kindergarten to first grade in 2013 is the number of first grade students in 2013(1,462) compared to the number of kindergarten students in 2012 (1,516), or 96.4%. This means that 96.4% as many students showed up in first grade in 2013 as were enrolled in kindergarten in 2012. The graph below shows Alexandria’s cohort survival rates since 1997 by grade.



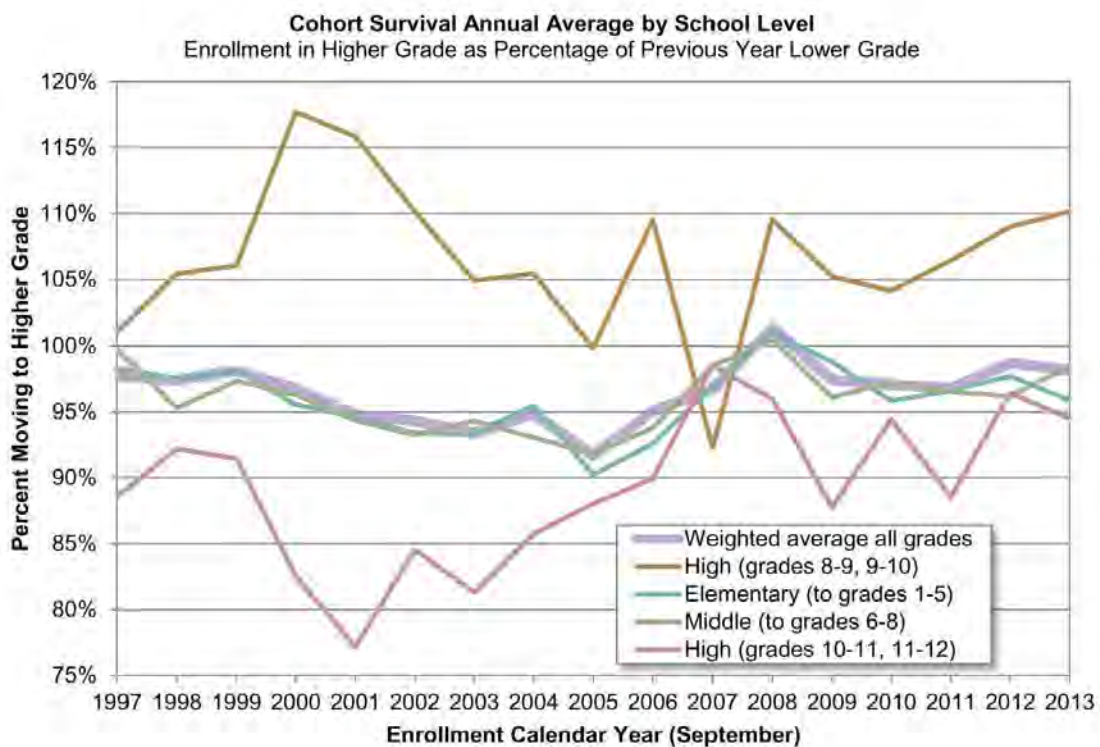
Over the 17-year period since 1997, the ACPS cohort survival rates for elementary and middle school grades have clustered together, averaging between 93.7% (1st to 2nd grade) and 98.4% (kindergarten to 1st grade). Cohort survival rates by grade and for individual elementary schools and middle schools have much wider variation. 9th and 10th grades see a substantial influx from private schools, and these grades have cohort survival rates of greater than 100% in nearly all years. 12th grade typically has a lower cohort survival rate than any other grade, exceeding 90% in only four years since 1997, all of which were in the last seven years.

Alexandria’s cohort survival rate reflects a high rate of migration into and out of the region, and within the region among different communities. It reflects students moving in and out of private schools each year. The city’s steady growth in population also affects the cohort survival rate, making it slightly higher than it would be with no net annual increase in population.

A cohort survival rate of 90% means 10% fewer students enroll in the grade above than were in the grade below last year. A cohort survival rate of 90% in all grades would result in a 12th grade class that includes

only 28 students for every 100 in the kindergarten class entering school. A cohort survival rate of 95% would mean that 54 students would enter 12th grade for each child entering kindergarten. Over the past 10 years, the 12th grade class has ranged from a minimum of 44.4% of the incoming kindergarten class in 2012 and 2013 to a maximum of 61.1% in 2005, indicating that cohort survival has ranged around approximately 95% from grade to grade for these graduating classes.

The figure below shows the average cohort survival rate by school level, averaging elementary, middle and high school grades. Grades 9 and 10 typically have higher than 100% cohort survival, and grades 11 and 12 have much lower cohort survival, so these grades are averaged separately. Also shown on this graph is the weighted average cohort survival rate for all grades, with the cohort survival rate for each grade weighted by the number of students in that grade to determine the overall average.



In the past, cohort survival rates by grade have varied up and down substantially for periods of a few years, but have returned to an overall average rate near 95% for the elementary and middle school years over time. Cohort survival is particularly sensitive to changes in housing markets as we have seen in the 2000-2013 period. During the housing price bubble, cohort survival rates declined substantially, reaching lows in most grades in 2005 well under 95%. When the housing finance market suddenly collapsed in 2006, and people were less able to move, cohort survival for these grades rapidly increased to rates near 100% in 2008. As housing finance and the housing market have normalized since 2008, cohort survival has fallen to just above 95% for most elementary and middle school grades.

Cohort survival rates tend to vary up and down over time together for all grades, and to vary in the same way kindergarten capture rate varies over time. Since the rates all are a function of migration in and out of the city by age, it makes sense for these rates to vary together.

Alexandria has a lower cohort survival rate than most school systems through most grades. The city's population in the 2010 Census showed only 70% as many 10-year-olds as 5-year-olds, while the nationwide population has 3% *more* 10-year-olds than 5-year-olds. Alexandria's housing stock has an unusually small share of single-family units, and an unusually high share of units with four rooms or less compared to most communities in the Washington, D.C. Metropolitan Area. Because of this small share of housing units with characteristics that are more desirable to families, many families move out of the city as their children grow older or as their families grow larger.

Cohort Survival Forecast

Cohort survival is assumed in the high enrollment and recommended forecasts to begin at the current 3-year average cohort survival rate in each grade, and to decline by one percentage point for all grades very slowly over the entire period of the forecast. This slow decline is based on the assumption that the shift in housing types to more multifamily units over time will result in a smaller percentage of families choosing to stay in Alexandria once they have children and as they have more children or their children get older, in spite of an overall trend to more families choosing urban living. If current average cohort survival rates were to continue over the forecast period, total enrollment would be approximately 2-3% higher by 2030 and 4-5% higher by 2040..

The moderate and low enrollment scenarios assume family out-migration resumes to a greater extent so that the cohort survival rate falls two percentage points over the next two years, then two additional percentage points through the end of the forecast period. This change in cohort survival results in a reduction in total enrollment of about 13% over the forecast period compared to using the current average cohort survival rates.

Sensitivity of Enrollment Forecast to Cohort Survival Rate. At the current level of enrollment, with all other enrollment inputs (birth rate, population, and kindergarten capture rate) kept constant, an immediate increase in the average cohort survival rate of one percentage point in all grades would increase enrollment by about 1,000 students in 13 years when the higher enrollment in lower grades has worked its way fully through all grades.

Enrollment Model Forecasts in Perspective

The discussion below outlines how the enrollment model forecast was reality-checked against some other ways of viewing student enrollment trends.

Student Generation by Housing Type.

Student generation by housing type is a method often used by school districts to identify potential school needs associated with new development. Existing enrollment patterns by housing type are used to estimate future enrollment from new construction. In Alexandria, the types of housing that are found in most new development have been found to generate very few students, at least until such housing is 30 years old or older. Recent increases in enrollment are associated with higher numbers of students living in existing housing of all types rather than high occupancy of new housing. Very low numbers of students, on the order of one per 10 units or one per 20 units, are found from new apartments and condominiums, housing types that make up most new development. Townhouses and single-family detached homes do not generate substantially lower numbers of students in new units, though older low-priced townhouses

have higher student generation than new townhouses. Building data is not readily available to analyze student generation for more than the past four or five years, so a long-term trend of student generation by building type is not available for comparison. However, a range of realistic generation factors is available based on recent years, and neighboring jurisdictions also maintain records of student generation by housing type that can be compared.

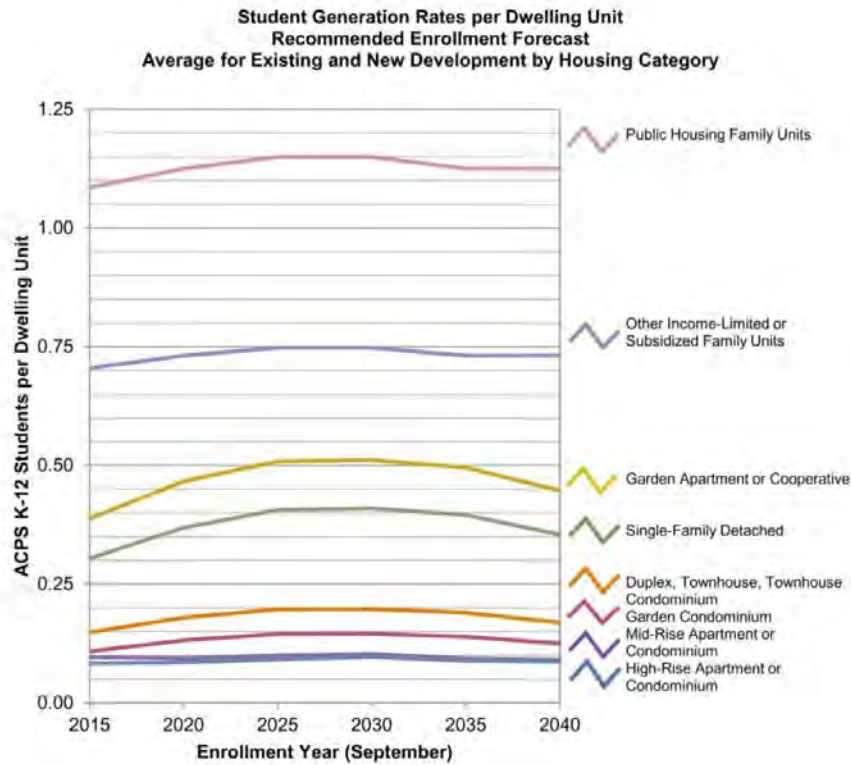
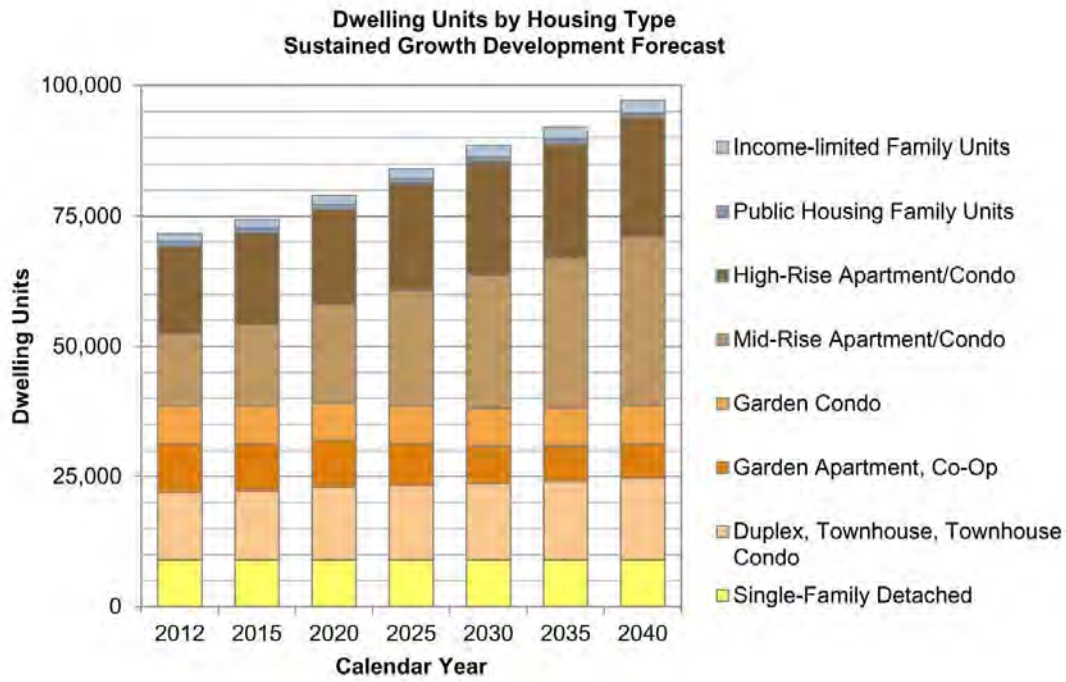
The figure at the top on the following page shows the change in the mix of building types that results from the city's development forecast over the enrollment forecast period through 2040. The figure at the bottom of the page shows the extent to which average student generation by housing type would have to change to produce the recommended enrollment forecast. For the recommended forecast to be achieved, student generation rates would have to increase on average by approximately 16.5% of the 2012 generation factor for each building type. Because most new development has a low student generation factor, the average increase in generation factor required for existing housing is approximately 23.6%. Because little increase in generation is expected for existing high- and mid-rise development, the increase for single-family detached and townhouse units is estimated at 46%. An increase of this magnitude results in student generation of approximately 0.41 students for each single-family detached home, which is approximately the current student generation factor for single-family detached homes reported in Arlington County.

Even as student generation rates increase over time, they will not increase at the same rate for every housing type. Housing units likely to see the greatest student generation rate increase will be single-family detached, townhouse, garden apartment, and affordable housing.

Each of the enrollment forecast scenarios implies a set of student generation rates, which staff examined as a way of testing the likelihood of each scenario. The scenario selected for the recommended forecast was chosen, in part, because the future student generation rates remain within reasonable bounds. In the 2010 Census, only 19% of Alexandria's households were families with their own children under age 18, compared to 29.8% of households nationwide. Alexandria's average family size was 2.85 in 2010, compared to 3.14 nationwide. The higher student generation rate required to accommodate the enrollment forecast is likely to result from both larger families in those households with children, and an increase in the share of households that are families with children. Relatively small increases in family size and the percentage of households that are families with children would be required to meet the peak enrollment of the recommended enrollment forecast, which occurs in 2030. Enrollment increases since 2010 show that the current housing stock is capable of at least some growth in occupancy by families with children.

Student Generation by Housing Affordability.

An analysis of housing affordability conducted by the city showed that for most housing types, student generation is substantially higher for housing with lower rents and lower housing values. The highest student generation rates occur in housing that is reserved for low- and moderate-income households by income restrictions or rent subsidies. This is in part because these programs are oriented to providing family housing. Among market-rate apartments, student generation is much higher for apartments with rents under \$1,500 per month. Analysis by age of housing indicated that such rents are typically limited to apartments 30 years old or older. Student generation is very low for apartments with rents exceeding \$1,700 per month.



The student generation model used to develop the student generation rates incorporates what is known about existing and planned affordable housing of all types (public, subsidized, and market affordable).

In order to adjust for the expected decline in affordability as well as an expected decline in the percentage of units in the city that are considered desirable by families, the enrollment forecast model for all forecast scenarios assumes that the average kindergarten capture and cohort survival rates will fall slowly over time as less of the city's housing is affordable, and less is considered desirable by families. The moderate and low enrollment forecasts assume a more rapid decline in kindergarten capture and cohort survival rates.

ACPS Enrollment per 1,000 People.

The figure on the following page shows ACPS enrollment each year since 1960 as a rate per 1,000 people in the city. Over this period, the total enrollment peaked at with the maximum enrollment of over 17,000 K-12 students in 1970, when the city's population was about 111,000.

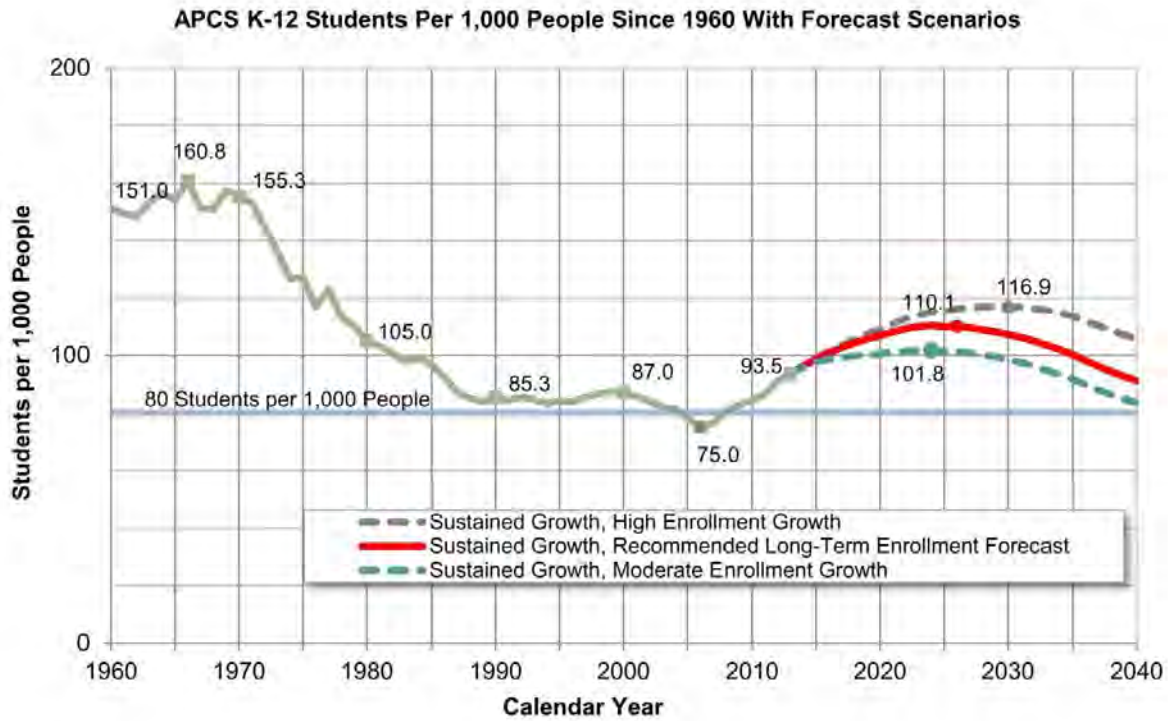
The rate of students per 1,000 residents peaked at over 160 students in 1966, just after the end of the baby boom and when the first baby boomers had started graduating from high school and leaving for college in 1964. Enrollment fell to about 85 students per 1,000 people by 1988, when the last of the baby boomers had graduated from high school. The 1990 Census shows a substantial increase in the share of Alexandria households that were single-person households in 1990, and a significant growth in the 20- to 35-year age cohort, as baby boomers entered the workforce.

During the housing price bubble of the early 2000s, the student rate fell again, reaching a minimum of 75 students per 1,000 in 2006 just as the housing finance market collapsed. Since then, the enrollment rate has grown past its plateau of the 90s to reach 93.5 students per 1,000 in 2013.

The enrollment forecasts on the following page show enrollment continuing to increase to over 100 students per 1,000 people in all scenarios, reflecting the assumption that the recent high rate of births to Alexandria residents will continue to provide an increasing number of students to Alexandria schools over the next few years. The scenarios differ on when the local birth rate will return to its previous level, and when the housing market will again be in a position to provide more options for people to move from Alexandria as their families grow.

All forecasts show a substantial increase in the number of students per capita, reflecting these recent births and the choice of at least some families to seek a more urban environment in which to raise their children. Because it is considered unlikely that the housing market will return to the easy financing of the early 2000s, a return to a declining rate of students per 1,000 people is not foreseen until demographic forces including a significant increase in over-65 population and declining birth rates among the Hispanic population balance the forces now adding students to the schools.

For 2010 fall enrollment following the 2010 Census, Alexandria had 84.4 K-12 ACPS students per 1,000 people based on its 2010 census population. Arlington County had 98.5 K-12 students per 1,000, Fairfax County had 158.6 students and Prince William County had 195.4 students. The City's ratio of students per 1,000 people can grow substantially while remaining well below the ratios of the surrounding suburban counties.



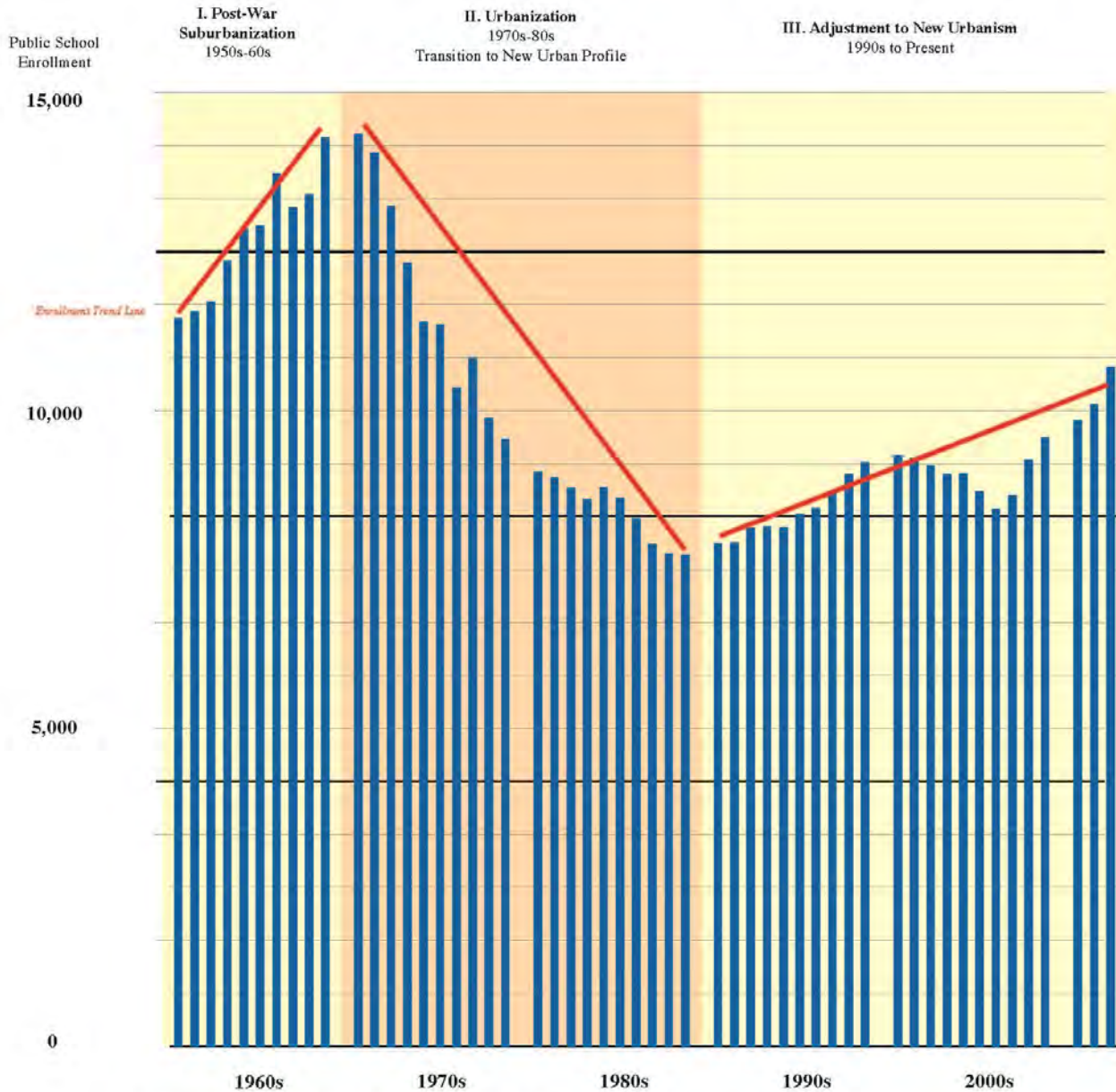
These scenarios show the future decline in enrollment following the expected drop in birth rates at a rate similar to that of the 1980s, when the baby boom impact was declining into a new era of stability in enrollments in the 1990s.

APPENDIX D-2

ACPS ENROLLMENT HISTORY

Alexandria's Public School Enrollment History: 1960 to Present

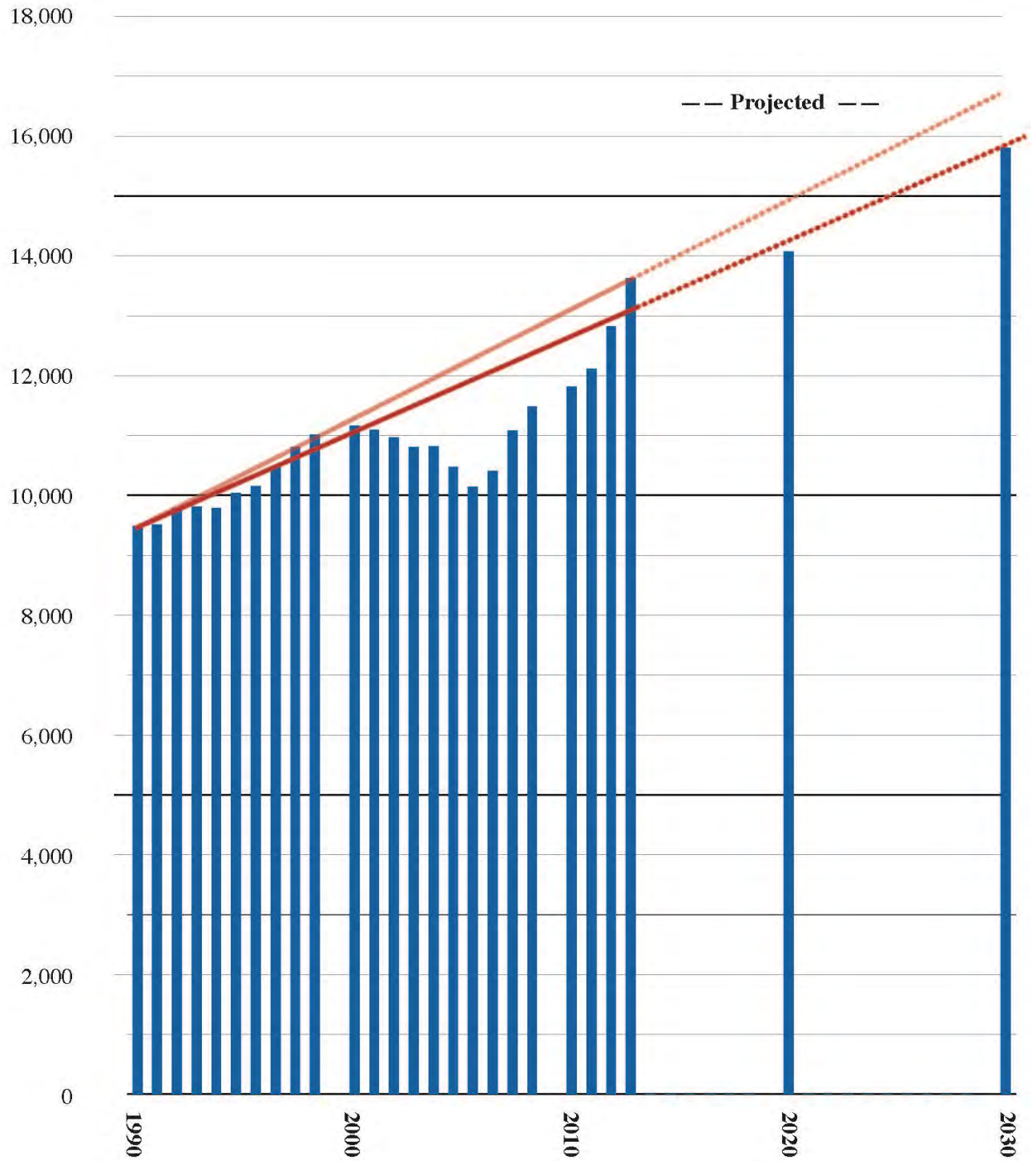
Three Distinct Historical Eras - the Larger Context Influencing Enrollment Trends



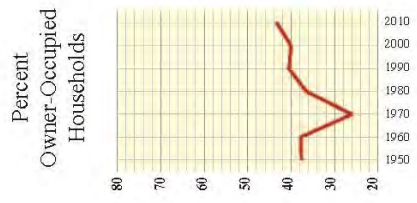
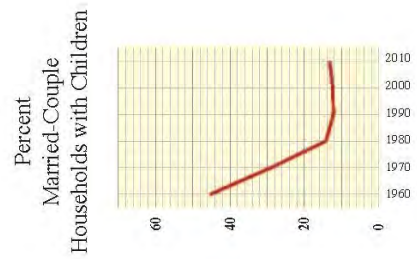
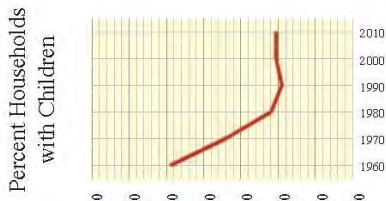
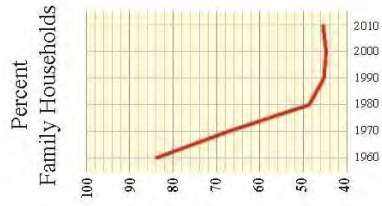
Distinguishing Characteristics of Three Phases in City's

- | | | |
|---|--|--|
| <ul style="list-style-type: none"> - baby boom years - period of rapid population growth, when city experienced its largest population increases in its history - households consisted primarily of families with children - ??? what was built | <ul style="list-style-type: none"> - baby bust years - slow growth years: net population gain from 1970-1990: - when large-scale commercial/retail development of suburbs commenced - saw construction of large number of high-rise condos in West End and other parts of city - when city's demographic profile morphed from a traditional family suburb into new urban identity | <ul style="list-style-type: none"> - moderate, but sustained population growth - characterized by high degree of stability in many demographic and household fundamentals: avg household size, household composition (% families, households with children), percentage share of school-aged population, percent of households that rent, etc. - high degree of population turnover/migration |
|---|--|--|

Enrollment Growth Scenarios



No Evidence of Significant Shifts
 In Basic Demographic/Household Profile that has Defined the City for Past 30 Years



APPENDIX D-3

HISTORIC REGIONAL PUBLIC SCHOOL ENROLLMENT

Public School Enrollment: 1980-2013
Northern Virginia Public School Divisions

| School Year | ALEXANDRIA | | | ARLINGTON | | | FAIRFAX COUNTY & CITY OF FAIRFAX | | | FALLS CHURCH | | |
|-------------------------|------------|--------|----------------|-----------|--------|----------------|----------------------------------|--------|----------------|--------------|--------|----------------|
| | Total | Change | Percent Change | Total | Change | Percent Change | Total | Change | Percent Change | Total | Change | Percent Change |
| 1980-01 | 10,831 | | | 15,152 | | | 126,981 | | | 1,097 | | |
| 1981-82 | 10,734 | 97 | 0.9 | 14,757 | 395 | 2.6 | 124,426 | 2,555 | 2.0 | 1,048 | 49 | 4.5 |
| 1982-83 | 10,543 | 191 | 1.8 | 14,610 | 147 | 1.0 | 122,944 | 1,482 | 1.2 | 1,013 | 35 | 3.3 |
| 1983-84 | 10,326 | 217 | 2.1 | 14,515 | 95 | 0.7 | 122,371 | 573 | 0.5 | 1,039 | 26 | 2.6 |
| 1984-85 | 10,549 | 223 | 2.2 | 14,643 | 128 | 0.9 | 123,158 | 787 | 0.6 | 1,060 | 21 | 2.0 |
| 1985-86 | 10,344 | 205 | 1.9 | 14,481 | 162 | 1.1 | 125,141 | 1,983 | 1.6 | 1,101 | 41 | 3.9 |
| 1986-87 | 9,967 | 377 | 3.6 | 14,706 | 225 | 1.6 | 127,166 | 2,025 | 1.6 | 1,132 | 31 | 2.8 |
| 1987-88 | 9,475 | 492 | 4.9 | 14,404 | 302 | 2.1 | 127,750 | 584 | 0.5 | 1,133 | 1 | 0.1 |
| 1988-89 | 9,304 | 171 | 1.8 | 14,113 | 291 | 2.0 | 127,514 | 236 | 0.2 | 1,181 | 48 | 4.2 |
| 1989-90 | 9,269 | 35 | 0.4 | 14,290 | 177 | 1.3 | 126,775 | 739 | 0.6 | 1,215 | 34 | 2.9 |
| 1990-91 | 9,493 | 224 | 2.4 | 14,825 | 535 | 3.7 | 128,762 | 1,987 | 1.6 | 1,219 | 4 | 0.3 |
| 1991-92 | 9,463 | 30 | 0.3 | 15,237 | 412 | 2.8 | 131,432 | 2,670 | 2.1 | 1,209 | 10 | 0.8 |
| 1992-93 | 9,785 | 322 | 3.4 | 15,828 | 591 | 3.9 | 133,403 | 1,971 | 1.5 | 1,252 | 43 | 3.6 |
| 1993-94 | 9,815 | 30 | 0.3 | 16,458 | 630 | 4.0 | 135,413 | 2,010 | 1.5 | 1,339 | 87 | 6.9 |
| 1994-95 | 9,792 | 23 | 0.2 | 16,854 | 396 | 2.4 | 137,646 | 2,233 | 1.6 | 1,356 | 17 | 1.3 |
| 1995-96 | 10,044 | 252 | 2.6 | 17,178 | 324 | 1.9 | 140,820 | 3,174 | 2.3 | 1,462 | 106 | 7.8 |
| 1996-97 | 10,156 | 112 | 1.1 | 17,546 | 368 | 2.1 | 143,266 | 2,446 | 1.7 | 1,480 | 18 | 1.2 |
| 1997-98 | 10,488 | 332 | 3.3 | 17,892 | 346 | 2.0 | 145,722 | 2,456 | 1.7 | 1,451 | 29 | 2.0 |
| 1998-99 | 10,803 | 315 | 3.0 | 18,121 | 229 | 1.3 | 149,035 | 3,313 | 2.3 | 1,541 | 90 | 6.2 |
| 1999-00 | 11,017 | 214 | 2.0 | 18,260 | 139 | 0.8 | 152,952 | 3,917 | 2.6 | 1,675 | 134 | 8.7 |
| 2000-01 | 11,167 | 150 | 1.4 | 18,870 | 610 | 3.3 | 156,412 | 3,460 | 2.3 | 1,721 | 46 | 2.7 |
| 2001-02 | 11,104 | 63 | 0.6 | 19,109 | 239 | 1.3 | 160,584 | 4,172 | 2.7 | 1,764 | 43 | 2.5 |
| 2002-03 | 10,971 | 133 | 1.2 | 19,133 | 24 | 0.1 | 162,585 | 2,001 | 1.2 | 1,833 | 69 | 3.9 |
| 2003-04 | 10,902 | 69 | 0.6 | 19,158 | 25 | 0.1 | 164,235 | 1,650 | 1.0 | 1,874 | 41 | 2.2 |
| 2004-05 | 10,996 | 94 | 0.9 | 18,802 | 356 | 1.9 | 164,767 | 532 | 0.3 | 1,898 | 24 | 1.3 |
| 2005-06 | 10,643 | 353 | 3.2 | 18,463 | 339 | 1.8 | 163,768 | 999 | 0.6 | 1,865 | 33 | 1.7 |
| 2006-07 | 10,334 | 309 | 2.9 | 18,456 | 7 | 0.0 | 163,962 | 194 | 0.1 | 1,883 | 18 | 1.0 |
| 2007-08 | 10,570 | 236 | 2.3 | 18,736 | 280 | 1.5 | 165,734 | 1,772 | 1.1 | 1,936 | 53 | 2.8 |
| 2008-09 | 11,223 | 653 | 6.2 | 19,599 | 863 | 4.6 | 169,040 | 3,306 | 2.0 | 1,967 | 31 | 1.6 |
| 2009-10 | 11,661 | 438 | 3.9 | 20,268 | 669 | 3.4 | 171,959 | 2,919 | 1.7 | 2,023 | 56 | 2.8 |
| 2010-11 | 11,999 | 338 | 2.9 | 21,485 | 1,217 | 6.0 | 174,490 | 2,531 | 1.5 | 2,084 | 61 | 3.0 |
| 2011-12 | 12,396 | 397 | 3.3 | 21,892 | 407 | 1.9 | 177,606 | 3,116 | 1.8 | 2,183 | 99 | 4.8 |
| 2012-13 | 13,105 | 709 | 5.7 | 22,543 | 651 | 3.0 | 180,616 | 3,010 | 1.7 | 2,274 | 91 | 4.2 |
| 2013-14 | 13,563 | 458 | 3.5 | 23,316 | 773 | 3.4 | 183,269 | 2,653 | 1.5 | 2,421 | 147 | 6.5 |
| Last 7 Yrs 2007-2013 | | 3,229 | 31.2 | | 4,860 | 26.3 | | 19,307 | 11.8 | | 538 | 28.6 |

Public School Enrollment: 1980-2013
Northern Virginia Public School Divisions

| School Year | LOUDOUN | | | MANASSAS PARK | | | MANASSAS | | | PRINCE WILLIAM | | |
|-------------------------|---------|--------|----------------|---------------|--------|----------------|----------|--------|----------------|----------------|--------|----------------|
| | Total | Change | Percent Change | Total | Change | Percent Change | Total | Change | Percent Change | Total | Change | Percent Change |
| 1980-01 | 13,441 | | | 1,642 | | | 3,353 | | | 35,604 | | |
| 1981-82 | 13,061 | 380 | 2.8 | 1,564 | 78 | 4.8 | 3,488 | 135 | 4.0 | 35,367 | 237 | 0.7 |
| 1982-83 | 12,862 | 199 | 1.5 | 1,562 | 2 | 0.1 | 3,476 | 12 | 0.3 | 34,866 | 501 | 1.4 |
| 1983-84 | 12,708 | 154 | 1.2 | 1,489 | 73 | 4.7 | 3,511 | 35 | 1.0 | 35,288 | 422 | 1.2 |
| 1984-85 | 12,616 | 92 | 0.7 | 1,494 | 5 | 0.3 | 3,696 | 185 | 5.3 | 35,786 | 498 | 1.4 |
| 1985-86 | 12,893 | 277 | 2.2 | 1,458 | 36 | 2.4 | 3,730 | 34 | 0.9 | 36,587 | 801 | 2.2 |
| 1986-87 | 13,232 | 339 | 2.6 | 1,418 | 40 | 2.7 | 3,941 | 211 | 5.7 | 37,565 | 978 | 2.7 |
| 1987-88 | 13,564 | 332 | 2.5 | 1,408 | 10 | 0.7 | 4,216 | 275 | 7.0 | 38,765 | 1,200 | 3.2 |
| 1988-89 | 13,717 | 153 | 1.1 | 1,370 | 38 | 2.7 | 4,521 | 305 | 7.2 | 40,127 | 1,362 | 3.5 |
| 1989-90 | 14,172 | 455 | 3.3 | 1,337 | 33 | 2.4 | 4,695 | 174 | 3.8 | 40,991 | 864 | 2.2 |
| 1990-91 | 14,475 | 303 | 2.1 | 1,342 | 5 | 0.4 | 4,813 | 118 | 2.5 | 41,888 | 897 | 2.2 |
| 1991-92 | 14,955 | 480 | 3.3 | 1,350 | 8 | 0.6 | 5,048 | 235 | 4.9 | 43,222 | 1,334 | 3.2 |
| 1992-93 | 15,733 | 778 | 5.2 | 1,385 | 35 | 2.6 | 5,233 | 185 | 3.7 | 44,273 | 1,051 | 2.4 |
| 1993-94 | 16,977 | 1,244 | 7.9 | 1,386 | 1 | 0.1 | 5,406 | 173 | 3.3 | 44,881 | 608 | 1.4 |
| 1994-95 | 18,131 | 1,154 | 6.8 | 1,490 | 104 | 7.5 | 5,437 | 31 | 0.6 | 45,675 | 794 | 1.8 |
| 1995-96 | 19,827 | 1,696 | 9.4 | 1,561 | 71 | 4.8 | 5,685 | 248 | 4.6 | 47,072 | 1,397 | 3.1 |
| 1996-97 | 21,574 | 1,747 | 8.8 | 1,623 | 62 | 4.0 | 5,881 | 196 | 3.4 | 48,333 | 1,261 | 2.7 |
| 1997-98 | 23,616 | 2,042 | 9.5 | 1,705 | 82 | 5.1 | 6,080 | 199 | 3.4 | 49,905 | 1,572 | 3.3 |
| 1998-99 | 26,091 | 2,475 | 10.5 | 1,788 | 83 | 4.9 | 6,193 | 113 | 1.9 | 51,111 | 1,206 | 2.4 |
| 1999-00 | 28,787 | 2,696 | 10.3 | 1,831 | 43 | 2.4 | 6,271 | 78 | 1.3 | 52,551 | 1,440 | 2.8 |
| 2000-01 | 31,804 | 3,017 | 10.5 | 2,013 | 182 | 9.9 | 6,411 | 140 | 2.2 | 54,646 | 2,095 | 4.0 |
| 2001-02 | 34,571 | 2,767 | 8.7 | 2,169 | 156 | 7.7 | 6,566 | 155 | 2.4 | 58,017 | 3,371 | 6.2 |
| 2002-03 | 37,532 | 2,961 | 8.6 | 2,327 | 158 | 7.3 | 6,673 | 107 | 1.6 | 60,541 | 2,524 | 4.4 |
| 2003-04 | 40,750 | 3,218 | 8.6 | 2,288 | 39 | 1.7 | 6,803 | 130 | 1.9 | 63,404 | 2,863 | 4.7 |
| 2004-05 | 43,991 | 3,241 | 8.0 | 2,374 | 86 | 3.8 | 6,761 | 42 | 0.6 | 66,298 | 2,894 | 4.6 |
| 2005-06 | 47,326 | 3,335 | 7.6 | 2,337 | 37 | 1.6 | 6,554 | 207 | 3.1 | 68,462 | 2,164 | 3.3 |
| 2006-07 | 50,416 | 3,090 | 6.5 | 2,497 | 160 | 6.8 | 6,495 | 59 | 0.9 | 70,948 | 2,486 | 3.6 |
| 2007-08 | 53,985 | 3,569 | 7.1 | 2,516 | 19 | 0.8 | 6,474 | 21 | 0.3 | 72,989 | 2,041 | 2.9 |
| 2008-09 | 56,922 | 2,937 | 5.4 | 2,464 | 52 | 2.1 | 6,566 | 92 | 1.4 | 73,918 | 929 | 1.3 |
| 2009-10 | 60,034 | 3,112 | 5.5 | 2,707 | 243 | 9.9 | 6,866 | 300 | 4.6 | 76,862 | 2,944 | 4.0 |
| 2010-11 | 63,151 | 3,117 | 5.2 | 2,957 | 250 | 9.2 | 6,986 | 120 | 1.7 | 79,358 | 2,496 | 3.2 |
| 2011-12 | 65,585 | 2,434 | 3.9 | 3,019 | 62 | 2.1 | 7,154 | 168 | 2.4 | 81,937 | 2,579 | 3.2 |
| 2012-13 | 68,205 | 2,620 | 4.0 | 3,123 | 104 | 3.4 | 7,276 | 122 | 1.7 | 83,865 | 1,928 | 2.4 |
| 2013-14 | 70,857 | 2,652 | 3.9 | 3,216 | 93 | 3.0 | 7,242 | 34 | 0.5 | 85,455 | 1,590 | 1.9 |
| Last 7 Yrs 2007-2013 | | 20,441 | 40.5 | | 719 | 28.8 | | 747 | 11.5 | | 14,507 | 20.4 |

Public School Enrollment: 1980-2013

Northern Virginia Public School Divisions

NORTHERN VIRGINIA

| School Year | Total | Change | Percent Change |
|-------------------------|---------|--------|----------------|
| 1980-01 | 208,101 | | |
| 1981-82 | 204,445 | 3,656 | 1.8 |
| 1982-83 | 201,876 | 2,569 | 1.3 |
| 1983-84 | 201,247 | 629 | 0.3 |
| 1984-85 | 203,002 | 1,755 | 0.9 |
| 1985-86 | 205,735 | 2,733 | 1.3 |
| 1986-87 | 209,127 | 3,392 | 1.6 |
| 1987-88 | 210,715 | 1,588 | 0.8 |
| 1988-89 | 211,847 | 1,132 | 0.5 |
| 1989-90 | 212,744 | 897 | 0.4 |
| 1990-91 | 216,817 | 4,073 | 1.9 |
| 1991-92 | 221,916 | 5,099 | 2.4 |
| 1992-93 | 226,892 | 4,976 | 2.2 |
| 1993-94 | 231,675 | 4,783 | 2.1 |
| 1994-95 | 236,381 | 4,706 | 2.0 |
| 1995-96 | 243,649 | 7,268 | 3.1 |
| 1996-97 | 249,859 | 6,210 | 2.5 |
| 1997-98 | 256,859 | 7,000 | 2.8 |
| 1998-99 | 264,683 | 7,824 | 3.0 |
| 1999-00 | 273,344 | 8,661 | 3.3 |
| 2000-01 | 283,044 | 9,700 | 3.5 |
| 2001-02 | 293,884 | 10,840 | 3.8 |
| 2002-03 | 301,595 | 7,711 | 2.6 |
| 2003-04 | 309,414 | 7,819 | 2.6 |
| 2004-05 | 315,887 | 6,473 | 2.1 |
| 2005-06 | 319,418 | 3,531 | 1.1 |
| 2006-07 | 324,991 | 5,573 | 1.7 |
| 2007-08 | 332,940 | 7,949 | 2.4 |
| 2008-09 | 341,699 | 8,759 | 2.6 |
| 2009-10 | 352,380 | 10,681 | 3.1 |
| 2010-11 | 362,510 | 10,130 | 2.9 |
| 2011-12 | 371,772 | 9,262 | 2.6 |
| 2012-13 | 381,007 | 9,235 | 2.5 |
| 2013-14 | 389,339 | 8,332 | 2.2 |
| Last 7 Yrs 2007-2013 | | 64,348 | 19.8 |

APPENDIX D-4

ALEXANDRIA BIRTH RATE TRENDS

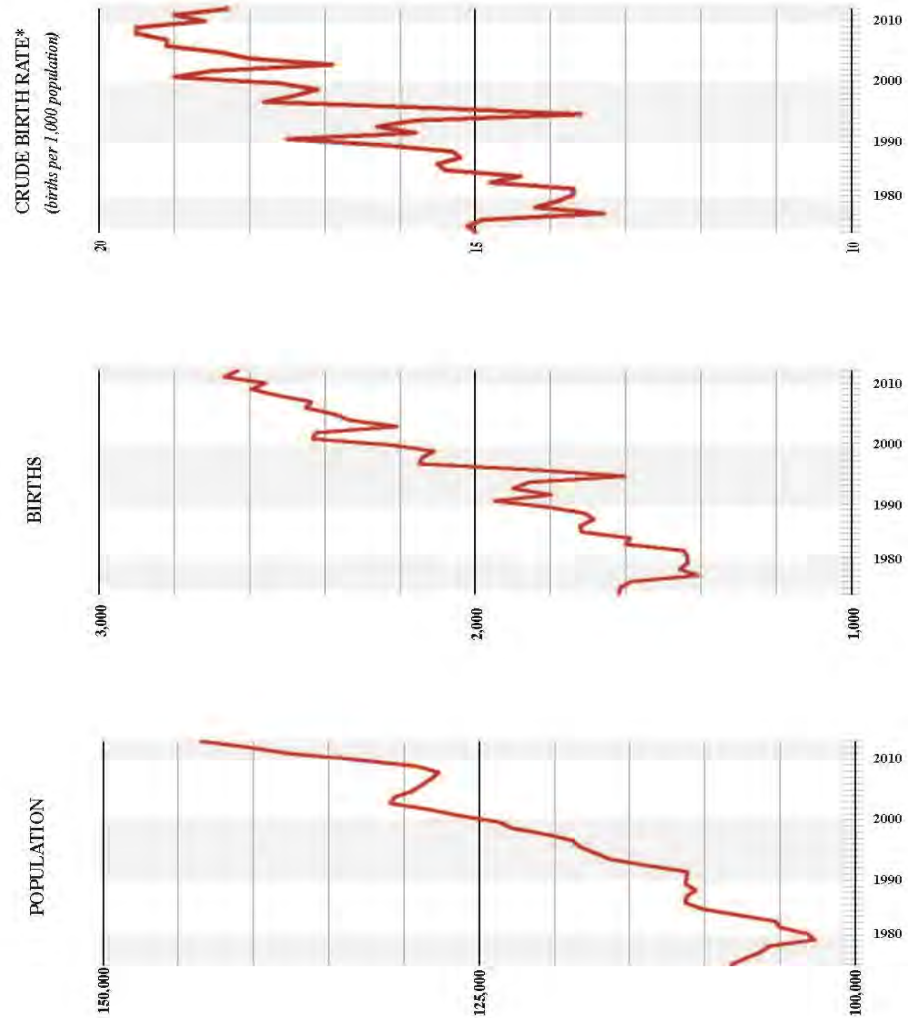
Note: All information contained in Appendix D4 can be found in the July 18, 2013 materials from the LREFP Enrollment Forecasts/Demographics Subcommittee Meeting.

Major Demographic Trends/Factors that could Influence Public School Enrollments in Future Years

- I Factors impacting number of births and size of school-aged population in the City
 - Changes in Crude Birth Rate (*births per 1,000 population*)
 - Changes in Total Fertility Rate (*average number of births a women has in her lifetime*)
 - Structural changes in age composition affecting relative size of cohort consisting of females in child-bearing years
 - Changes in racial/ethnic composition that may result in an increase/decrease in fertility rates (*i.e., number of births per 1,000 women 15-44 years of age*)

Trends in Population, Births and Crude Birth Rate

City of Alexandria
1975 to 2011

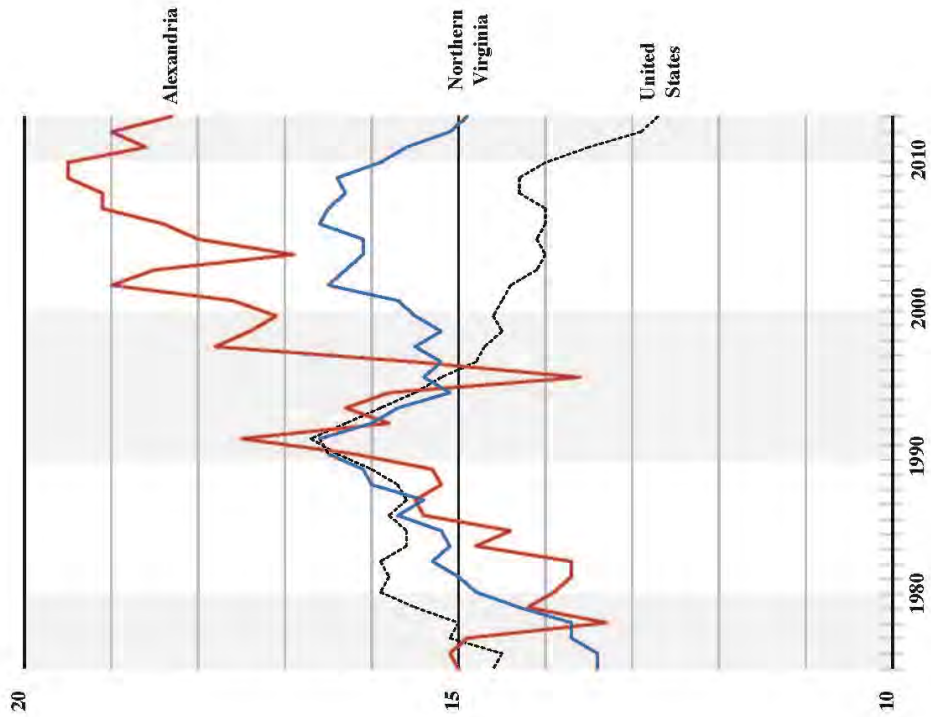


| Year | Population | Births | Per 1,000 Population |
|------|------------|--------|----------------------|
| 1975 | 108,200 | 1,618 | 15.0 |
| 1976 | 107,300 | 1,615 | 15.1 |
| 1977 | 106,300 | 1,586 | 14.9 |
| 1978 | 105,700 | 1,408 | 13.3 |
| 1979 | 102,700 | 1,456 | 14.2 |
| 1980 | 103,217 | 1,435 | 13.9 |
| 1981 | 105,000 | 1,436 | 13.7 |
| 1982 | 105,300 | 1,446 | 13.7 |
| 1983 | 107,800 | 1,600 | 14.8 |
| 1984 | 110,200 | 1,588 | 14.4 |
| 1985 | 111,300 | 1,717 | 15.4 |
| 1986 | 111,200 | 1,721 | 15.5 |
| 1987 | 110,600 | 1,685 | 15.2 |
| 1988 | 111,300 | 1,708 | 15.3 |
| 1989 | 111,200 | 1,806 | 16.2 |
| 1990 | 111,183 | 1,949 | 17.5 |
| 1991 | 113,900 | 1,798 | 15.8 |
| 1992 | 116,300 | 1,900 | 16.3 |
| 1993 | 117,300 | 1,857 | 15.8 |
| 1994 | 118,300 | 1,604 | 13.6 |
| 1995 | 118,800 | 1,842 | 15.5 |
| 1996 | 120,500 | 2,149 | 17.8 |
| 1997 | 122,800 | 2,141 | 17.4 |
| 1998 | 123,700 | 2,110 | 17.1 |
| 1999 | 126,300 | 2,221 | 17.6 |
| 2000 | 128,283 | 2,432 | 19.0 |
| 2001 | 130,932 | 2,424 | 18.5 |
| 2002 | 130,614 | 2,208 | 16.9 |
| 2003 | 129,421 | 2,333 | 18.0 |
| 2004 | 128,765 | 2,375 | 18.4 |
| 2005 | 128,181 | 2,451 | 19.1 |
| 2006 | 127,676 | 2,436 | 19.1 |
| 2007 | 129,175 | 2,525 | 19.5 |
| 2008 | 132,949 | 2,595 | 19.5 |
| 2009 | 137,523 | 2,558 | 18.6 |
| 2010 | 140,236 | 2,667 | 19.0 |
| 2011 | 143,464 | 2,632 | 18.3 |
| 2012 | 147,391 | | |

Source: Interannual Estimates, U.S. Census Bureau and Weldon Cooper Center, UVA, Births - Virginia Department of Health

Trends in Crude Birth Rates

Comparison with National and Regional Trends



| | Alexandria | Northern Virginia | United States |
|------|------------|-------------------|---------------|
| 1975 | 15.0 | 13.4 | 14.6 |
| 1976 | 15.1 | 13.4 | 14.5 |
| 1977 | 14.9 | 13.7 | 15.1 |
| 1978 | 13.3 | 13.7 | 15.0 |
| 1979 | 14.2 | 14.3 | 15.5 |
| 1980 | 13.9 | 14.8 | 15.9 |
| 1981 | 13.7 | 15.0 | 15.8 |
| 1982 | 13.7 | 15.3 | 15.9 |
| 1983 | 14.8 | 15.1 | 15.6 |
| 1984 | 14.4 | 15.2 | 15.6 |
| 1985 | 15.4 | 15.7 | 15.8 |
| 1986 | 15.5 | 15.4 | 15.6 |
| 1987 | 15.2 | 16.0 | 15.7 |
| 1988 | 15.3 | 16.1 | 16.0 |
| 1989 | 16.2 | 16.5 | 16.4 |
| 1990 | 17.5 | 16.6 | 16.7 |
| 1991 | 15.8 | 16.0 | 16.3 |
| 1992 | 16.3 | 15.7 | 15.9 |
| 1993 | 15.8 | 15.1 | 15.5 |
| 1994 | 13.6 | 15.4 | 15.2 |
| 1995 | 15.5 | 15.2 | 14.8 |
| 1996 | 17.8 | 15.5 | 14.7 |
| 1997 | 17.4 | 15.2 | 14.5 |
| 1998 | 17.1 | 15.5 | 14.6 |
| 1999 | 17.6 | 15.7 | 14.5 |
| 2000 | 19.0 | 16.5 | 14.4 |
| 2001 | 18.5 | 16.3 | 14.1 |
| 2002 | 16.9 | 16.1 | 14.0 |
| 2003 | 18.0 | 16.1 | 14.1 |
| 2004 | 18.4 | 16.6 | 14.0 |
| 2005 | 19.1 | 16.5 | 14.0 |
| 2006 | 19.1 | 16.3 | 14.3 |
| 2007 | 19.5 | 16.4 | 14.3 |
| 2008 | 19.5 | 15.9 | 14.0 |
| 2009 | 18.6 | 15.6 | 13.5 |
| 2010 | 19.0 | 15.1 | 12.9 |
| 2011 | 18.3 | 14.9 | 12.7 |

Crude Birth Rate Trend

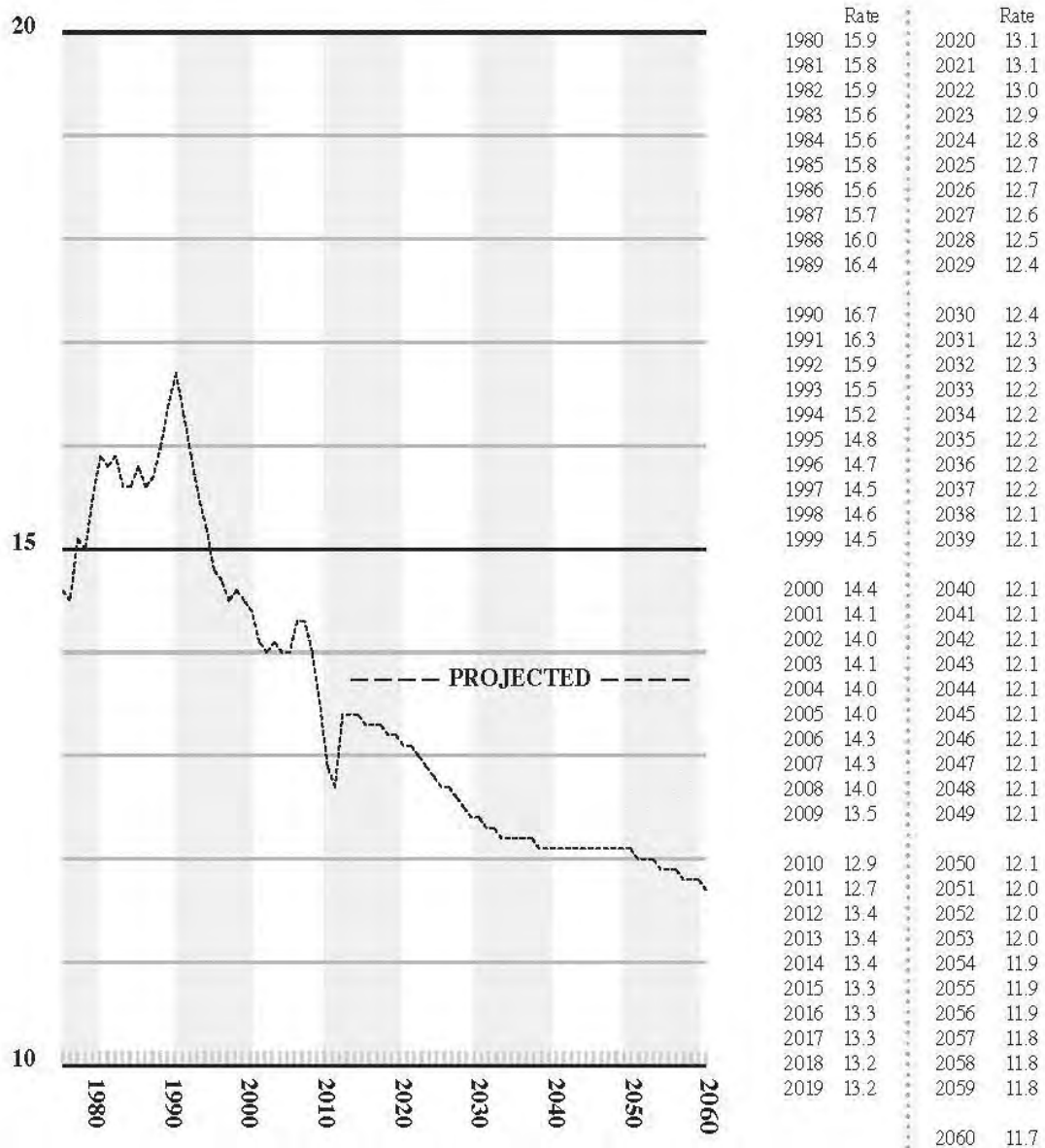
Neighboring Northern Virginia Counties and Cities

| | Alexandria | Arlington | City of Fairfax | Fairfax County | Falls Church | Loudoun County | Manassas | Manassas Park | Prince William County | Northern Virginia | U.S.A. |
|------|------------|-----------|-----------------|----------------|--------------|----------------|----------|---------------|-----------------------|-------------------|--------|
| 1975 | 15.0 | 11.0 | 12.6 | 12.3 | 9.3 | 15.9 | 10.4 | 6.6 | 19.4 | 13.4 | 14.6 |
| 1976 | 15.1 | 11.1 | 11.5 | 12.2 | 10.4 | 15.1 | 20.7 | 12.9 | 19.2 | 13.4 | 14.5 |
| 1977 | 14.9 | 11.0 | 12.7 | 12.6 | 11.7 | 15.2 | 18.8 | 17.5 | 19.1 | 13.7 | 15.1 |
| 1978 | 13.3 | 11.7 | 13.6 | 12.7 | 10.2 | 14.1 | 22.2 | 17.4 | 18.8 | 13.7 | 15.0 |
| 1979 | 14.2 | 12.3 | 16.6 | 13.4 | 12.5 | 15.1 | 23.9 | 16.4 | 18.5 | 14.3 | 15.5 |
| 1980 | 13.9 | 12.7 | 15.1 | 14.0 | 11.2 | 15.6 | 23.3 | 18.4 | 19.9 | 14.8 | 15.9 |
| 1981 | 13.7 | 12.7 | 18.6 | 14.1 | 12.4 | 15.4 | 23.4 | 19.8 | 20.2 | 15.0 | 15.8 |
| 1982 | 13.7 | 14.4 | 15.7 | 14.4 | 10.7 | 16.5 | 21.0 | 21.3 | 20.0 | 15.3 | 15.9 |
| 1983 | 14.8 | 13.9 | 15.6 | 14.3 | 12.0 | 15.6 | 23.4 | 19.1 | 18.5 | 15.1 | 15.6 |
| 1984 | 14.4 | 13.9 | 16.0 | 14.4 | 11.7 | 16.0 | 24.3 | 16.1 | 18.9 | 15.2 | 15.6 |
| 1985 | 15.4 | 14.9 | 16.0 | 14.8 | 12.2 | 18.2 | 23.4 | 20.9 | 18.9 | 15.7 | 15.8 |
| 1986 | 15.5 | 14.7 | 15.4 | 14.5 | 11.7 | 17.1 | 27.3 | 21.0 | 17.9 | 15.4 | 15.6 |
| 1987 | 15.2 | 15.2 | 14.5 | 14.9 | 12.4 | 18.3 | 20.7 | 20.4 | 20.1 | 16.0 | 15.7 |
| 1988 | 15.3 | 14.8 | 18.4 | 15.3 | 11.9 | 18.8 | 19.9 | 17.6 | 19.4 | 16.1 | 16.0 |
| 1989 | 16.2 | 15.1 | 14.6 | 15.6 | 12.9 | 18.7 | 22.4 | 21.3 | 20.1 | 16.5 | 16.4 |
| 1990 | 17.5 | 15.4 | 13.0 | 15.4 | 10.4 | 19.2 | 20.4 | 20.2 | 20.4 | 16.6 | 16.7 |
| 1991 | 15.8 | 13.8 | 15.1 | 15.3 | 11.1 | 18.4 | 19.1 | 21.5 | 19.6 | 16.0 | 16.3 |
| 1992 | 16.3 | 14.2 | 14.4 | 14.8 | 10.1 | 18.5 | 19.1 | 22.7 | 18.5 | 15.7 | 15.9 |
| 1993 | 15.8 | 14.0 | 15.0 | 14.2 | 10.3 | 17.5 | 18.8 | 19.5 | 17.7 | 15.1 | 15.5 |
| 1994 | 13.6 | 14.7 | 12.7 | 14.8 | 10.7 | 18.9 | 18.8 | 21.6 | 17.3 | 15.4 | 15.2 |
| 1995 | 15.5 | 14.4 | 12.9 | 14.4 | 9.8 | 18.5 | 19.4 | 18.3 | 16.6 | 15.2 | 14.8 |
| 1996 | 17.8 | 15.2 | 12.1 | 14.5 | 7.9 | 18.4 | 20.4 | 16.3 | 17.0 | 15.5 | 14.7 |
| 1997 | 17.4 | 14.2 | 11.8 | 14.0 | 11.0 | 18.6 | 19.5 | 17.5 | 17.2 | 15.2 | 14.5 |
| 1998 | 17.1 | 14.2 | 13.2 | 14.5 | 8.7 | 18.8 | 19.0 | 18.9 | 17.3 | 15.5 | 14.6 |
| 1999 | 17.6 | 13.7 | 13.1 | 14.7 | 11.8 | 18.8 | 19.6 | 20.5 | 17.1 | 15.7 | 14.5 |
| 2000 | 19.0 | 14.3 | 12.3 | 15.1 | 12.1 | 21.5 | 22.0 | 20.2 | 18.0 | 16.5 | 14.4 |
| 2001 | 18.5 | 14.8 | 12.1 | 14.9 | 8.3 | 20.3 | 19.2 | 19.3 | 18.3 | 16.3 | 14.1 |
| 2002 | 16.9 | 14.1 | 12.5 | 14.8 | 8.7 | 20.6 | 19.0 | 21.6 | 18.1 | 16.1 | 14.0 |
| 2003 | 18.0 | 14.1 | 14.5 | 14.6 | 11.7 | 20.2 | 18.9 | 18.9 | 18.4 | 16.1 | 14.1 |
| 2004 | 18.4 | 15.0 | 9.2 | 15.1 | 9.6 | 20.2 | 17.4 | 24.5 | 19.1 | 16.6 | 14.0 |
| 2005 | 19.1 | 15.0 | 11.0 | 14.7 | 11.1 | 20.2 | 18.8 | 22.2 | 18.9 | 16.5 | 14.0 |
| 2006 | 19.1 | 13.6 | 14.9 | 14.4 | 9.7 | 19.0 | 21.5 | 25.8 | 19.6 | 16.3 | 14.3 |
| 2007 | 19.5 | 14.6 | 17.7 | 14.9 | 11.3 | 18.4 | 18.8 | 18.5 | 18.5 | 16.4 | 14.3 |
| 2008 | 19.5 | 14.9 | 18.4 | 14.7 | 11.1 | 18.1 | 15.7 | - | 17.1 | 15.9 | 14.0 |
| 2009 | 18.6 | 14.5 | 16.4 | 14.6 | 12.9 | 16.6 | 15.8 | 16.7 | 17.0 | 15.6 | 13.5 |
| 2010 | 19.0 | 14.9 | 14.5 | 14.1 | 9.5 | 16.0 | 17.7 | 1.5 | 16.4 | 15.1 | 12.9 |
| 2011 | 18.3 | 14.2 | 21.7 | 13.8 | 11.8 | 15.3 | 18.5 | 4.5 | 16.1 | 14.9 | 12.7 |

Projected Crude Birth Trends

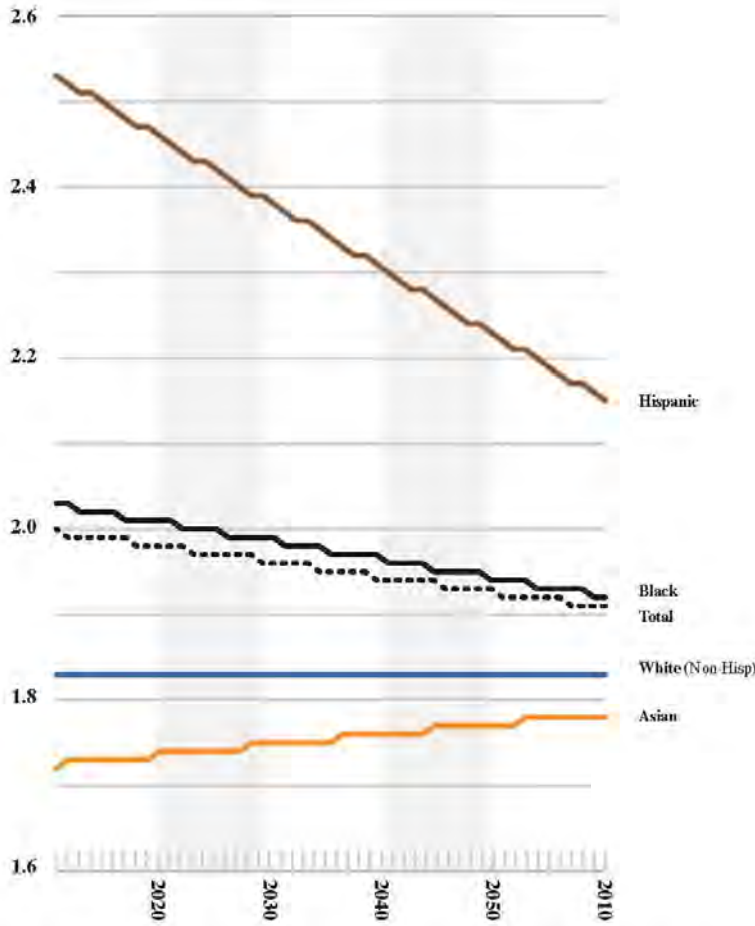
What Census Bureau is Projecting for the United States: 2012 to 2060

Crude Birth Rate (births per 1,000 population)



Projected Fertility Trends

What Census Bureau is Projecting for the United States: 2012 to 2060



Total Fertility Rate
(average number of births per woman)

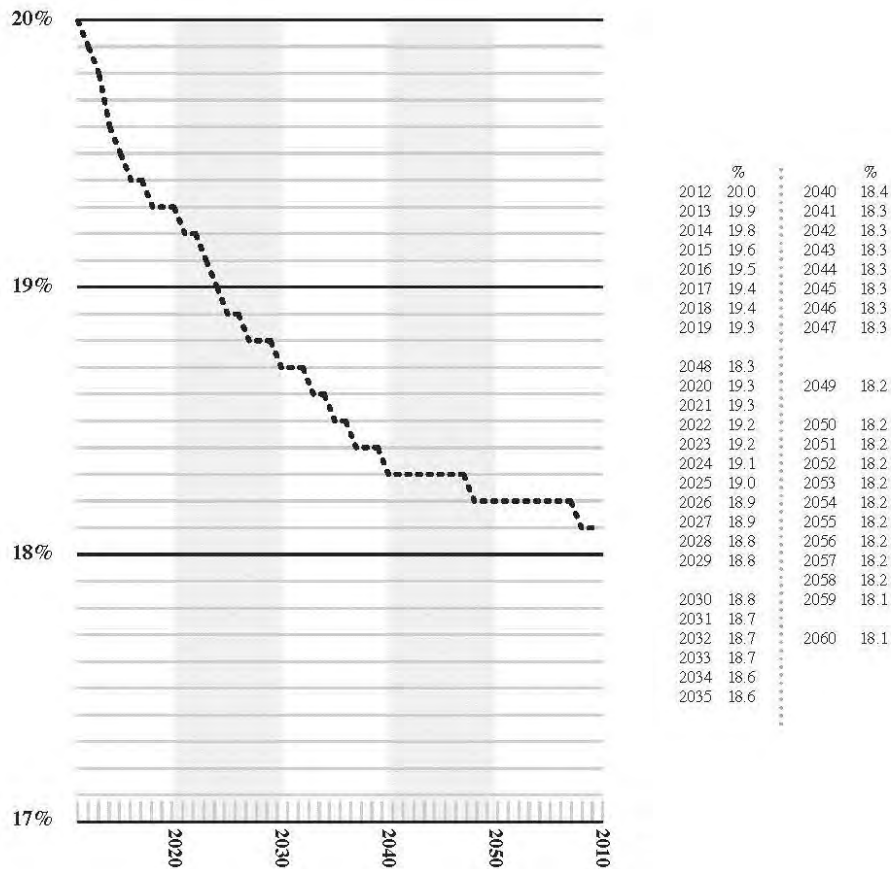
| | Total | White | Black | Asian | Hispanic |
|------|-------|-------|-------|-------|----------|
| 2012 | 2.00 | 1.83 | 2.03 | 1.72 | 2.53 |
| 2013 | 1.99 | 1.83 | 2.03 | 1.73 | 2.52 |
| 2014 | 1.99 | 1.83 | 2.02 | 1.73 | 2.51 |
| 2015 | 1.99 | 1.83 | 2.02 | 1.73 | 2.51 |
| 2016 | 1.99 | 1.83 | 2.02 | 1.73 | 2.50 |
| 2017 | 1.99 | 1.83 | 2.02 | 1.73 | 2.49 |
| 2018 | 1.99 | 1.83 | 2.01 | 1.73 | 2.48 |
| 2019 | 1.98 | 1.83 | 2.01 | 1.73 | 2.47 |
| 2020 | 1.98 | 1.83 | 2.01 | 1.73 | 2.47 |
| 2021 | 1.98 | 1.83 | 2.01 | 1.74 | 2.46 |
| 2022 | 1.98 | 1.83 | 2.01 | 1.74 | 2.45 |
| 2023 | 1.98 | 1.83 | 2.00 | 1.74 | 2.44 |
| 2024 | 1.97 | 1.83 | 2.00 | 1.74 | 2.43 |
| 2025 | 1.97 | 1.83 | 2.00 | 1.74 | 2.43 |
| 2026 | 1.97 | 1.83 | 2.00 | 1.74 | 2.42 |
| 2027 | 1.97 | 1.83 | 1.99 | 1.74 | 2.41 |
| 2028 | 1.97 | 1.83 | 1.99 | 1.74 | 2.40 |
| 2029 | 1.97 | 1.83 | 1.99 | 1.75 | 2.39 |
| 2030 | 1.96 | 1.83 | 1.99 | 1.75 | 2.39 |
| 2031 | 1.96 | 1.83 | 1.99 | 1.75 | 2.38 |
| 2032 | 1.96 | 1.83 | 1.98 | 1.75 | 2.37 |
| 2033 | 1.96 | 1.83 | 1.98 | 1.75 | 2.36 |
| 2034 | 1.96 | 1.83 | 1.98 | 1.75 | 2.36 |
| 2035 | 1.95 | 1.83 | 1.98 | 1.75 | 2.35 |
| 2036 | 1.95 | 1.83 | 1.97 | 1.75 | 2.34 |
| 2037 | 1.95 | 1.83 | 1.97 | 1.76 | 2.33 |
| 2038 | 1.95 | 1.83 | 1.97 | 1.76 | 2.32 |
| 2039 | 1.95 | 1.83 | 1.97 | 1.76 | 2.32 |
| 2040 | 1.94 | 1.83 | 1.97 | 1.76 | 2.31 |
| 2041 | 1.94 | 1.83 | 1.96 | 1.76 | 2.30 |
| 2042 | 1.94 | 1.83 | 1.96 | 1.76 | 2.29 |
| 2043 | 1.94 | 1.83 | 1.96 | 1.76 | 2.28 |
| 2044 | 1.94 | 1.83 | 1.96 | 1.76 | 2.28 |
| 2045 | 1.94 | 1.83 | 1.95 | 1.77 | 2.27 |
| 2046 | 1.93 | 1.83 | 1.95 | 1.77 | 2.26 |
| 2047 | 1.93 | 1.83 | 1.95 | 1.77 | 2.25 |
| 2048 | 1.93 | 1.83 | 1.95 | 1.77 | 2.24 |
| 2049 | 1.93 | 1.83 | 1.95 | 1.77 | 2.24 |
| 2050 | 1.93 | 1.83 | 1.94 | 1.77 | 2.23 |
| 2051 | 1.92 | 1.83 | 1.94 | 1.77 | 2.22 |
| 2052 | 1.92 | 1.83 | 1.94 | 1.77 | 2.21 |
| 2053 | 1.92 | 1.83 | 1.94 | 1.78 | 2.21 |
| 2054 | 1.92 | 1.83 | 1.93 | 1.78 | 2.20 |
| 2055 | 1.92 | 1.83 | 1.93 | 1.78 | 2.19 |
| 2056 | 1.92 | 1.83 | 1.93 | 1.78 | 2.18 |
| 2057 | 1.91 | 1.83 | 1.93 | 1.78 | 2.17 |
| 2058 | 1.91 | 1.83 | 1.93 | 1.78 | 2.17 |
| 2059 | 1.91 | 1.83 | 1.92 | 1.78 | 2.16 |
| 2060 | 1.91 | 1.83 | 1.92 | 1.78 | 2.15 |

Total fertility rate represents the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with current age-specific fertility rates.

Projected Trend in Relative Size of Female 15-44 Aged Cohort - Women in Child-Bearing Years

What Census Bureau is Projecting for United States: 2012 to 2060

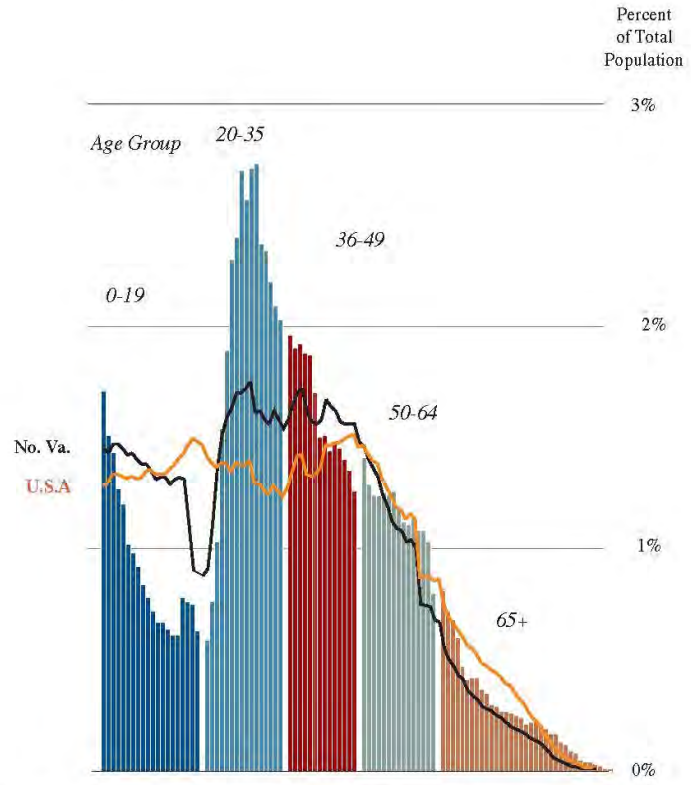
I. Percentage Share of Total U.S. Population



Age Structure of Alexandria's Population 2010

QUESTION:

With the baby-boom generation entering retirement years, the age structure of the population will be undergoing an historic reconfiguration. What impact, if any, could this demographic transition have on future birth and public school enrollment trends in the City?



| | 0-19 | 20-35 | 36-49 | 50-64 | 65+ | |
|-------------------|------|-------|-------|-------|-----|---------|
| Alexandria | 19 | 32 | 23 | 19 | 9 | |
| Northern Virginia | 27 | 24 | 23 | 17 | 9 | Percent |
| United States | 27 | 22 | 19 | 19 | 13 | |

Age Profiles of Alexandria and Arlington County Reflect Urban Character

INNER CORE

NORTHERN VIRGINIA

Arlington County

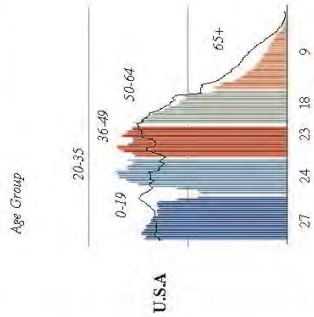
Alexandria

Falls Church

Fairfax County

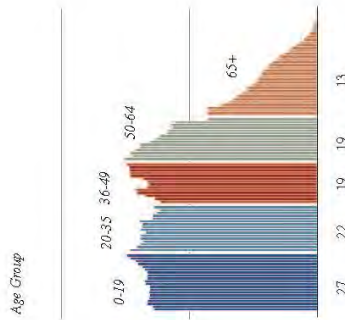
Prince William

Age Group



UNITED STATES

Age Group



U.S.A.

INNER SUBURBS City of Fairfax

Falls Church

Fairfax County

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Manassas Park

Prince William

Manassas

Characteristics of Alexandria's Female Population, aged 15-44

Size and Demographic Composition

2000 Census

| | Females (15-44) | Black | Asian | Hispanic | Non- Hispanic Whites | Minority | 2000 Population | Percent of Total Population |
|-----------------------|--------------------|-----------|-----------|-----------|-------------------------|------------|--------------------|-----------------------------------|
| Alexandria city | 35,352 | 8,339 | 2,289 | 5,266 | 18,192 | 17,160 | 128,283 | 27.6 |
| Arlington County | 49,847 | 4,795 | 5,137 | 9,467 | 28,960 | 20,887 | 189,453 | 26.3 |
| Fairfax city | 4,822 | 311 | 724 | 784 | 2,891 | 1,931 | 21,498 | 22.4 |
| Fairfax County | 219,668 | 22,268 | 33,231 | 28,004 | 129,490 | 90,178 | 969,749 | 22.7 |
| Falls Church city | 2,100 | 94 | 188 | 230 | 1,541 | 559 | 10,377 | 20.2 |
| Loudoun County | 41,543 | 2,959 | 2,620 | 2,702 | 32,508 | 9,035 | 169,599 | 24.5 |
| Manassas city | 8,359 | 1,128 | 308 | 1,260 | 5,497 | 2,862 | 35,135 | 23.8 |
| Manassas Park city | 2,605 | 308 | 128 | 377 | 1,736 | 869 | 10,290 | 25.3 |
| Prince William County | 68,403 | 14,375 | 3,057 | 6,886 | 42,302 | 26,101 | 280,813 | 24.4 |
| NORTHERN VIRGINIA | 432,699 | 54,577 | 47,682 | 54,976 | 263,117 | 169,582 | 1,815,197 | 23.8 |
| VIRGINIA | 1,589,080 | 339,281 | 72,121 | 84,528 | 1,063,947 | 525,133 | 7,078,515 | 22.4 |
| U.S.A. | 61,576,997 | 8,442,267 | 2,682,228 | 8,509,703 | 40,460,458 | 21,116,539 | 281,421,906 | 21.9 |

PERCENT - By Race/Ethnicity

| | | | | | |
|-----------------------|------|------|------|------|------|
| Alexandria city | 23.6 | 6.5 | 14.9 | 51.5 | 48.5 |
| Arlington County | 9.6 | 10.3 | 19.0 | 58.1 | 41.9 |
| Fairfax city | 6.4 | 15.0 | 16.3 | 60.0 | 40.0 |
| Fairfax County | 10.1 | 15.1 | 12.7 | 58.9 | 41.1 |
| Falls Church city | 4.5 | 9.0 | 11.0 | 73.4 | 26.6 |
| Loudoun County | 7.1 | 6.3 | 6.5 | 78.3 | 21.7 |
| Manassas city | 13.5 | 3.7 | 15.1 | 65.8 | 34.2 |
| Manassas Park city | 11.8 | 4.9 | 14.5 | 66.6 | 33.4 |
| Prince William County | 21.0 | 4.5 | 10.1 | 61.8 | 38.2 |
| NORTHERN VIRGINIA | 12.6 | 11.0 | 12.7 | 60.8 | 39.2 |
| VIRGINIA | 21.4 | 4.5 | 5.3 | 67.0 | 33.0 |
| VIRGINIA | 13.7 | 4.4 | 13.8 | 65.7 | 34.3 |

Characteristics of Alexandria's Female Population, aged 15-44

Size and Demographic Composition

2010 Census

| | Females (15-44) | Black | Asian | Hispanic | Non- Hispanic Whites | Minority | 2010 Population | Percent of Total Population |
|-----------------------|--------------------|-----------|-----------|------------|-------------------------|------------|--------------------|-----------------------------------|
| Alexandria city | 37,149 | 8,455 | 2,726 | 6,269 | 18,716 | 18,433 | 139,966 | 26.5 |
| Arlington County | 57,112 | 4,496 | 6,793 | 8,264 | 36,071 | 21,041 | 207,627 | 27.5 |
| Fairfax city | 4,533 | 249 | 838 | 883 | 2,417 | 2,116 | 22,565 | 20.1 |
| Fairfax County | 225,140 | 23,999 | 45,592 | 41,834 | 106,804 | 118,336 | 1,081,726 | 20.8 |
| Falls Church city | 2,419 | 134 | 305 | 280 | 1,623 | 796 | 12,332 | 19.6 |
| Loudoun County | 68,333 | 5,370 | 11,984 | 9,828 | 39,392 | 28,941 | 312,311 | 21.9 |
| Manassas city | 8,345 | 1,218 | 445 | 2,900 | 3,600 | 4,745 | 37,821 | 22.1 |
| Manassas Park city | 3,427 | 473 | 334 | 1,166 | 1,366 | 2,061 | 14,273 | 24.0 |
| Prince William County | 88,899 | 19,676 | 7,379 | 20,425 | 38,726 | 50,173 | 402,002 | 22.1 |
| NORTHERN VIRGINIA | 495,357 | 64,070 | 76,396 | 91,849 | 248,715 | 246,642 | 2,230,623 | 22.2 |
| VIRGINIA | 1,652,698 | 348,733 | 112,961 | 157,002 | 994,778 | 657,920 | 8,001,024 | 20.7 |
| U.S.A. | 62,374,964 | 8,888,036 | 3,624,440 | 11,786,165 | 36,427,835 | 25,947,129 | 308,745,538 | 20.2 |

PERCENT - By Race/Ethnicity

| | | | | | |
|-----------------------|------|------|------|------|------|
| Alexandria city | 22.8 | 7.3 | 16.9 | 50.4 | 49.6 |
| Arlington County | 7.9 | 11.9 | 14.5 | 63.2 | 36.8 |
| Fairfax city | 5.5 | 18.5 | 19.5 | 53.3 | 46.7 |
| Fairfax County | 10.7 | 20.3 | 18.6 | 47.4 | 52.6 |
| Falls Church city | 5.5 | 12.6 | 11.6 | 67.1 | 32.9 |
| Loudoun County | 7.9 | 17.5 | 14.4 | 57.6 | 42.4 |
| Manassas city | 14.6 | 5.3 | 34.8 | 43.1 | 56.9 |
| Manassas Park city | 13.8 | 9.7 | 34.0 | 39.9 | 60.1 |
| Prince William County | 22.1 | 8.3 | 23.0 | 43.6 | 56.4 |
| NORTHERN VIRGINIA | 12.9 | 15.4 | 18.5 | 50.2 | 49.8 |
| VIRGINIA | 21.1 | 6.8 | 9.5 | 60.2 | 39.8 |
| U.S.A. | 14.2 | 5.8 | 18.9 | 58.4 | 41.6 |

Change in Size and Demographic Composition - Alexandria's Female Population, aged 15-44

2000 to 2010

Numerical Change

| | Females (15-44) | Black | Asian | Hispanic | Non- Hispanic Whites | Minority | Total Population | As a Percent of Total Population |
|-----------------------|--------------------|---------|---------|-----------|-------------------------|-----------|---------------------|--|
| Alexandria city | 1,797 | 116 | 437 | 1,003 | 524 | 1,273 | 11,683 | 1.0 |
| Arlington County | 7,265 | 299 | 1,656 | 1,203 | 7,111 | 154 | 18,174 | 1.2 |
| Fairfax city | 289 | 62 | 114 | 99 | 474 | 185 | 1,067 | 2.3 |
| Fairfax County | 5,472 | 1,731 | 12,361 | 13,830 | 22,686 | 28,158 | 111,977 | 1.8 |
| Falls Church city | 319 | 40 | 117 | 50 | 82 | 237 | 1,955 | 0.6 |
| Loudoun County | 26,790 | 2,411 | 9,364 | 7,126 | 6,884 | 19,906 | 142,712 | 2.6 |
| Manassas city | 14 | 90 | 137 | 1,640 | 1,897 | 1,883 | 2,686 | 1.7 |
| Manassas Park city | 822 | 165 | 206 | 789 | 370 | 1,192 | 3,983 | 1.3 |
| Prince William County | 20,496 | 5,301 | 4,322 | 13,539 | 3,576 | 24,072 | 121,189 | 2.2 |
| NORTHERN VIRGINIA | 62,658 | 9,493 | 28,714 | 36,873 | 14,402 | 77,060 | 415,426 | 1.6 |
| VIRGINIA | 63,618 | 9,452 | 40,840 | 72,474 | 69,169 | 132,787 | 922,509 | 1.8 |
| U.S.A. | 797,967 | 445,769 | 942,212 | 3,276,462 | 4,032,623 | 4,830,590 | 27,323,632 | 1.7 |

Change in PERCENT - By Race/Ethnicity

| | | | | | |
|-----------------------|-----|------|------|------|------|
| Alexandria city | 0.8 | 0.9 | 2.0 | 1.1 | 1.1 |
| Arlington County | 1.7 | 1.6 | 4.5 | 5.1 | 5.1 |
| Fairfax city | 1.0 | 3.5 | 3.2 | 6.6 | 6.6 |
| Fairfax County | 0.5 | 5.1 | 5.8 | 11.5 | 11.5 |
| Falls Church city | 1.1 | 3.7 | 0.6 | 6.3 | 6.3 |
| Loudoun County | 0.7 | 11.2 | 7.9 | 20.6 | 20.6 |
| Manassas city | 1.1 | 1.6 | 19.7 | 22.6 | 22.6 |
| Manassas Park city | 2.0 | 4.8 | 19.6 | 26.8 | 26.8 |
| Prince William County | 1.1 | 3.8 | 12.9 | 18.3 | 18.3 |
| NORTHERN VIRGINIA | 0.3 | 4.4 | 5.8 | 10.6 | 10.6 |
| VIRGINIA | 0.2 | 2.3 | 4.2 | 6.8 | 6.8 |
| U.S.A. | 0.5 | 1.5 | 5.1 | 7.3 | 7.3 |

APPENDIX E

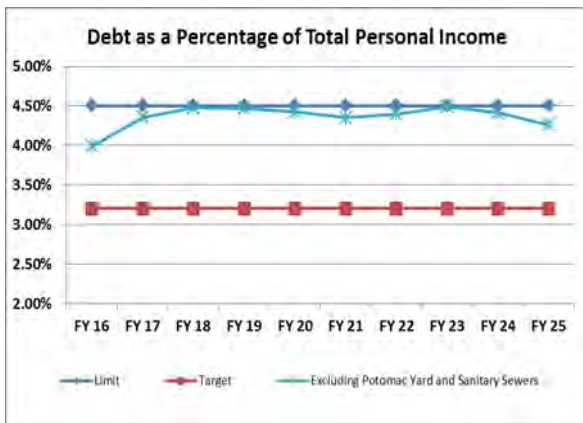
DEBT SERVICE RATIOS

DEBT SERVICE RATIOS

The following ratios represent the General Fund, or tax rate supported portion of debt issued by the City for city-wide capital needs. ¹These ratios are based on the City Council Approved FY 2016 – 2025 CIP.

Debt as a Percentage of Total Personal Income

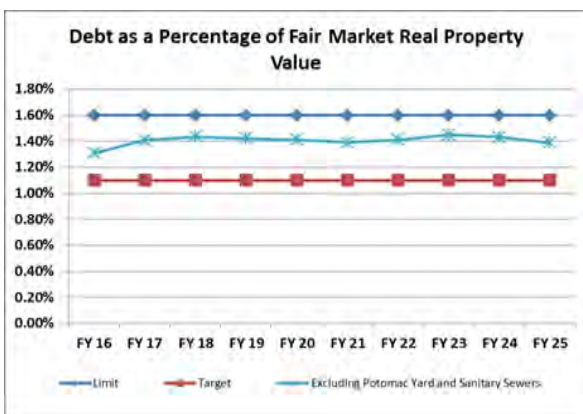
Target = 3.2 percent; Limit = 4.5 percent; FY 2016 = 3.99 percent



This percentage is a measure of the capacity of citizens to finance tax-supported debt. A lower percentage means that taxes required to repay debt represent a smaller portion of the average citizen’s income. Based on the City Council Approved FY 2016 - 2025 CIP, and existing debt policy guidelines there is little capacity for additional borrowing in the ten-year plan, as the debt ratio bumps up against the limit in fiscal years 2018, 2019, and 2023.

Debt as a Percentage of Fair Market Real Property Value

Target = 1.1 percent; Limit = 1.6 percent; FY 2016 = 1.31 percent

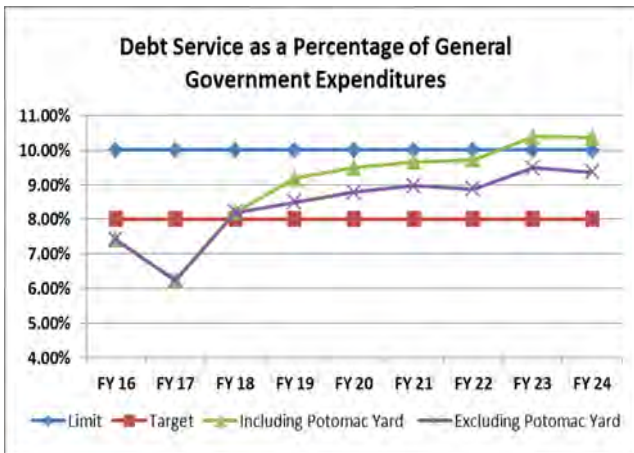


This ratio indicates the relationship between the City’s debt and the full value of real property in the City as assessed annually at fair market value. It is an important indicator of the City’s ability to repay debt because real property taxes are the primary source of the City’s revenues used to repay debt. A small ratio is an indication that the City will be better able to withstand possible future economic downturns and continue to meet its debt obligations. Based on the City Council Approved FY 2016 - 2025 CIP, this ratio is over its target and near its limit for all fiscal years.

¹The analysis of debt ratios excludes both Sanitary Sewer and Potomac Yard debt service. Sanitary Sewer debt service is paid through the fee-funded Sanitary Sewer Fund, while Potomac Yard debt service is paid from Special Tax District revenues, incremental property value growth in Potomac Yard, and development contributions.

Debt Service as a Percentage of General Government Expenditures

Target = 8.0 percent; Limit = 10.0 percent; FY 2016 = 7.41 percent



This ratio is a measure of the City's ability to repay debt without hampering other City services. A small ratio indicates a lesser burden on the City's operating budget. There is an important distinction in this ratio that is referring to General Government expenditures, and not General Fund expenditures. Based on the City Council Approved FY 2016 - 2025 CIP, this ratio is projected to be near its target in the next three years and nearly reaches its limit by FY 2024.

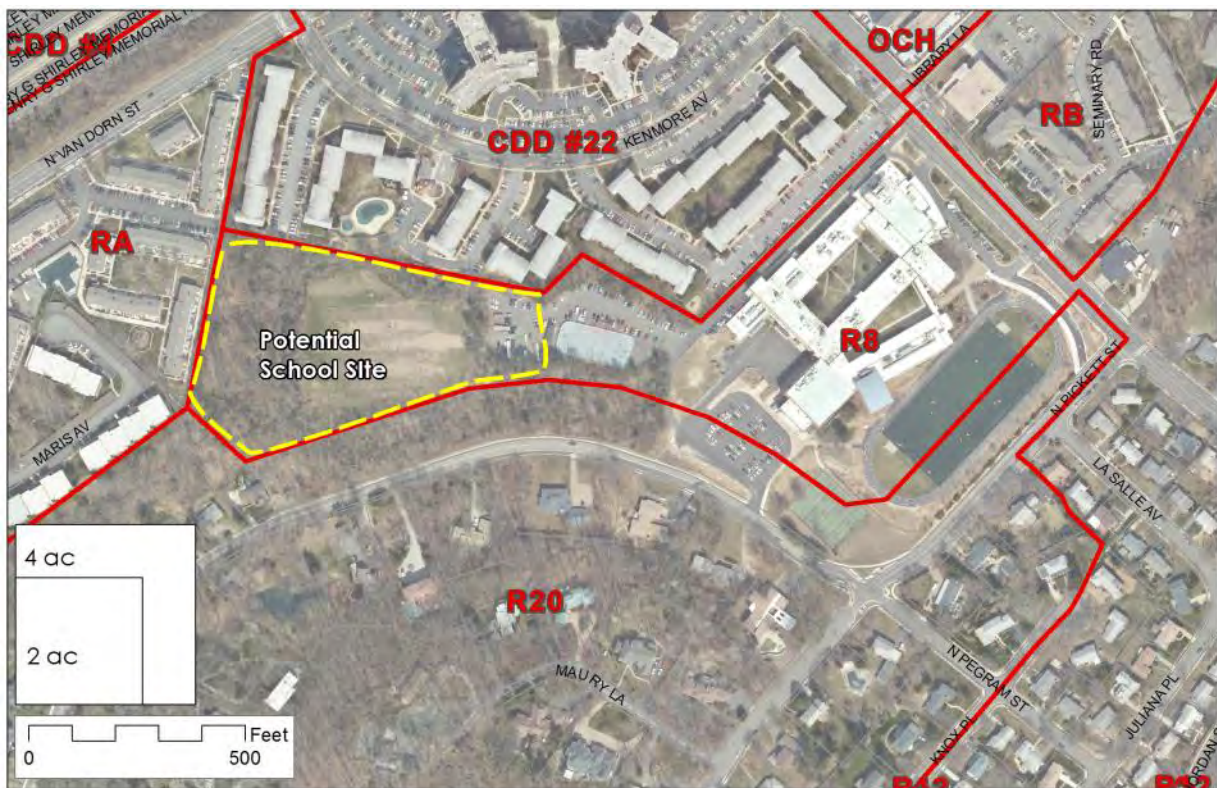
APPENDIX F REFERENCE MAPS

The maps in this section show potential areas or sites for development of new schools, followed by zoning maps for all existing schools.

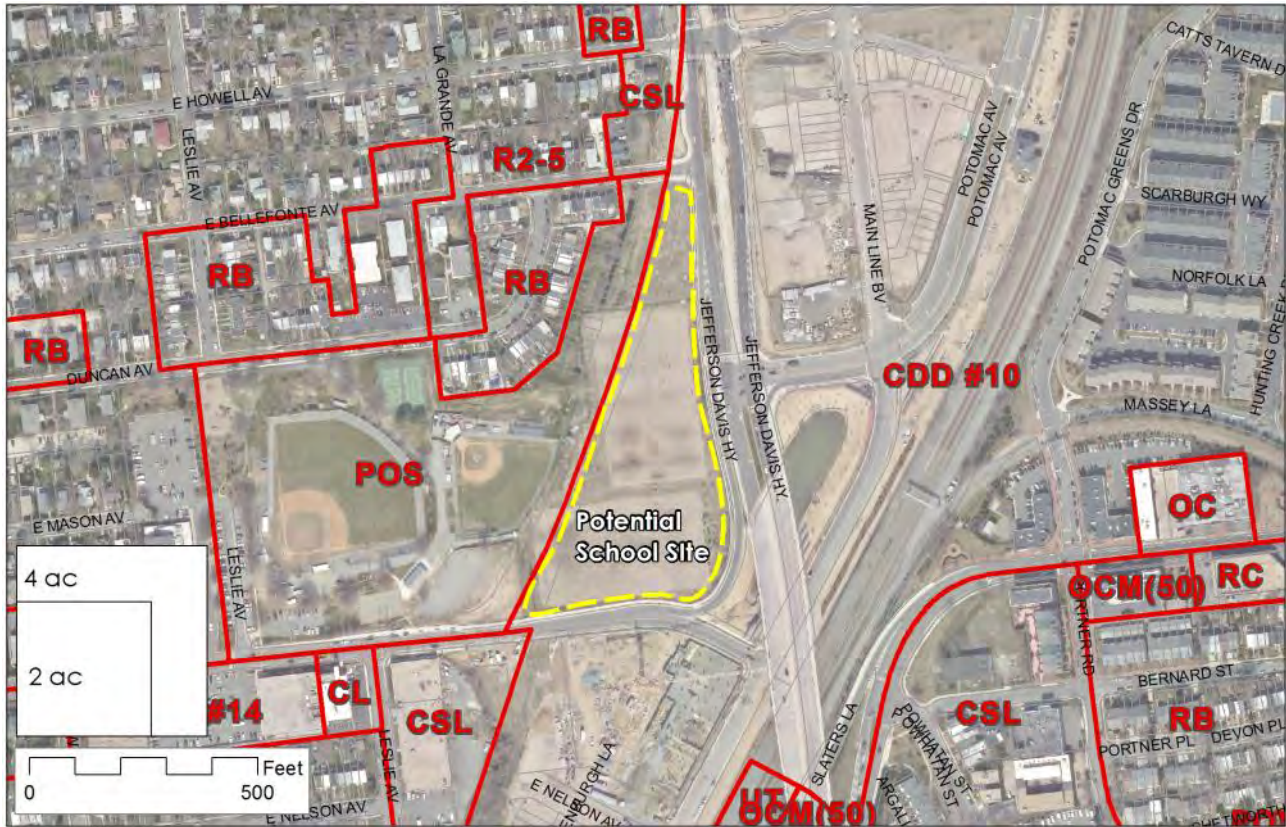
In maps showing potential new school sites or areas, outlines of zoning districts are shown on aerial photos that illustrate development of the sites in 2013.

Each diagram shows an area scale indicating two acres and four acres. A two-acre site is the approximate requirement for an urban elementary school in a three-story building with minimal access and parking, with minimal outdoor play space. For such a site, the school needs to be in close proximity to a park that provides open space suitable for outdoor exercise and physical education. A four-acre site is sufficient to provide both the school building and some outdoor recreation space. The Lyles-Crouch Traditional Academy is located on a site almost exactly two acres in size, and has a current capacity of 375 students, a little less than half the capacity of the largest elementary school prototype in the ACPS educational specifications.

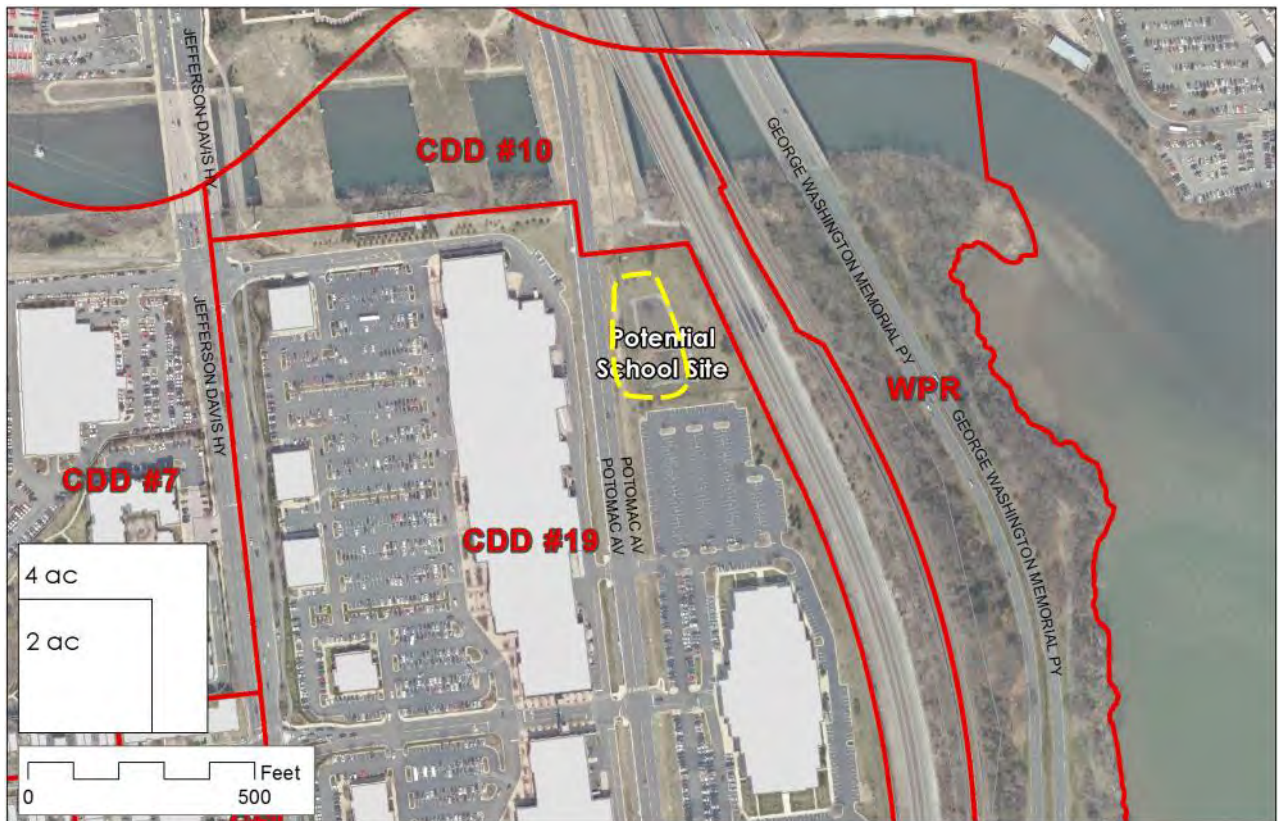
Some of these locations would be suitable for development of a school as part of a mixed-use development including office, flex commercial, residential, public or other uses compatible with a school.



The Francis Hammond lower field provides a potential location for an additional school on this site. The site could be used either for an elementary school or for a new middle school.

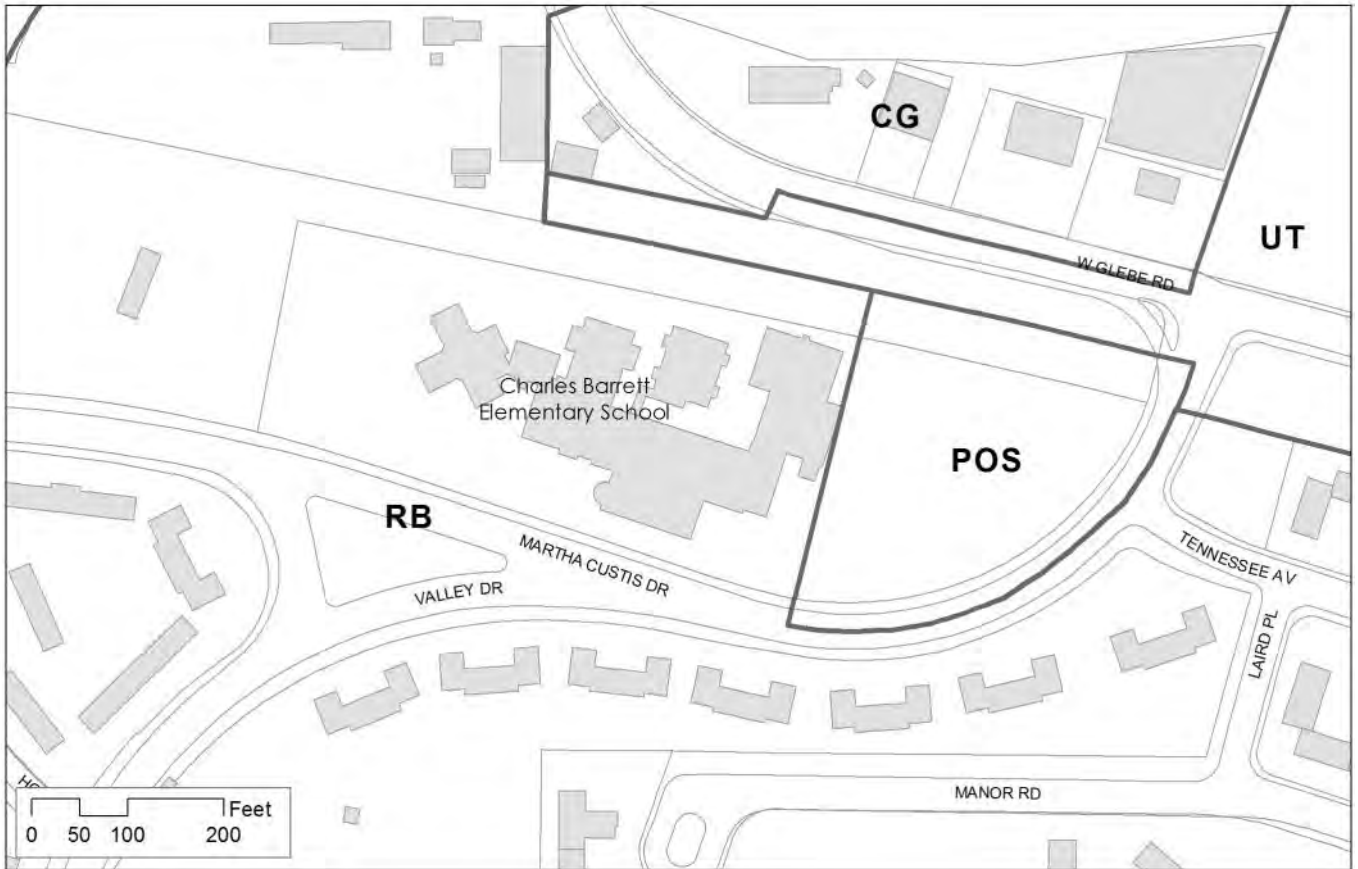


A site adjacent to Simpson Fields was set aside in the Potomac Yard/Potomac Greens Small Area Plan as a school site.

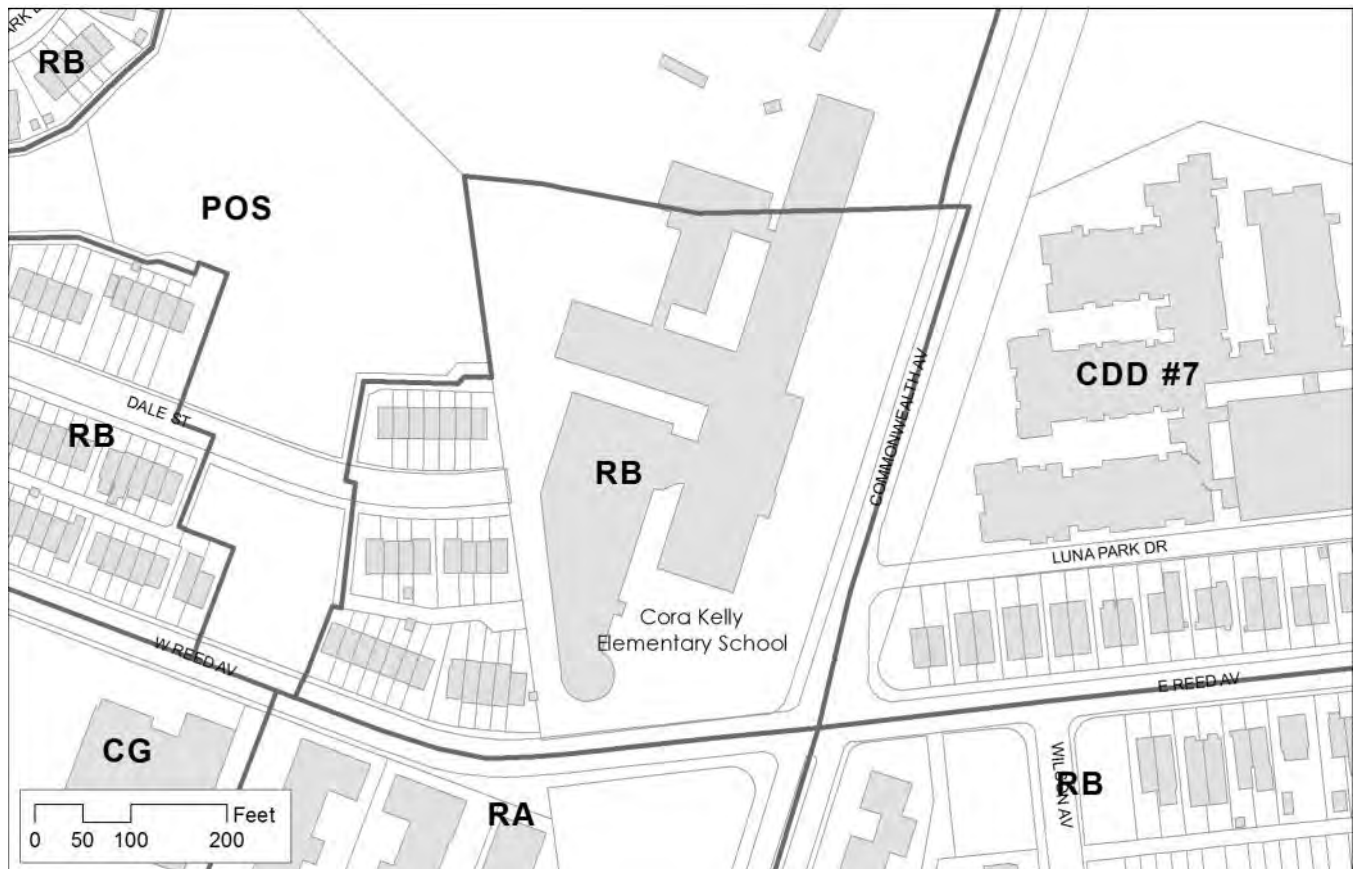


A site for a public facility was set aside in the North Potomac Yard Plan adjacent to a future park site. The site is less than one acre in area, and may not be practical to use for a full-sized elementary school. It could be used for a small special academy.

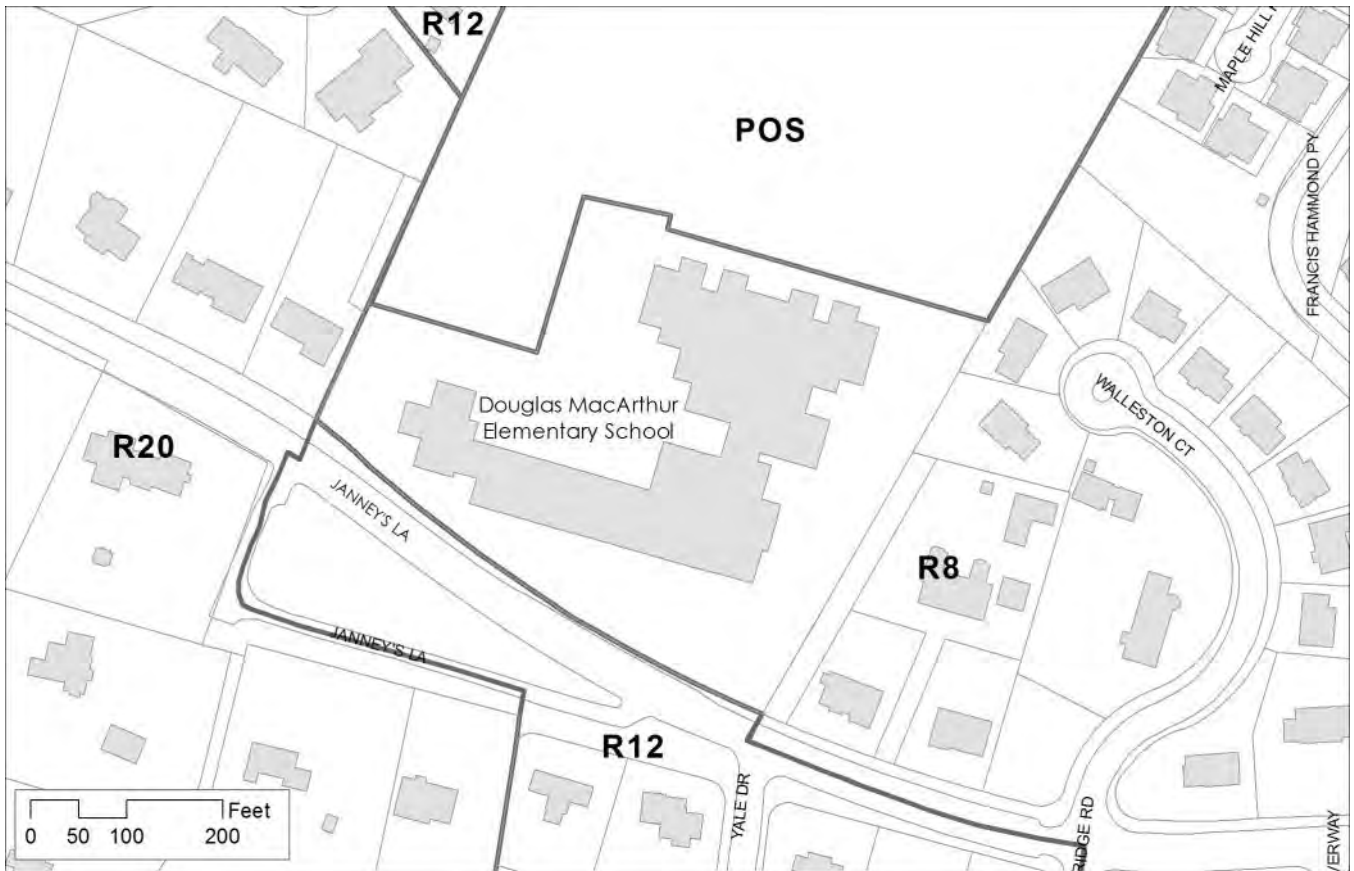
Zoning Map, Charles Barrett Elementary School,



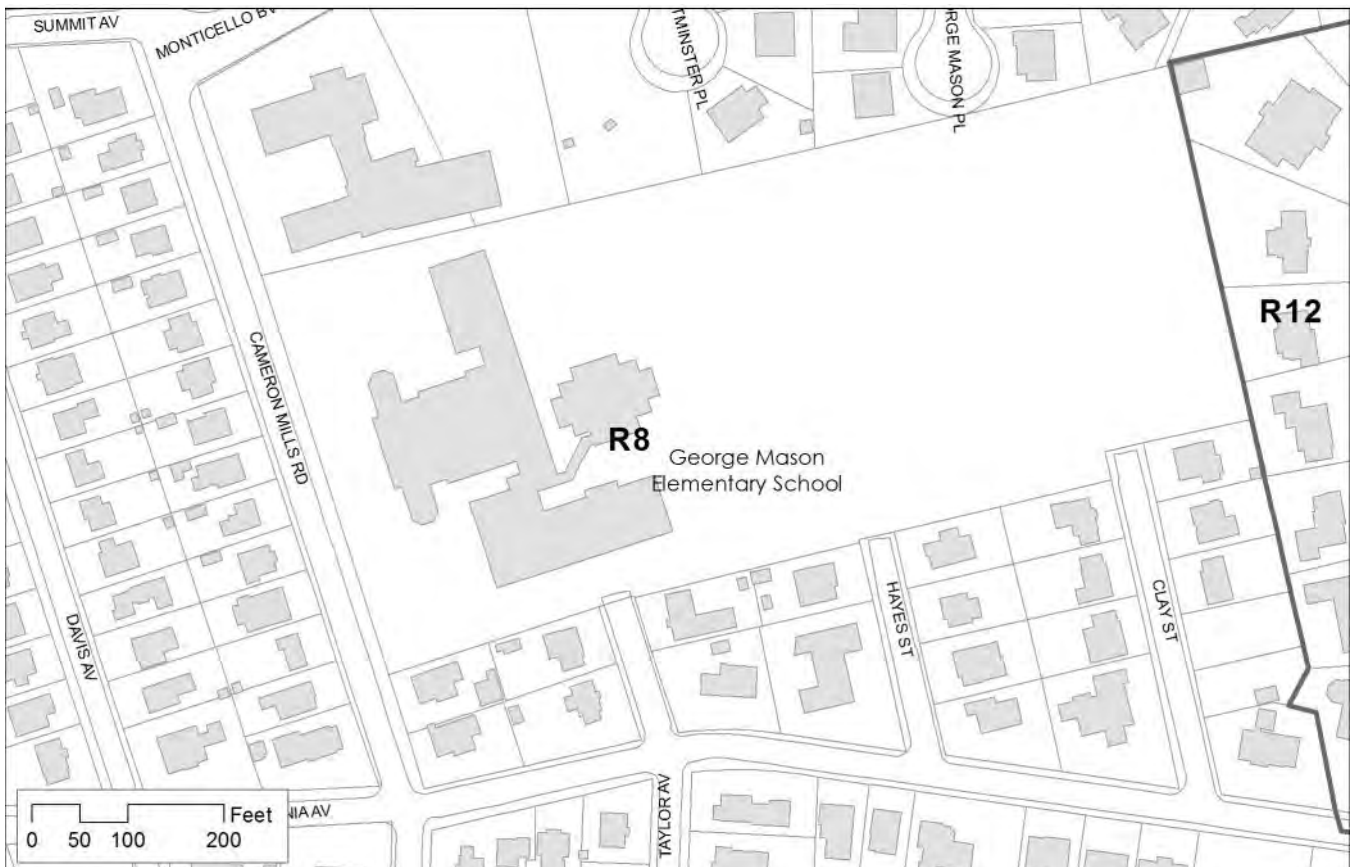
Zoning Map, Cora Kelly Elementary School



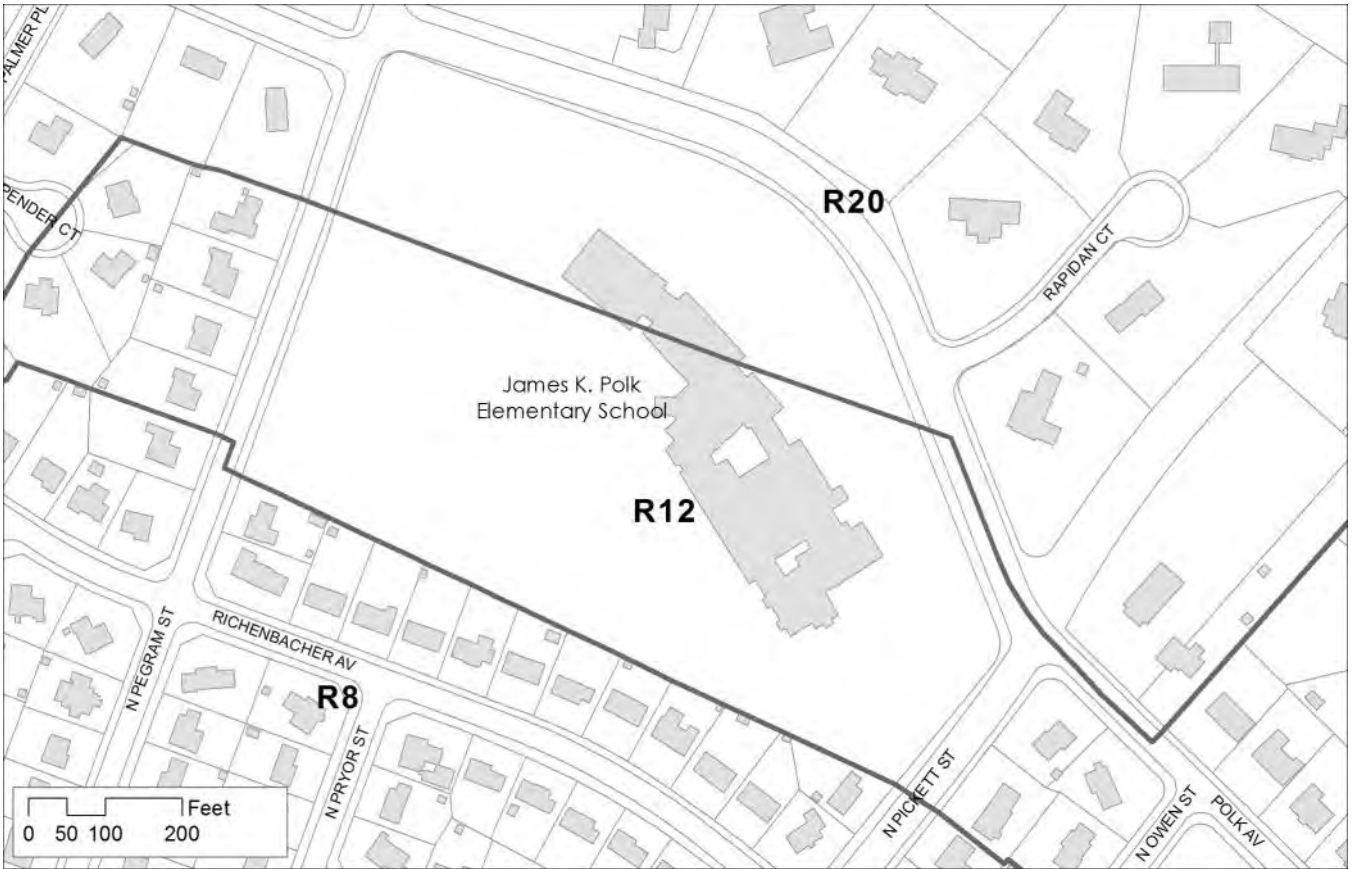
Zoning Map, Douglas MacArthur Elementary School



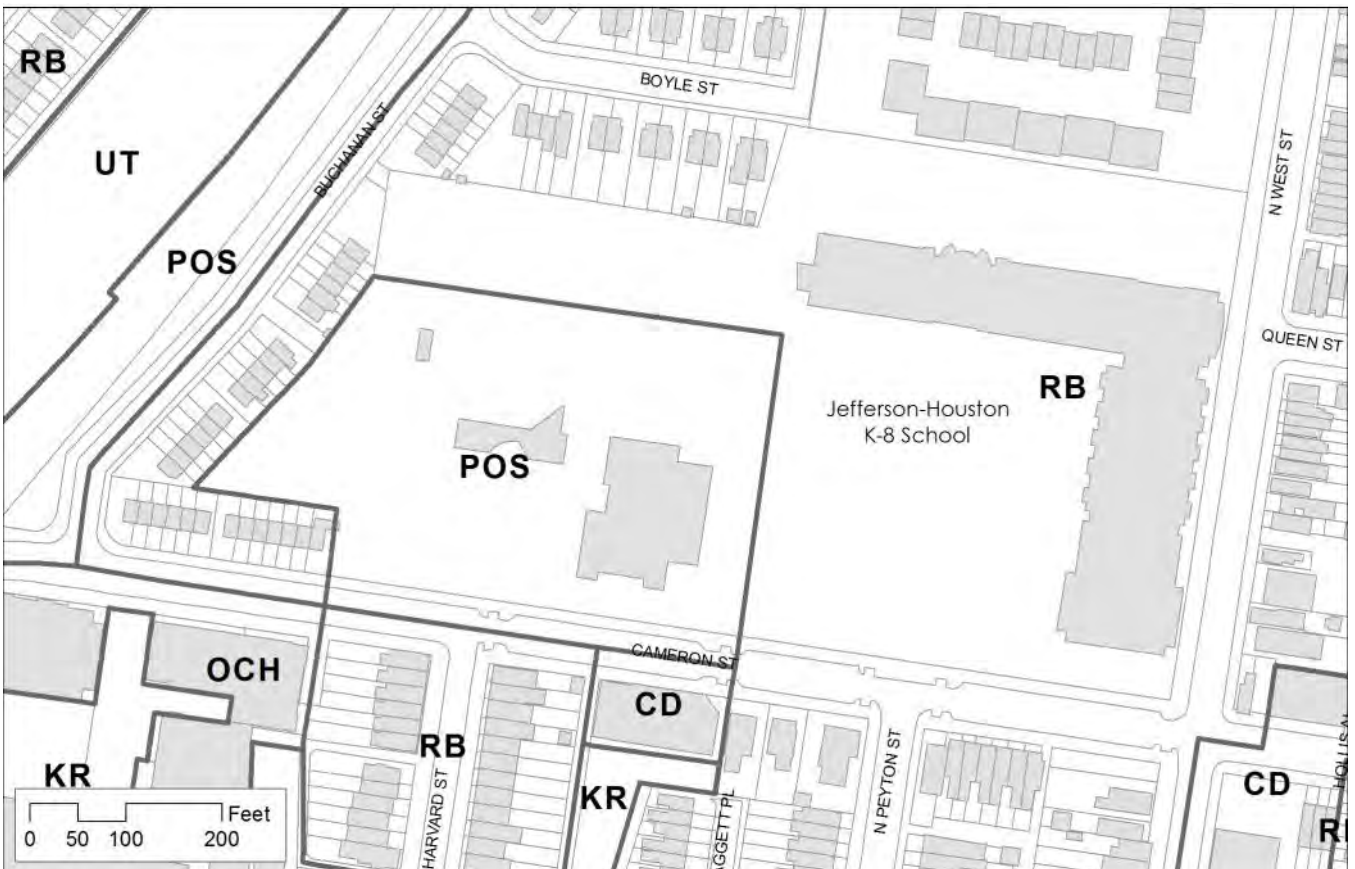
Zoning Map, George Mason Elementary School



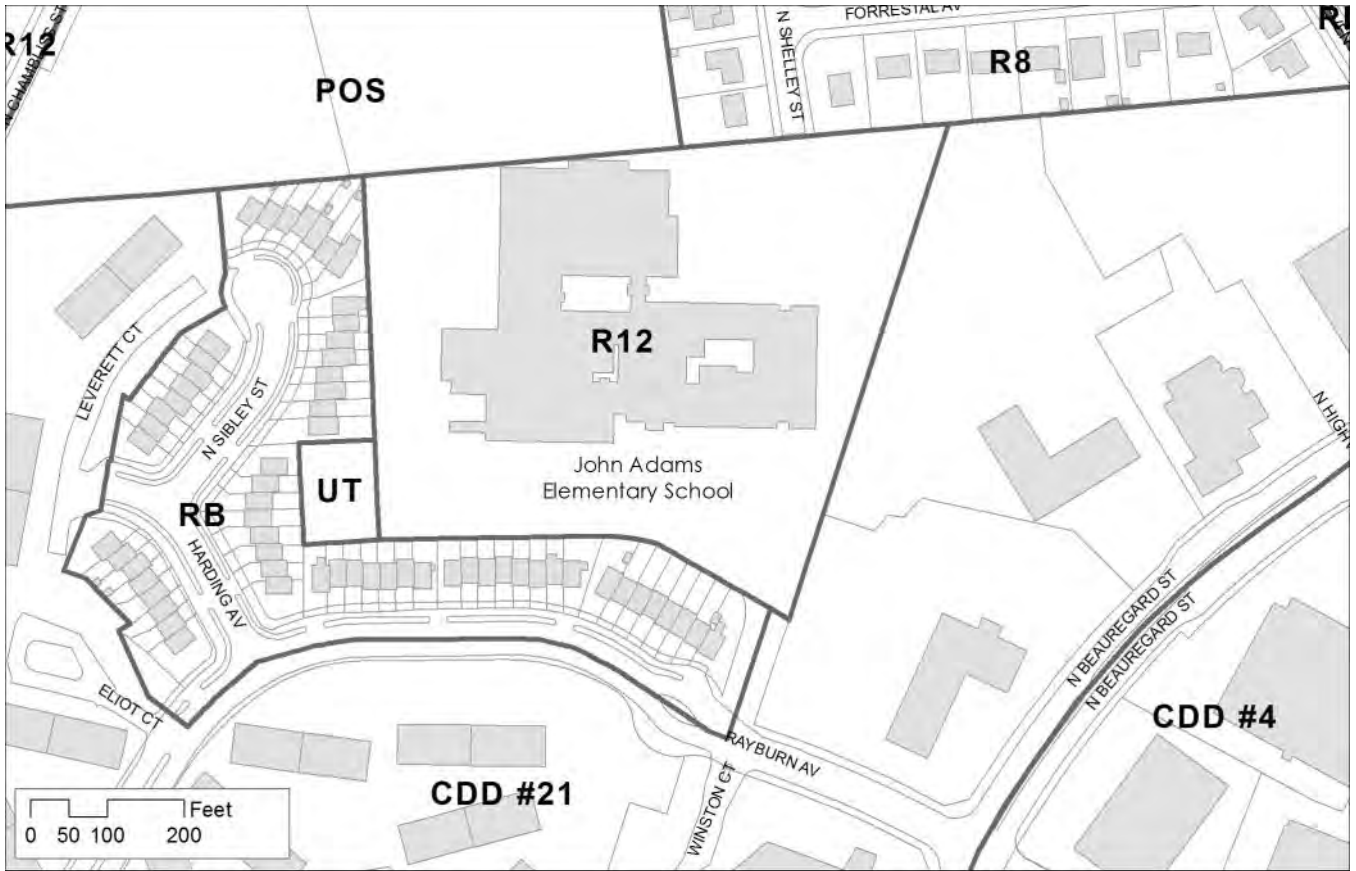
Zoning Map, James K. Polk Elementary School



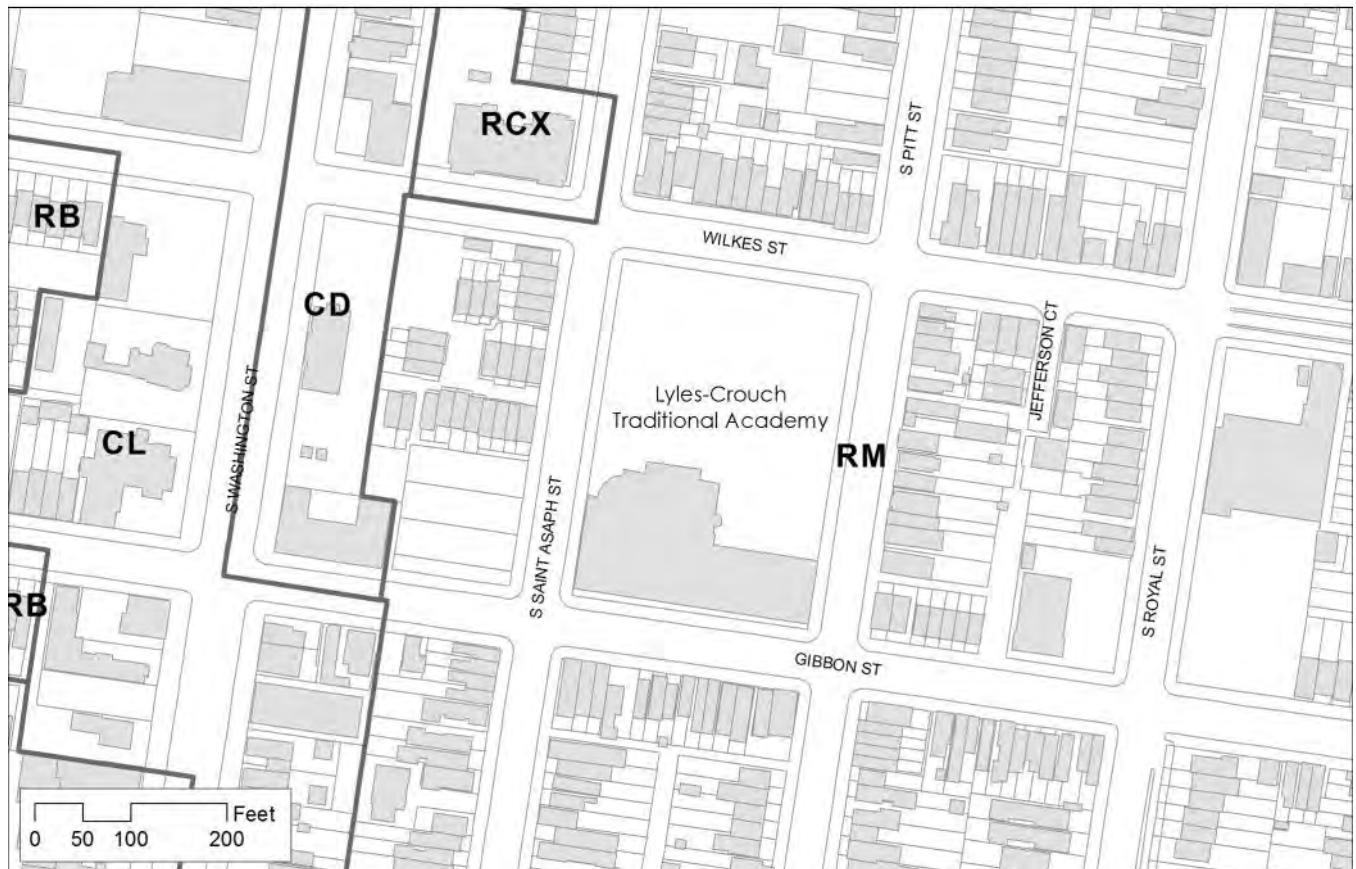
Zoning Map, Jefferson-Houston K-8 School



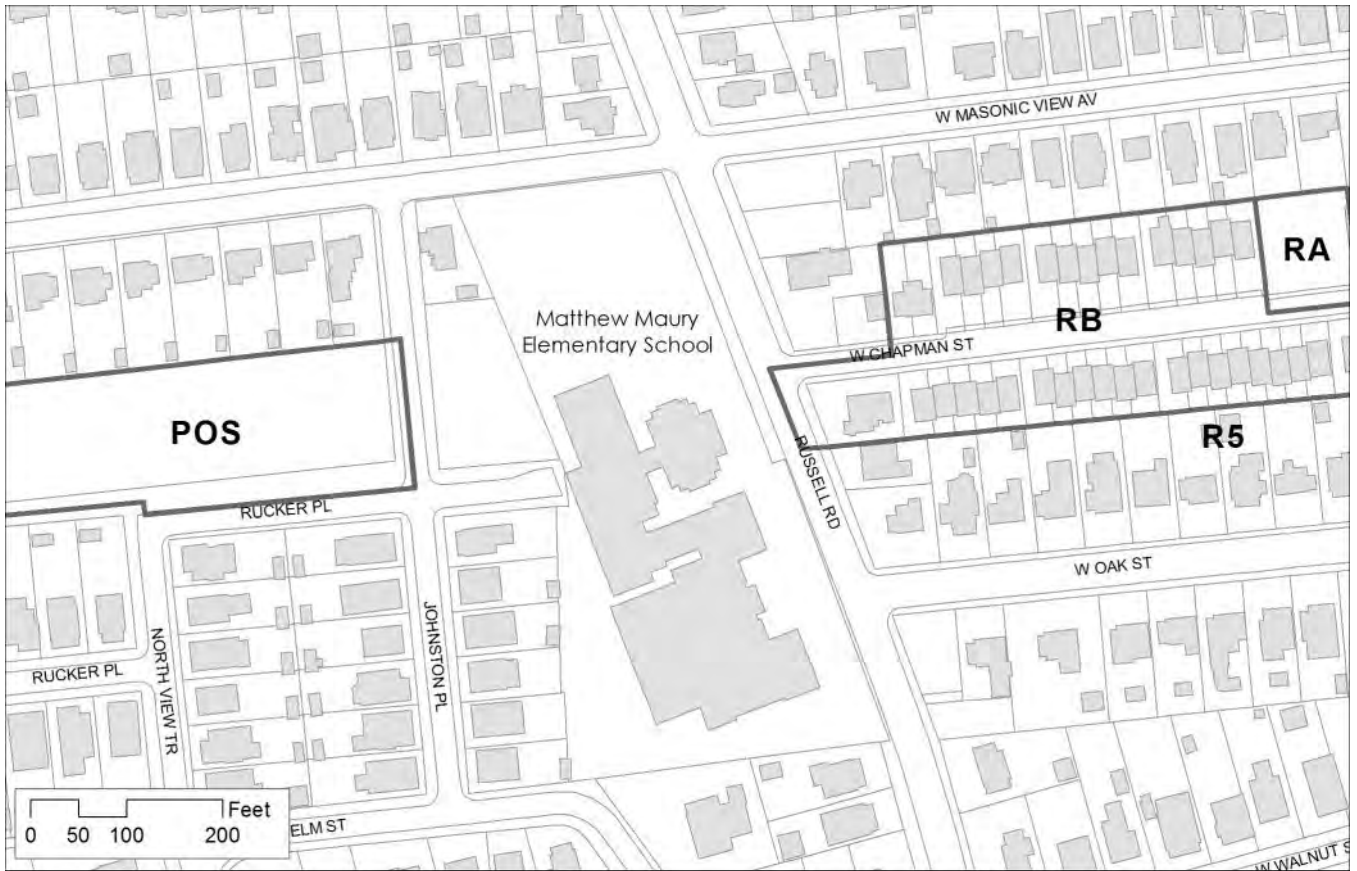
Zoning Map, John Adams Elementary School



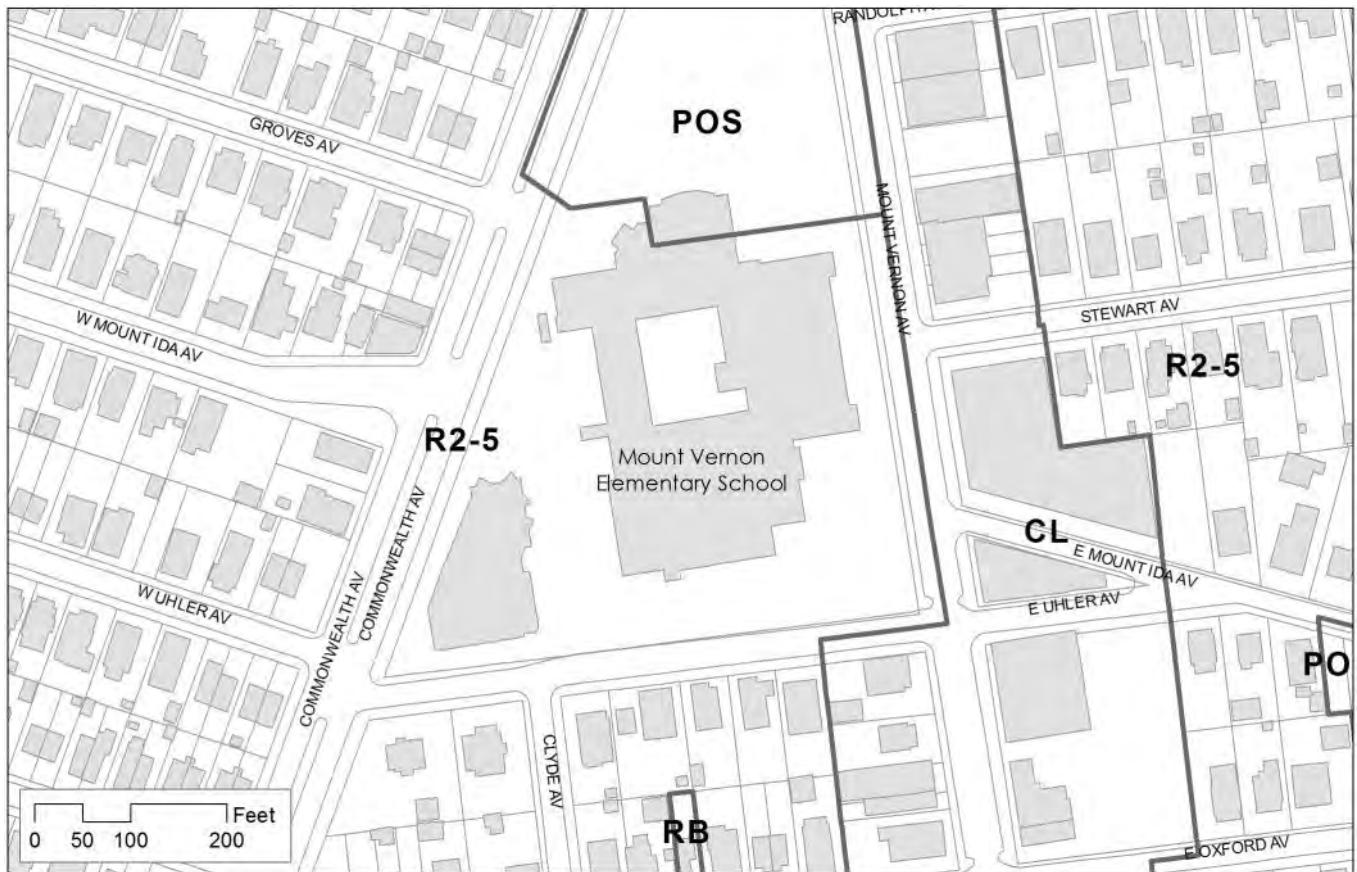
Zoning Map, Lyles-Crouch Traditional Academy



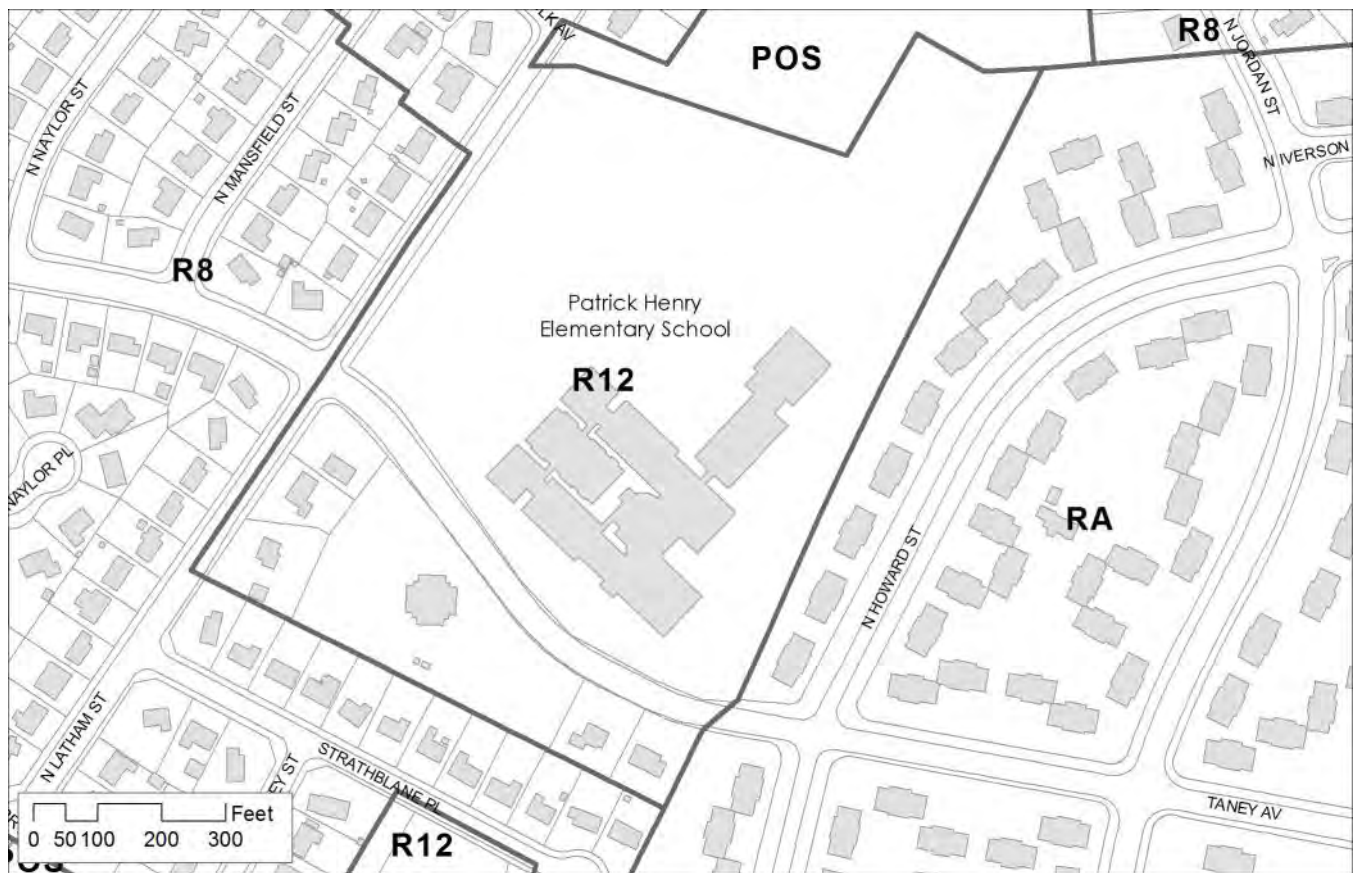
Zoning Map Matthew Maury Elementary School



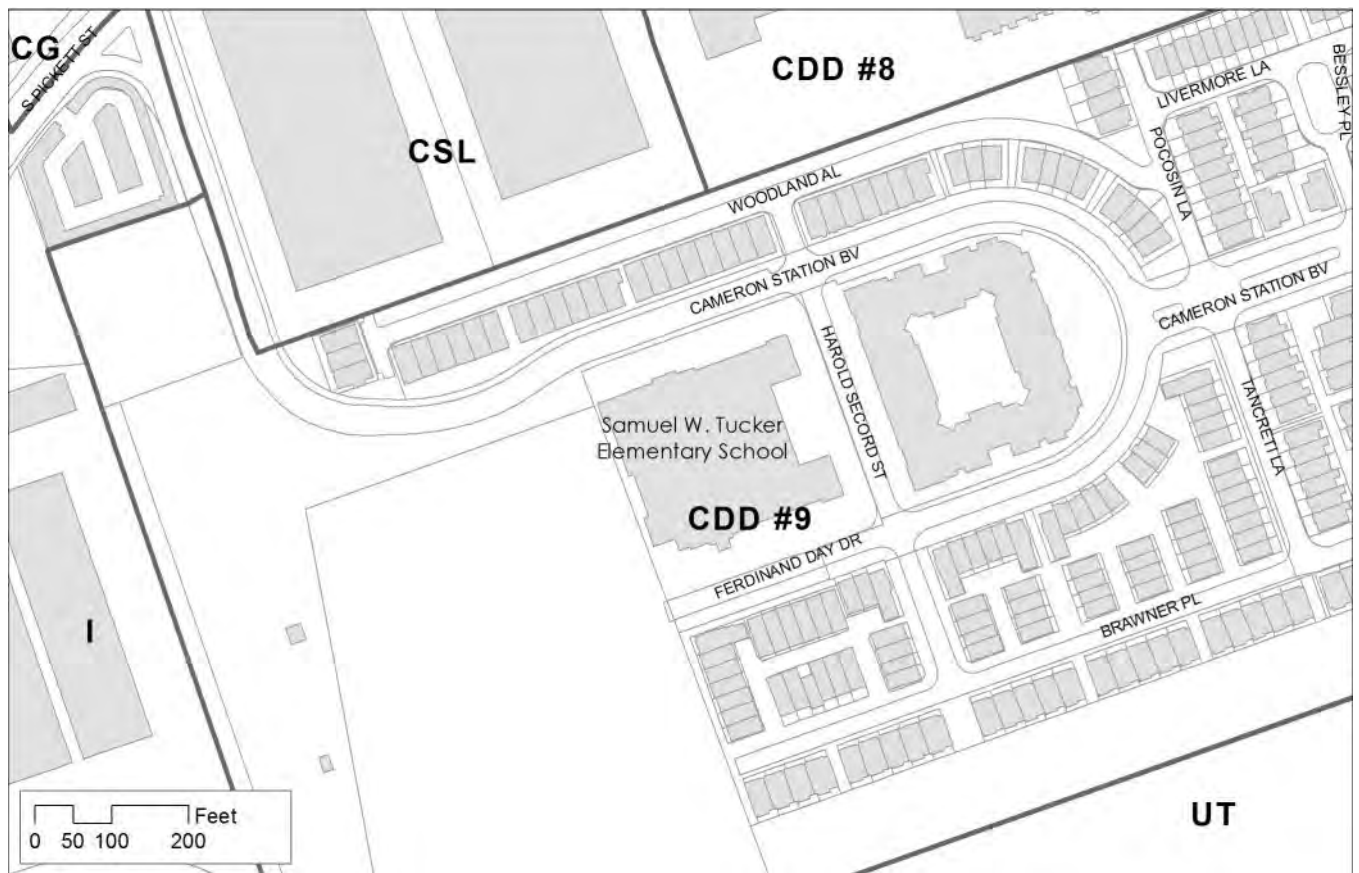
Zoning Map, Mount Vernon Elementary School



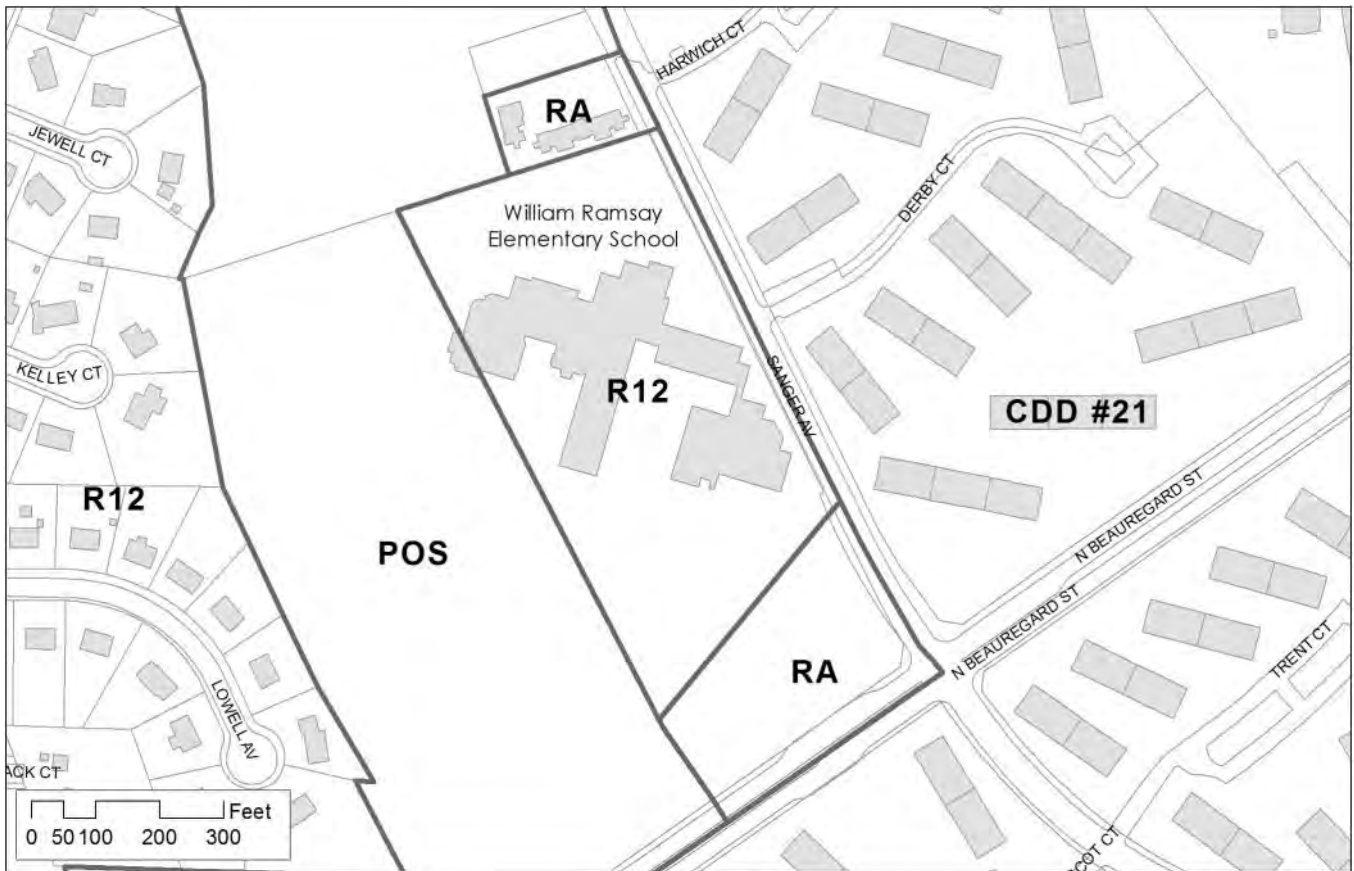
Zoning Map, Patrick Henry Elementary School



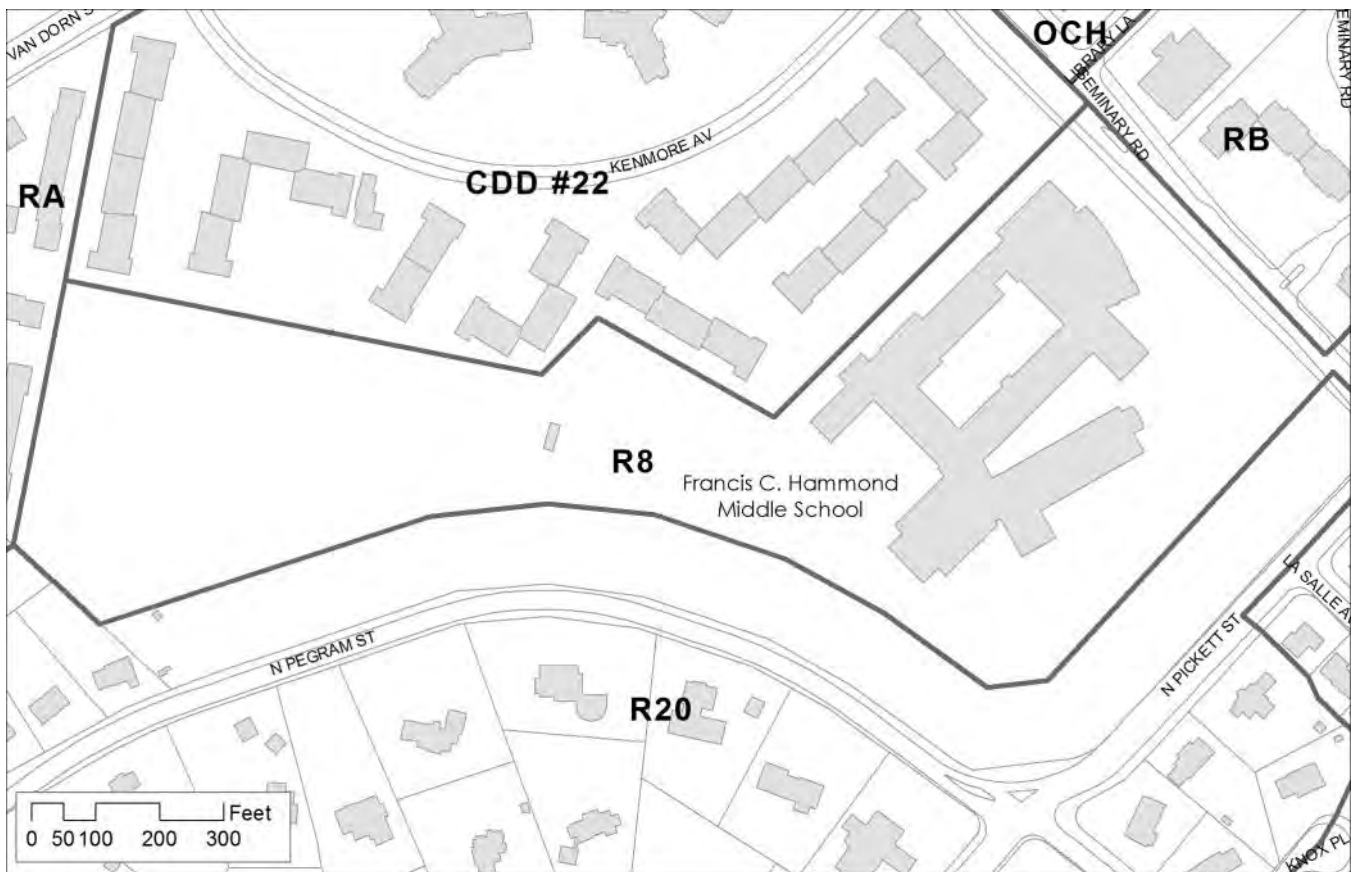
Zoning Map, Samuel W. Tucker Elementary School



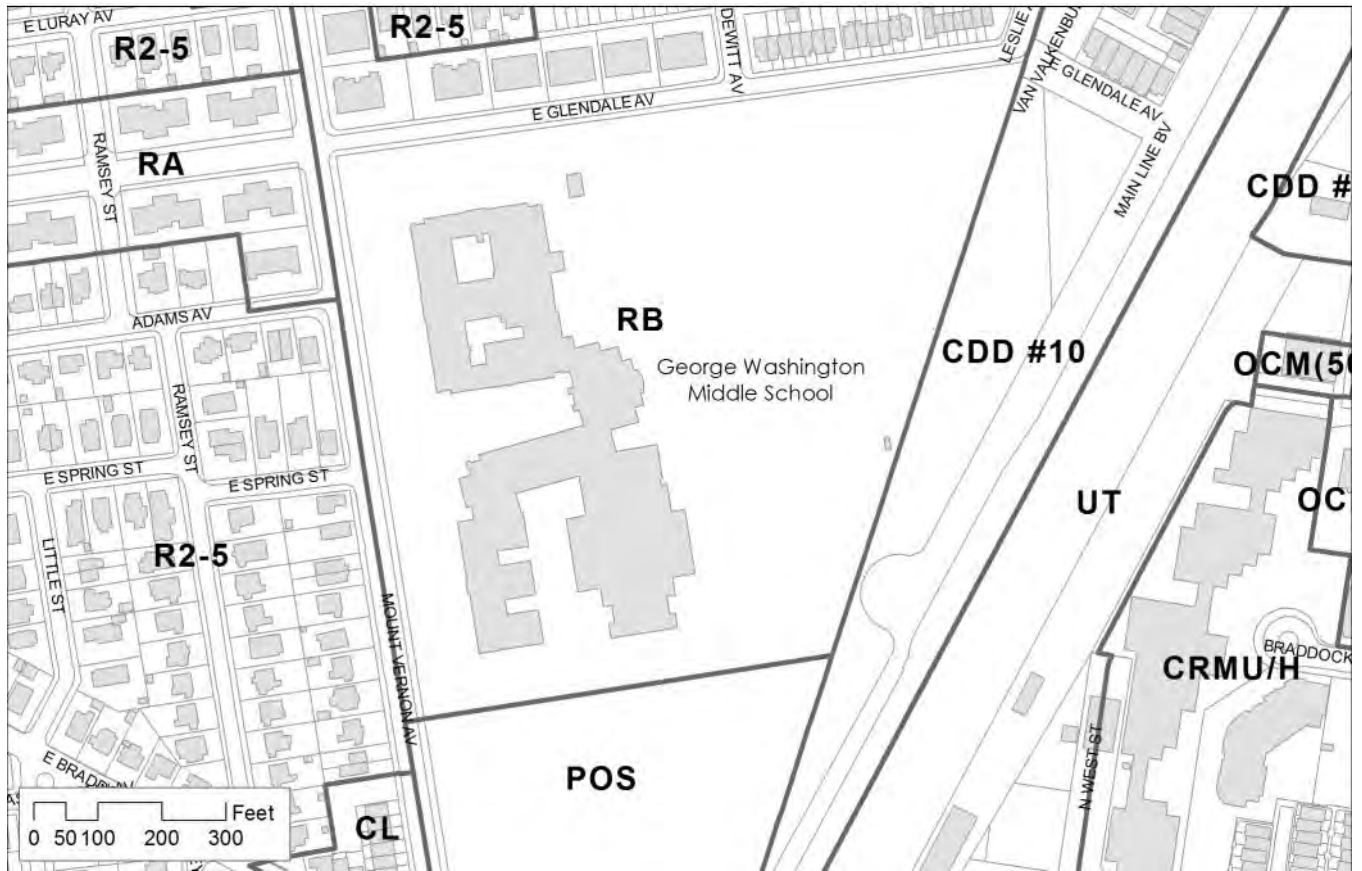
Zoning Map, William Ramsay Elementary School



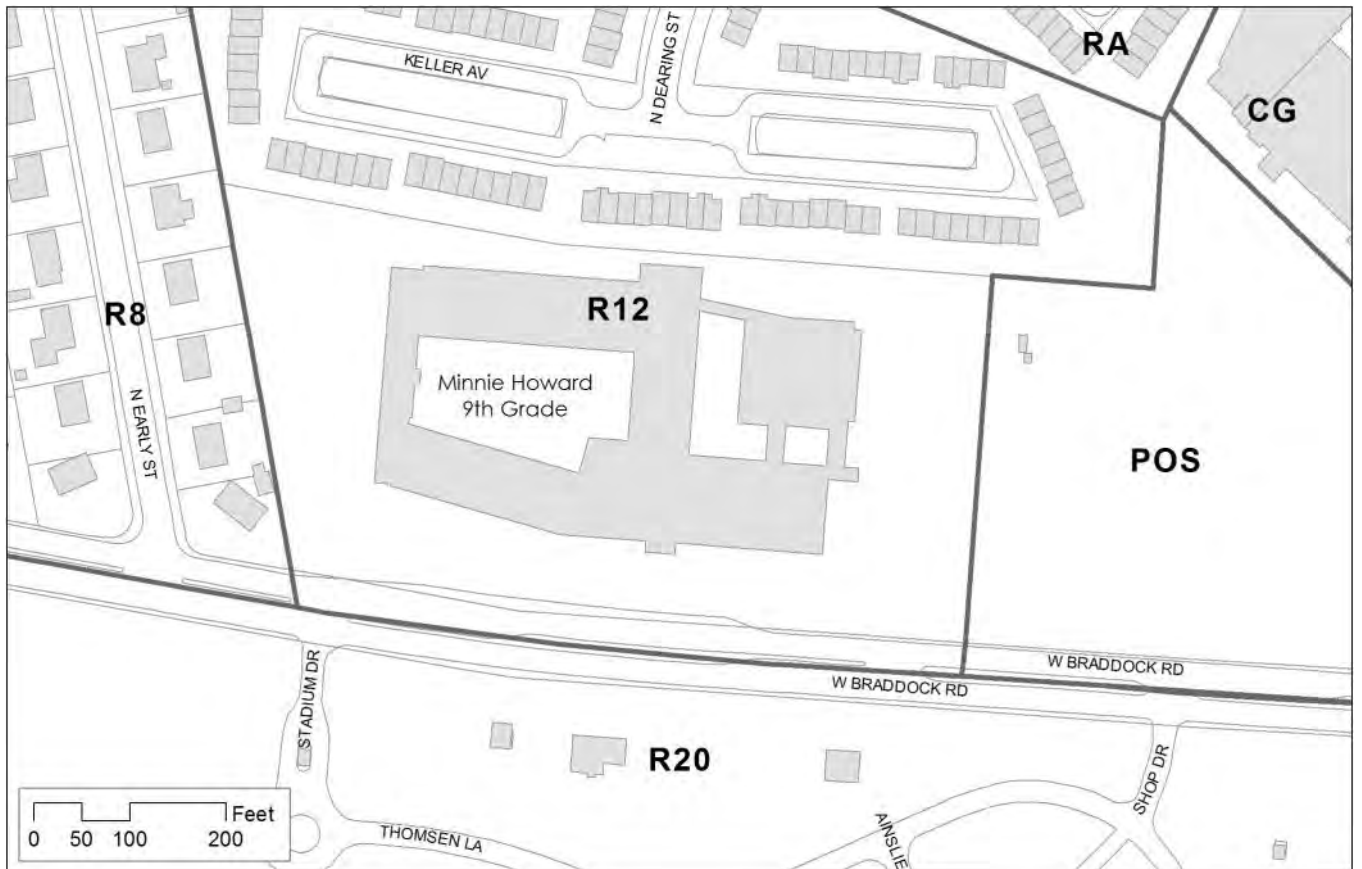
Zoning Map, Francis Hammond Middle School



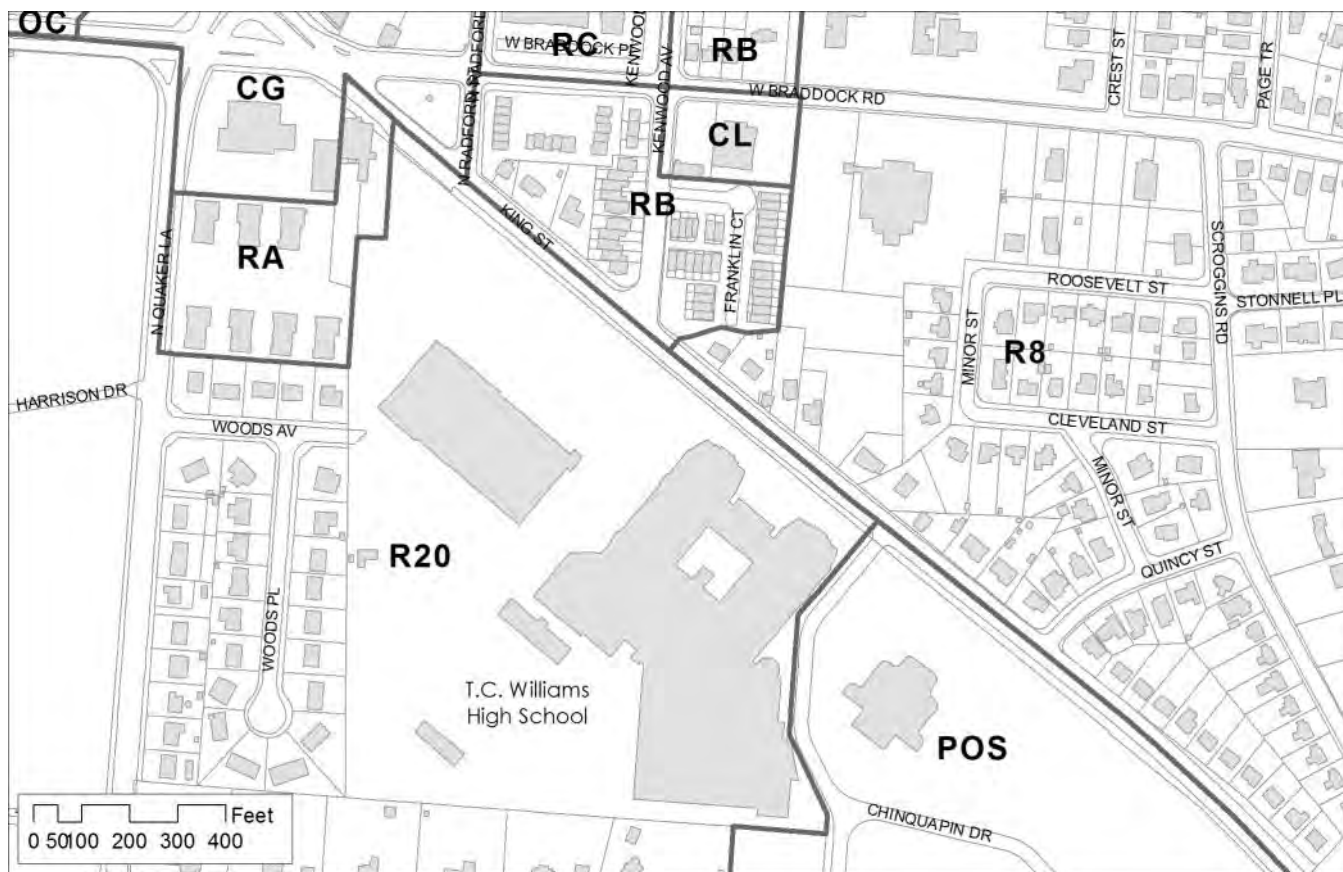
Zoning Map, George Washington Middle School



Zoning Map, Minnie Howard Ninth Grade



Zoning Map, T.C. Williams High School



Date: October 12, 2017

For ACTION _____

For INFORMATION x

Board Agenda: Yes x

No _____

FROM: Erika Gulick, Facilities Planner/GIS Specialist
Clinton Page, Chief Accountability Officer
Terri Mazingo, Ed.D., Chief Academic Officer

THROUGH: Lois Berlin, Ed.D., Interim Superintendent of Schools

TO: The Honorable Ramee A. Gentry, Chair, and Members of the Alexandria City School Board

TOPIC: Grade Level Feasibility Study Update

BACKGROUND:

As part of the FY 2017 Capital Improvement Program Budget, the School Board approved funds to conduct a study of grade level configurations to determine whether a reconfiguration at ACPS could provide additional capacity while improving the academic achievement of students.

UPDATE

In the fall of 2016, ACPS contracted Hanover Research Group (HRG) to conduct the study. HRG has completed the Benchmarking Study (Attachment 1), which looks at several different school districts and their approach to solving capacity constraints and reconfiguring grade levels. HRG has also completed the Analysis of Elementary and Secondary Grade Span Configurations (Attachment 2), which includes research on grade level configurations impacts to academic achievement and capacity.

It is important to note that each school district or division is unique and will be impacted differently by different grade span configurations and that academic achievement is most greatly impacted by classroom quality and social environment. A common theme of the research indicates that, though there is no industry recognized standard for the amount of transitions that is appropriate, minimizing transitions results higher levels of academic achievement. The following key findings related to grade span configurations are outlined in the analysis:

- Isolated pre-K centers do not benefit students academically; however they have been used by other school systems to the extent that they can improve access or provide capacity.
- Alignment from pre-K through 3 is critical to academic success in later years for students.
- Pre-K – 5 is the most prevalent elementary grade level configuration; however, studies show that 6th graders benefit from being in an elementary setting academically and behaviorally.
- Research on K-8 schools and their effects on academic achievement appear to be inconclusive.

- Research on 9th grade academies is limited; HRG is in the process of doing a study specific to ACPS on the 9th grade academy model.
- Comprehensive grades 9-12 high schools are the most prevalent grade level configuration and research on other high school grade spans is limited.

HRG also offered several considerations for grade space reconfigurations that need to be considered should an adjustment be pursued which may have financial, operational and programmatic implications.

NEXT STEPS

HRG is developing an interview protocol to study ACPS's high school grade level configuration in more detail and will be conducting the study this fall. Following this study, the executive summary of findings will be finalized and a survey will be administered to gauge public opinion on grade level configuration.

CONTACT PERSON: Erika Gulick, (703) 619-8298

ATTACHMENTS:
1 – Benchmarking Study of Grade-Level Feasibility
2 – Analysis of Elementary and Secondary Grade Span Configurations

Grade Level Feasibility Study Update

School Board Meeting
October 12, 2017



Every Student Succeeds

Essential Questions

1. What is the purpose of the grade level feasibility study?
2. What progress has been made to date?
3. Does research support any specific grade level configuration?
4. How could supported configurations be applied at ACPS?
5. What considerations should be made when pursuing a grade level re-configuration?
6. What are the next steps of the study?

Purpose

Grade level reconfiguration is one option pursued by school districts/divisions to address capacity needs. Alternatives to grade level reconfiguration include:

- Altering existing spaces for added classrooms
- Adding portable units
- Expanding/reconfiguring existing facilities
- Adjusting school boundaries
- Offering more online or off-site learning opportunities
- Restructuring the class schedule

Purpose

The purpose of the grade level feasibility study is to provide ACPS with **research** of different grade level configurations and **options for ACPS** to reconfigure its schools, if feasible and desired.

Progress To Date

October 2016: contracted Hanover Research Group (HRG) to complete the study

Completed:

- Benchmarking Study
- Analysis of Elementary and Secondary Grade Span Configurations – Update

Ongoing:

- Survey Instrument
- Environmental Scan for Grade Level Feasibility
- Executive Summary of Findings

Summary of Findings: Key Points

- Each school district or **division is unique** and different configurations may result in different student outcomes
- In general, **minimizing transitions** will result in higher levels of achievement
- Ultimately, student achievement is typically a result of **classroom quality** and/or **social environment**

Summary of Findings: Elementary

- Pre-K: Based on the research, students do not benefit from being in isolated early childhood centers; however, they have been used to minimize overcrowding, increase access or provide services specific to the population
- Pre-K-3: Comprehensive alignment from Pre-K/K-3 is critical to student achievement in later grades
- Pre-K/K-5: Most common grade configuration; however, research indicates that students in 6th grade benefit academically and behaviorally from being in an elementary setting

Summary of Findings: Secondary

- K-8: Research surrounding behavior and academic achievement for students in the K-8 model found conflicting results
- 9th Grade Academy: Research is inconclusive on student achievement of 9th grade academies
- 9-12: Most prevalent type of high school configuration; research on alternatives is limited

Current Grade Level Capacity Scenario at ACPS

| Grade Level | FY 2023 Projected Enrollment | Schools Included in Capacity | Capacity | Seat Surplus/Deficit |
|-------------|------------------------------|------------------------------|----------|----------------------|
| Pre-K-5 | 9,046 | Current Pre-K-5 Capacity* | 8,181 | -865 |
| 6-8 | 3,552 | Current grades 6-8 Capacity | 2,981 | -571 |
| 9-12 | 4,924 | Current high school capacity | 3,787 | -1,137 |

*Includes new Patrick Henry and new west end elementary school capacity

Preliminary Analysis: Example Grade Level Reconfiguration Scenario at ACPS

| Grade Level | FY 2023 Projected Enrollment | Schools Included in Capacity | Capacity | Seat Surplus/Deficit |
|-------------|------------------------------|----------------------------------|----------|----------------------|
| Pre-K-6 | 10,285 | All elementary and K-8 capacity* | 8,619 | -1,666 |
| 7-8 | 2,313 | Both middle schools | 2,546 | 233 |
| 9-12 | 4,924 | Both high school campuses | 3,787 | -1,137 |

*Includes new Patrick Henry and new west end elementary school capacity

Considerations for Grade Level Reconfigurations

- Operating and capital cost implications
- Student wellbeing and the impact of transitions
- Stakeholder values
- Ability of facility to meet the grade level configuration
- Impact to staffing and administration
- Need to adjust school boundaries

Next Steps

Fall 2017:

- HRG will be conducting ACPS based research of the 9th grade academy model and potential reconfiguration for high school
- HRG will finalize the environmental scan and executive summary

Winter 2018:

- HRG will update and administer the survey based on final outcomes and ACPS input
- ACPS will use the results to scope community engagement process for high school capacity

Questions/Comments

Clinton Page

Chief Accountability Officer

clinton.page@acps.k12.va.us

703-619-8285

Terri Mozingo, Ed.D.

Chief Academic Officer

terri.mozingo@acps.k12.va.us

703-619-8186

Erika Gulick

Facilities Planner/GIS Specialist

erika.gulick@acps.k12.va.us

703-619-8298

Date: May 10, 2018

For ACTION _____

For INFORMATION x

Board Agenda: Yes x

No _____

FROM: Erika Gulick, Facilities Planner/GIS Specialist

THROUGH: Lois F. Berlin, Ed.D., Interim Superintendent of Schools
Clinton Page, Chief Accountability Officer
Terri Mozingo, Ed.D., Chief Academic Officer
Mignon Anthony, Chief Operating Officer

TO: The Honorable Ramee A. Gentry, Chair, and Members of the Alexandria City School Board

TOPIC: Grade Level Feasibility Study Update

BACKGROUND:

As part of the FY 2017 Capital Improvement Program Budget, the School Board approved funds to conduct a study of grade level configurations to determine whether a reconfiguration at ACPS could provide additional capacity while improving the academic achievement of students. Hanover Research Group will present its final deliverables and findings through this presentation.

SUMMARY:

In the fall of 2016, ACPS contracted Hanover Research Group (HRG) to conduct the study. HRG has completed the following deliverables which were included as part of the update given to the School Board in October 2017 and are included again here:

- Benchmarking Study (Attachment 2) - Studies several different school districts and their approach to solving capacity constraints and reconfiguring grade levels
- Analysis of Elementary and Secondary Grade Span Configurations (Attachment 3) - Includes research on grade level configurations impacts to academic achievement and capacity

In addition to the above, HRG is presenting to the School Board information from the following deliverables:

- Environmental Scan for Grade-Level Feasibility (Attachment 4) – Includes demographic analysis of Alexandria City
- A Qualitative Study for High School Configurations (Attachment 5) – Includes results of school-based staff interviews on grade level configuration at the high school level
- Grade-Level Feasibility Study: Executive Summary of Findings (Attachment 6) – Compiles all information to formulate key findings and themes for potential grade-level reconfiguration

It is important to note that each school district or division is unique and will be impacted differently by different grade span configurations and that academic achievement is most

greatly impacted by classroom quality and social environment. A common theme of the research indicates that, though there is no industry recognized standard for the amount of transitions that is appropriate, minimizing transitions results higher levels of academic achievement. The following key findings related to grade span configurations are outlined in the analysis:

- Isolated pre-K centers do not benefit students academically; however they have been used by other school systems to the extent that they can improve access or provide capacity.
- Alignment from pre-K through 3 is critical to academic success in later years for students.
- Pre-K – 5 is the most prevalent elementary grade level configuration; however, studies show that 6th graders benefit from being in an elementary setting academically and behaviorally.
- Research on K-8 schools and their effects on academic achievement are inconclusive.
- Research on 9th grade academies is limited; HRG conducted a school-based qualitative analysis with staff on the current operation of the split high school and potential grade configurations. HRG found that the concerns brought up by staff do not support the split campus model.
- Comprehensive grades 9-12 high schools are the most prevalent grade level configuration and research on other high school grade spans is limited.

HRG also offered several considerations for grade space reconfigurations that need to be considered should a reconfiguration be pursued which may have financial, operational and programmatic implications. Engagement with the community to identify concerns of a reconfiguration should be conducted by ACPS.

RECOMMENDATION: The Superintendent recommends the School Board review the presentation and attachments.

CONTACT PERSON: Erika Gulick, (703) 619-8298

ATTACHMENTS:

- 1 – Presentation
- 2 – Benchmarking Study
- 3 – Analysis of Elementary and Secondary Grade Span Configurations
- 4 – Environmental Scan for Grade Level Feasibility
- 5 – A Qualitative Study of High School Configurations
- 6 – Grade Level Feasibility Study: Executive Summary of Findings

GRADE-LEVEL FEASIBILITY STUDY: EXECUTIVE SUMMARY

Prepared for Alexandria City Public Schools

May 2018



INTRODUCTION

Project Background

At the request of Alexandria City Public Schools (ACPS), Hanover Research conducted several studies as part of a multi-phase research initiative to explore the feasibility of several grade configuration options for the division's schools. Overall, the multi-phase study addresses the following research questions:



What strategies do districts use to address growing enrollment, and how do districts navigate changes in grade configuration?



What do current demographics trends suggest about the need to change grade configurations in Alexandria City?



What impact does grade configuration have on student outcomes according to research?

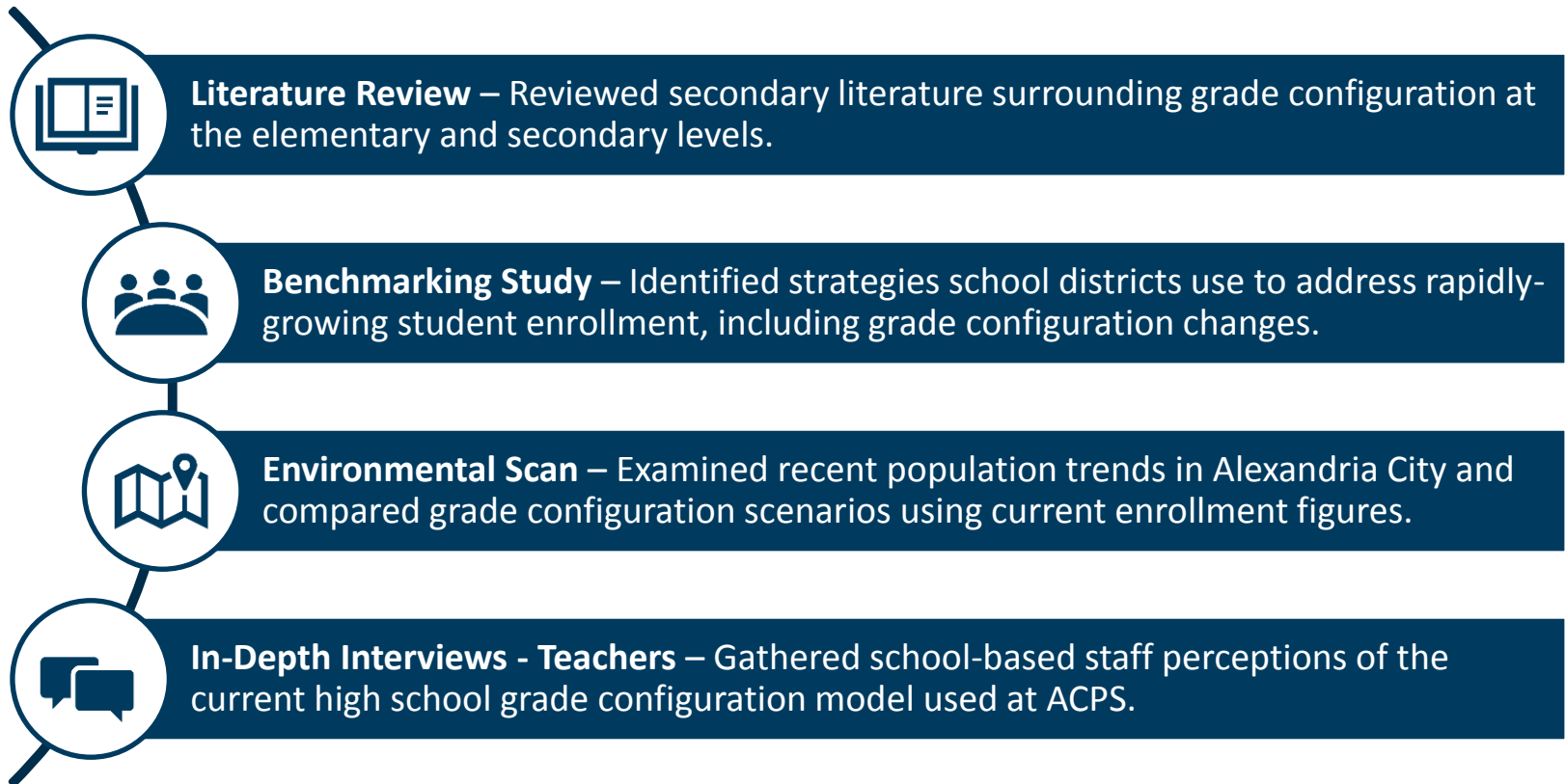


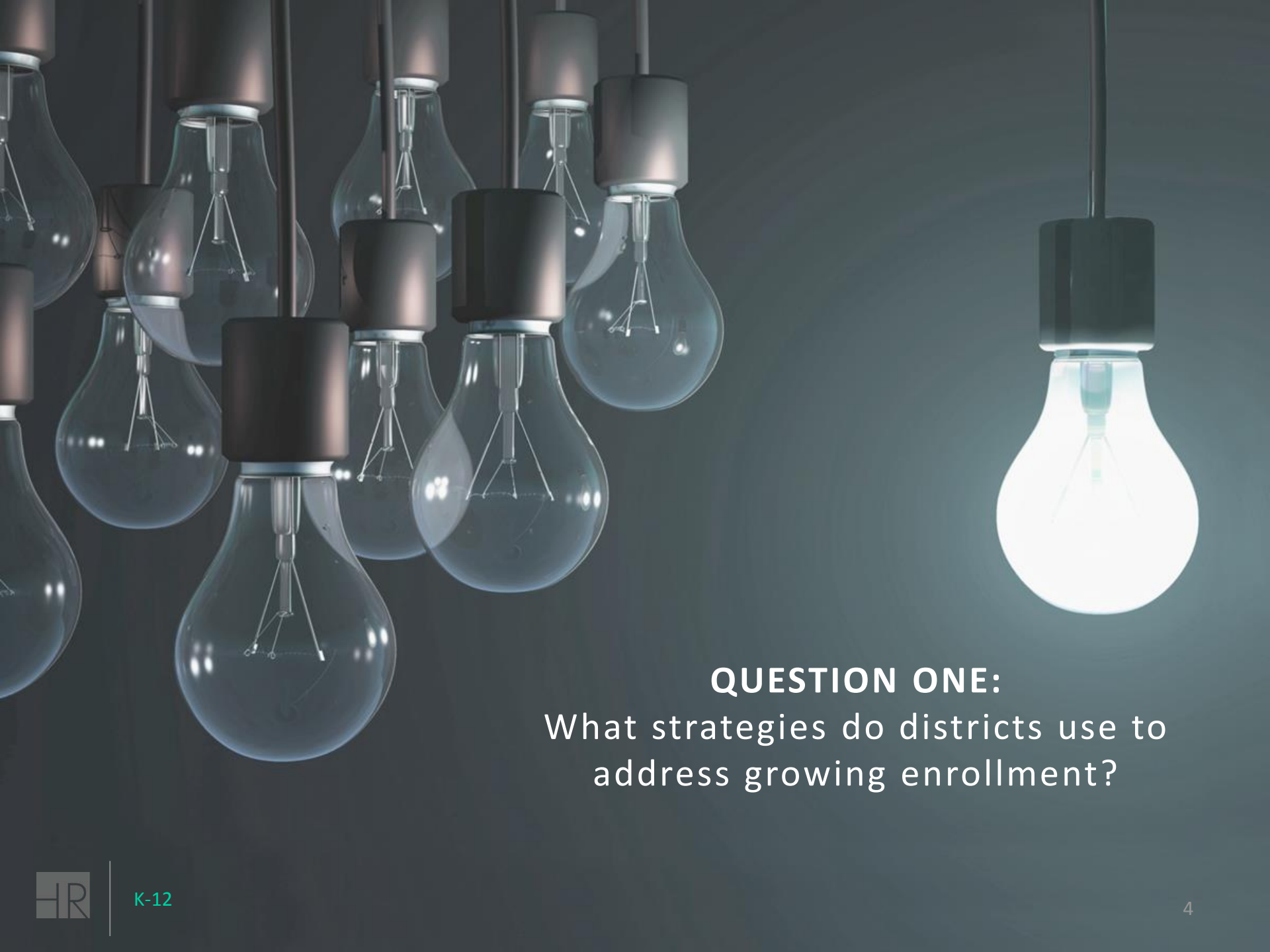
How do teachers perceive the current split-campus model of TC Williams High School?

INTRODUCTION

Project Background

To complete the multi-phase study, Hanover approached the research questions using a mixed-methods approach through the following projects:





QUESTION ONE:

What strategies do districts use to address growing enrollment?



Capital and Non-Capital Strategies

The literature review and district interviews identified a variety of capital and non-capital strategies to alleviate over-crowding in schools, including:

Capital Strategies



- ➡ Grade Reconfiguration
- ➡ Space Renovation/Expansion
- ➡ Portable Units

Non-Capital Strategies



- ➡ School Zone Boundary Adjustment
- ➡ Restructuring the class schedule
- ➡ Offering more online learning

ACPS has pursued many of these strategies over the last several years in order to address its rapid enrollment growth.



Reconfiguring Schools

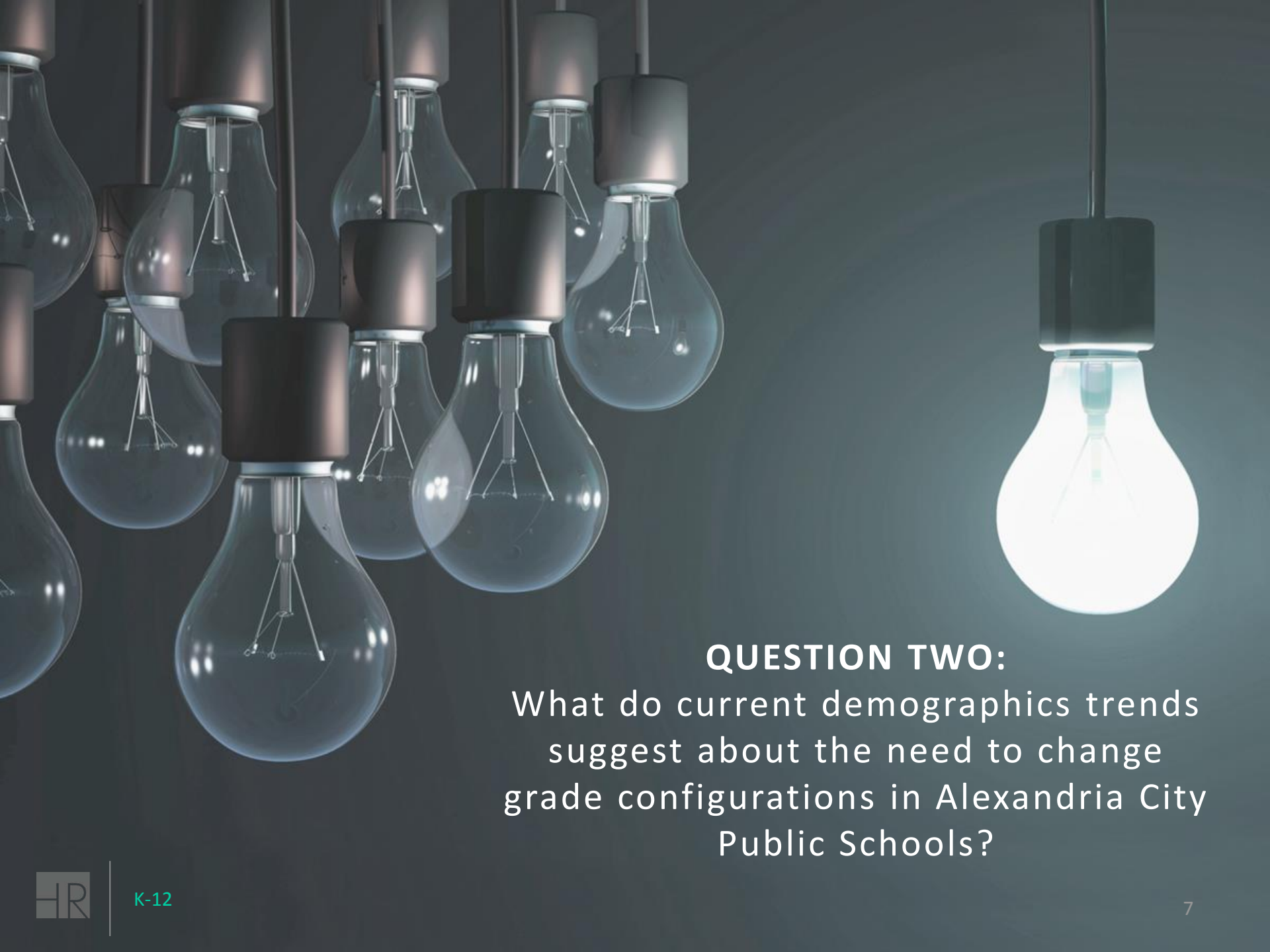
“The first question to ask is how do we, as educators, make the decision on what composition the school needs to be? That decision typically is related to how many students are actually going to be projected per household in that new growth area.”

**-Terry Worcester,
Scottsdale Unified**



Among the five interviewed districts, three implemented a grade reconfiguration at the K-8 grade levels for either programmatic or capacity reasons:

- Among these three, **two** transitioned from traditional elementary schools to K-8 models.
 - Aurora Public Schools (CO)
 - Charlotte-Mecklenburg Schools (NC)
- **One** district transitioned from K-8 schools to a traditional K-5/6-8 model.
 - Scottsdale Unified (AZ)
- Notably, **none** of the interviewed districts altered grade configuration at the high school level.



QUESTION TWO:

What do current demographics trends suggest about the need to change grade configurations in Alexandria City Public Schools?



Population Growth

The number of ACPS students, in grades pre-K through 12 increased by **18.9 percent** between 2011 and 2015.

The number of children ages 0 to 17 in Alexandria City grew by **15.5 percent** between 2011 and 2015.

The number of families in Alexandria City increased by **10.8 percent** between 2011 and 2015.

- Alexandria City experienced growth in family residency as well as sizable increases in student-aged populations from 2011 to 2015.



- The largest growth was observed in Alexandria West (22311), Potomac West (22305), and Van Dorn (22304)



Diversity



Based on projection estimates released by the VEC, an increasing minority population is expected to make up Alexandria City's residents between 2020 and 2040¹

- The racial composition of Alexandria City's zip code areas among those ages 0 to 17 drastically differ and have grown **more segregated** during the 2011 to 2015 period.
- Disparities in the median household income between Alexandria City's zip code areas have also grown wider over time.

[1] "Virginia Community Profile: Alexandria City." Virginia Employment Commission, December 30, 2016. p. 8.
http://virginiarmi.com/report_center/community_profiles/5104000510.pdf



ACPS Capacity and Over-Enrollment

For additional insight, Hanover also compared ACPS's 2015 enrollment figures to the district's estimated 2020 school capacity, running a variety of grade configuration scenarios for students in Grades Pre-K-8.¹ This analysis found:

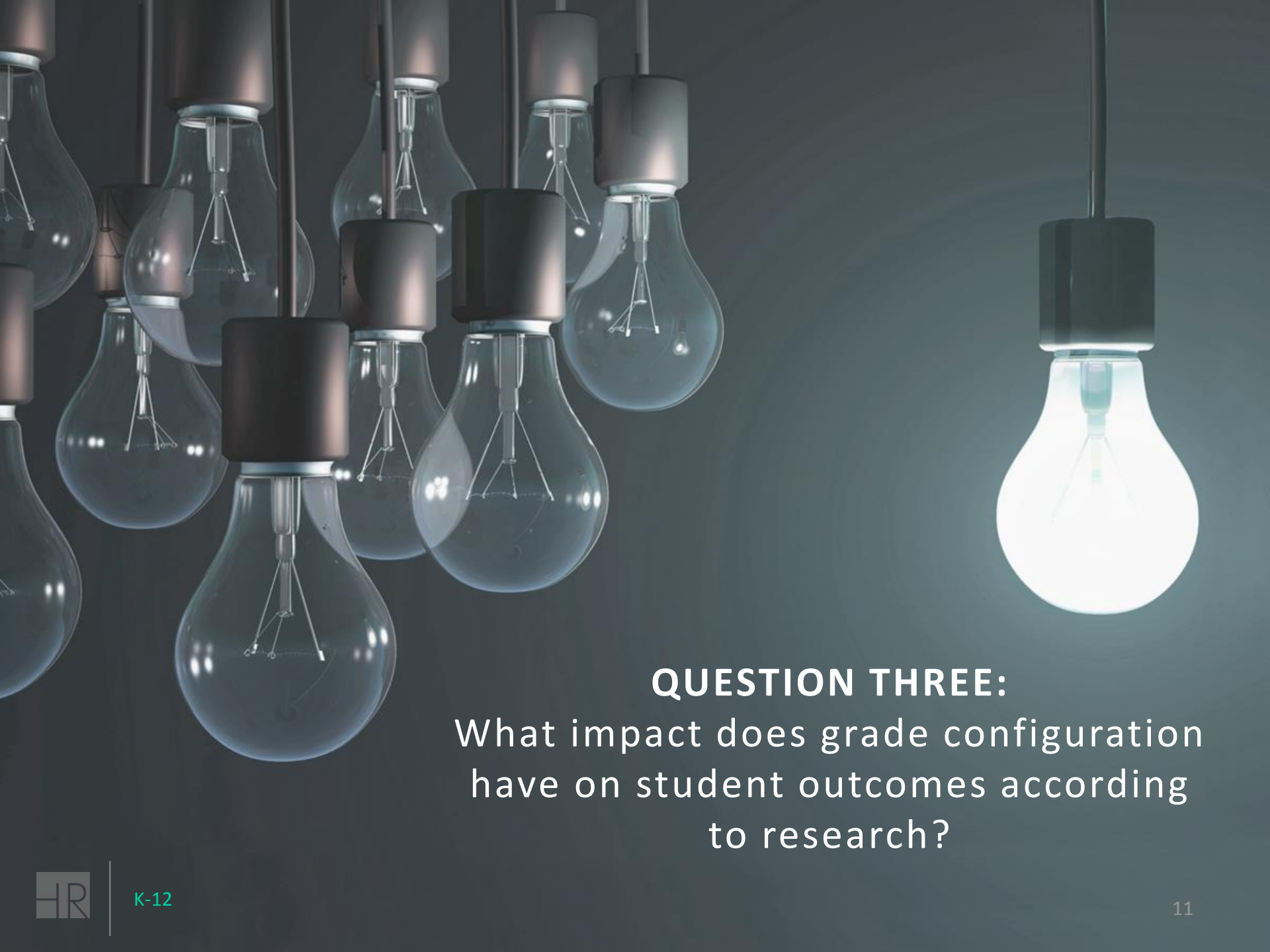


Creating a specialized Pre-K Center at an existing elementary school site would allow the district to free some space in existing K-8 and K-5 schools to accommodate a larger number of older students.



Finally, varying grade configurations for schools that students serve in Grades PK-8 may be pursued for instructional purposes; however, this will not alleviate capacity due to the capacity deficit for ACPS existing across all grade levels.

¹ Varying grade level configuration scenarios for high school were not reviewed as part of this work.



QUESTION THREE:

What impact does grade configuration have on student outcomes according to research?



Overall Findings

Evidence on benefits of different grade configurations is typically mixed and often inconclusive. Overall, the literature suggests that school quality plays a stronger role in academic outcomes than any particular grade configuration.



Evidence suggests that the number of transitions that a student experiences (or the number of times a student changes schools) has a negative impact on student achievement. However, districts can support students through comprehensive school transition programs.



Because no one grade configuration has consistently demonstrated improvements in academic achievement, some experts argue that schools should focus on improving overall school quality, particularly for students in the middle grades (6-8).



Additionally, research generally finds that smaller schools and class sizes are beneficial for student achievement. A 2009 review of school size studies found that students benefit from a maximum school size of 600 students at the elementary level and 1,000 students at the secondary level.



Impact of Specific Grade Configuration Models – 1 of 4

| | | | | | | | | | | | | | |
|----|---|---|---|---|---|---|---|---|---|---|----|----|----|
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----|---|---|---|---|---|---|---|---|---|---|----|----|----|



PK/K Centers

Students do not appear to benefit from isolated early childhood experiences.

- Students in standalone pre-primary schools do not gain skills as fast over the course of the school year as their peers in elementary schools.
- Generally, researchers find that more time is dedicated to instruction when Kindergarten is included in elementary grade spans.

| | | | | | | | | | | | | | |
|----|---|---|---|---|---|---|---|---|---|---|----|----|----|
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----|---|---|---|---|---|---|---|---|---|---|----|----|----|

| | | | | | | | | | | | | | |
|----|---|---|---|---|---|---|---|---|---|---|----|----|----|
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----|---|---|---|---|---|---|---|---|---|---|----|----|----|



Elementary Schools

PK/K-5 schools are the most common configuration for public elementary schools; however, PK-6 schools may have some benefits for Grade 6 students.

- In two recent studies, researchers found academic and behavioral benefits for Grade 6 students in PK-6 schools compared to peers in 6-8 schools.
- Districts transitioning to a K-6 grade configuration will need to consider the logistics of increased student enrollment in elementary schools.



Impact of Specific Grade Configuration Models – 2 of 4

| | | | | | | | | | | | | | |
|----|---|---|---|---|---|---|---|---|---|---|----|----|----|
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----|---|---|---|---|---|---|---|---|---|---|----|----|----|



Intermediate Schools

The literature generally does not support Intermediate Schools (Grades 5-6).

- Students in Grades 5-6 perform better as part of a wider elementary school.
- There is no evidence that Intermediate Schools are better equipped to provide students with dedicated social and emotional supports resources than more standard elementary school settings.

| | | | | | | | | | | | | | |
|----|---|---|---|---|---|---|---|---|---|---|----|----|----|
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |



K-8 Schools vs. Middle School

Studies comparing student outcomes at K-8 schools and middle schools have found conflicting results. Overall, research is inconclusive.

- Several studies found improved academic and behavior outcomes for K-8 students compared to middle school students, while others found no difference in outcomes between K-8 and middle school students.
- Evidence suggests that **classroom quality** and the **social environment** are better predictors of student outcomes for middle grades students.



Impact of Specific Grade Configuration Models – 3 of 4

| | | | | | | | | | | | | | |
|----|---|---|---|---|---|---|---|---|---|---|----|----|----|
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |



Middle School vs. Junior High

Few studies compare the impact of middle school (6-8) vs. junior high (7-9) grade configurations.

- While at least one study found positive results for junior high over middle school, other studies **have found grade span is not associated with negative academic or behavioral outcomes** at this grade level.
- Once again, studies find that **classroom quality** and the **social environment** are better predictors of student outcomes for middle grades students.

| | | | | | | | | | | | | | |
|----|---|---|---|---|---|---|---|---|---|---|----|----|----|
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----|---|---|---|---|---|---|---|---|---|---|----|----|----|



Grade 9 Academies

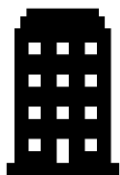
Research on the impact of Grade 9 Academies is inconclusive.

- While some studies have found that students attending such academies have higher achievement levels than students in typical high schools, other studies have found no differences.
- Districts implementing a Grade 9 Academy should consider the relatively high cost compared to a traditional high school, as distinct administrative structures and resources are required.



Impact of Specific Grade Configuration Models – 4 of 4

| | | | | | | | | | | | | | |
|----|---|---|---|---|---|---|---|---|---|---|----|----|----|
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----|---|---|---|---|---|---|---|---|---|---|----|----|----|



7-12 High Schools

Studies and anecdotal evidence suggest that 7-12 schools are difficult to implement and may not benefit students.

- 7-12 schools minimize student transitions and allows younger students to access high school facilities and advanced coursework.
- However, lower-secondary and upper-secondary students have different needs. Schools that implement this configuration model typically use a school-within-a-school model to serve students in Grades 7 and 8.

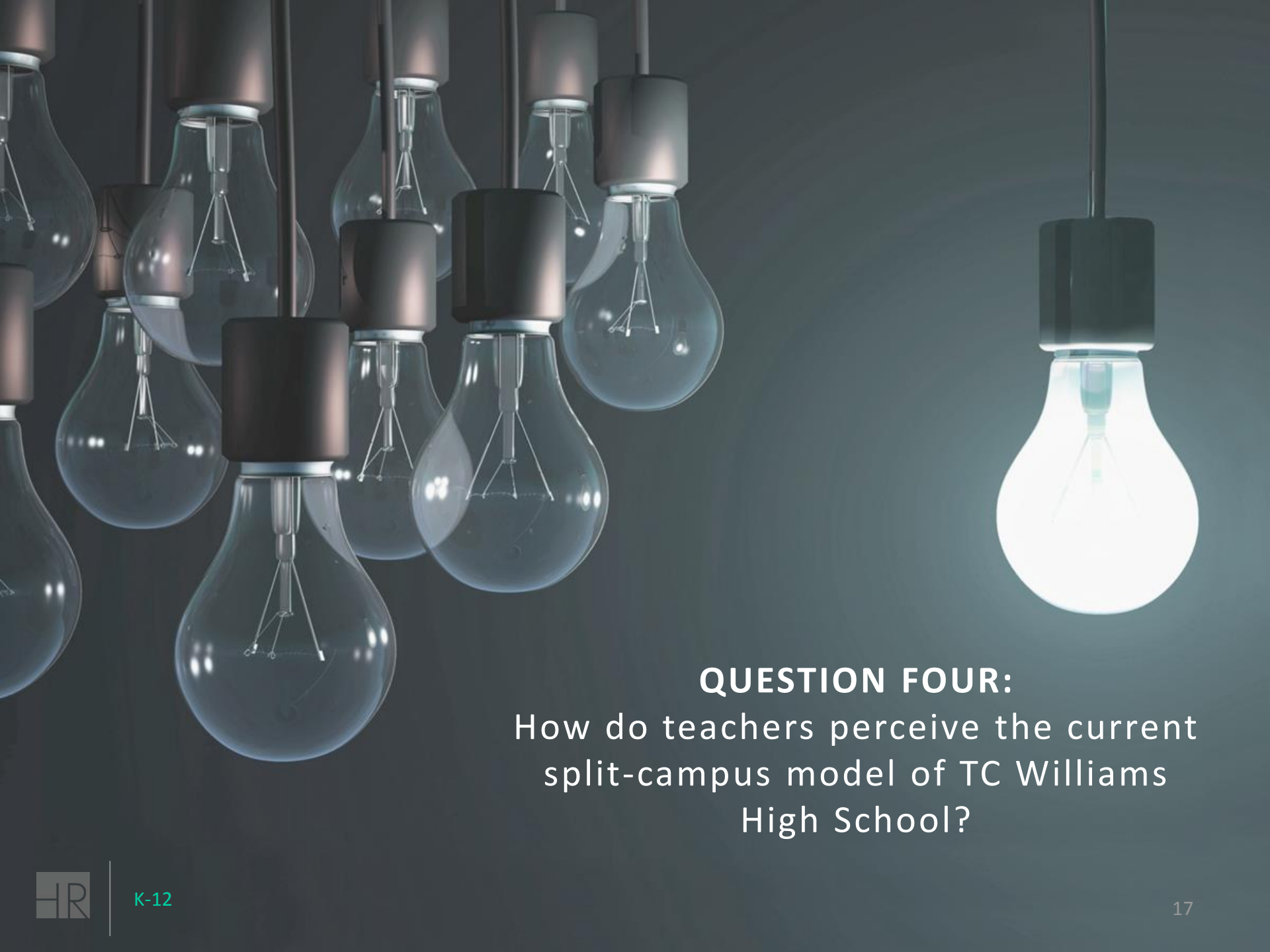
| | | | | | | | | | | | | | |
|----|---|---|---|---|---|---|---|---|---|---|----|----|----|
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----|---|---|---|---|---|---|---|---|---|---|----|----|----|



Traditional High Schools

There is little to no research surrounding alternative secondary school grade configurations (including 9-10/11-12 campuses).

- 9-12 schools are by far the most prevalent type of upper-secondary school configuration.



QUESTION FOUR:

How do teachers perceive the current split-campus model of TC Williams High School?

SCHOOL-BASED STAFF QUALITATIVE ANALYSIS



Methodology



To gather more information about the impact of the current grade configuration of T.C. Williams High School, Hanover conducted 16 in-depth interviews with teachers at the Minnie Howard and King Street campuses. All participating teachers remain anonymous in the analysis.

Hanover uses a qualitative coding process to identify trends in participant responses.

Note that Hanover **did not** provide or solicit direct recommendations regarding high school grade configuration during the interview process.

SCHOOL-BASED STAFF QUALITATIVE ANALYSIS

Thoughts on the Grade 9 Academy at Minnie Howard Campus



“Because we are smaller and more focused, we can be more engaged with the students.”

- Minnie Howard Staff

“Having a smaller group, we do get to know the kids really well, but then they leave.”

- Minnie Howard Staff

- Teachers indicated that the smaller setting of the Minnie Howard campus allows for students to receive more attention.
- Teachers felt the smaller setting of Minnie Howard encourages collaboration with teachers in the same building.
- Teachers noted that a smaller setting provides the opportunity to develop close relationships and understandings of their students, which is then lost when they move on to the main campus.

SCHOOL-BASED STAFF QUALITATIVE ANALYSIS



Thoughts on the Grade 9 Academy at Minnie Howard Campus

“We seem to be more of a stepchild to the other school. They always kind of forget about us.”

- Minnie Howard Staff

“Most students think of [The Minnie Howard Campus] as an extension of their middle school years.”

- King Street Staff

“Sometimes you can’t maintain uniformity if you’re separate. It’s just not practical in many instances.”

- Minnie Howard Staff

- Dividing students along grade levels leads to the perception that the Grade 9 school not being “real” high school, a lack of vertical planning among teachers, and logistical challenges for students.
- Teachers prefer that their campus has its own administrators and decision-making power, but seek a sense of unity and school spirit between the two campuses.
- Teachers note the need for additional communication and collaboration across the two campuses.

SCHOOL-BASED STAFF QUALITATIVE ANALYSIS



Thoughts on Proposed Grade Configuration Changes

“You couldn't have a situation where kids are traveling between buildings so you would need to fully staff two buildings with teachers who could teach all of the different courses that we offer in our program of studies because that would just mean more travel otherwise and more complicated master schedules.”

- Minnie Howard Staff

- In general, teachers do not support the formation of a 9/10 and 11/12 grade configuration.
- Instead, teachers tend to support the creation of **one large or multiple smaller comprehensive high schools**.
- Teachers acknowledge challenges related to diversity, but believe that schools can be equitably divided.
- Grade 9 teachers note that the intimacy and focus of the Grade 9 Academy can be recreated within a larger school.



KEY FINDINGS AND IMPLICATIONS

KEY FINDINGS



Over the last five years, the student-age population in Alexandria has grown rapidly. At the same time, the city has become more diverse and, in some neighborhoods, more segregated. These findings suggest that the equitable distribution of resources and careful planning to ensure school integration will be important factors in the grade reconfiguration process.



A review of the literature surrounding grade configuration finds that the empirical data does not universally support any specific configuration as “the best” for students. Instead, much of the support (or not) for individual configuration models is based on anecdotal and descriptive literature. However, there is some evidence that the number of school transitions a student makes can negatively impact student achievement.



If implementing a new grade configuration, divisions should: engage all stakeholders, consider the costs and resources needed for each model, and commit to student achievement and wellbeing.



Feedback from teachers at TC Williams indicates that there are a number of challenges to the current split-campus model, including a lack of consistency across the two campuses, a lack of vertical planning across the high school grades, and a lack of older role models for Grade 9 students, as well as logistical challenges for students and staff.

IMPLICATIONS

Implications for Practice

- **Hanover recommends that, whichever grade configuration model is chosen, division leaders:**
 - ✓ Involve parents, students, and staff in the decision-making and implementation process.
 - ✓ Create comprehensive transition support programs when students change schools.
 - ✓ Carefully review the impact that school boundary and grade configuration changes will have on school integration and diversity.
 - ✓ Assess and consider all operating and capital budgetary needs to implement and maintain a proposed new grade configuration.

- **The school-based staff qualitative analysis supports ACPS's consideration of either one large or multiple smaller, comprehensive high schools.** Thus far, feedback from teachers highlights the difficulties of TC Williams' current split-campus model, and teachers generally do not support the formation of separate 9-10 and 11-12 campuses. Furthermore, the research generally supports reducing the number of school transitions that students must make to promote academic achievement.



Process for Implementing New Grade Configurations

Engage all Stakeholders

Districts typically solicit feedback from stakeholders when deciding whether to adopt new grade configurations.

Consider Costs and Resources Needed

Capital and operating costs including renovations, transportation, materials and supplies, and structural needs for different age groups are a key issue for districts when considering new grade spans.

Commit to Student Achievement and Wellbeing

Educators, researchers, and district leaders emphasize that a commitment to “sound educational practices” should be the underlying goal of any grade reconfiguration.



QUESTIONS

CONTACT

Leila Nuland

Managing Content Director

lnuland@hanoverresearch.com

www.hanoverresearch.com



GRADE-LEVEL FEASIBILITY: EXECUTIVE SUMMARY

Prepared for Alexandria City Public Schools

May 2018



In the following document, Hanover Research summarizes key findings from a series of studies that evaluated the feasibility of different PK-12 grade level configurations.

TABLE OF CONTENTS

- Executive Summary.....3**
- INTRODUCTION3
- Section I: A Review of Methodologies.....5**
- Literature Review.....5
- Benchmarking Study6
- Environmental Scan7
- In-Depth Interviews with High School Teachers.....10
- Section II: Key Findings and Themes 11**
- IDENTIFYING DEMOGRAPHIC TRENDS IN ACPS11
- Population Growth11
- Changing Demographics12
- Impacts on ACPS12
- Teacher Perceptions of the Current Configuration of TC Williams High School14
- REVIEWING DISTRICT STRATEGIES TO ADDRESS RISING ENROLLMENT16
- CHOOSING TO RECONFIGURE GRADES17
- FEATURES OF EFFECTIVE CONFIGURATIONS18
- Configuration Models18
- Configuration Processes21
- TEACHER PERCEPTIONS OF FUTURE GRADE CONFIGURATION OPTIONS24

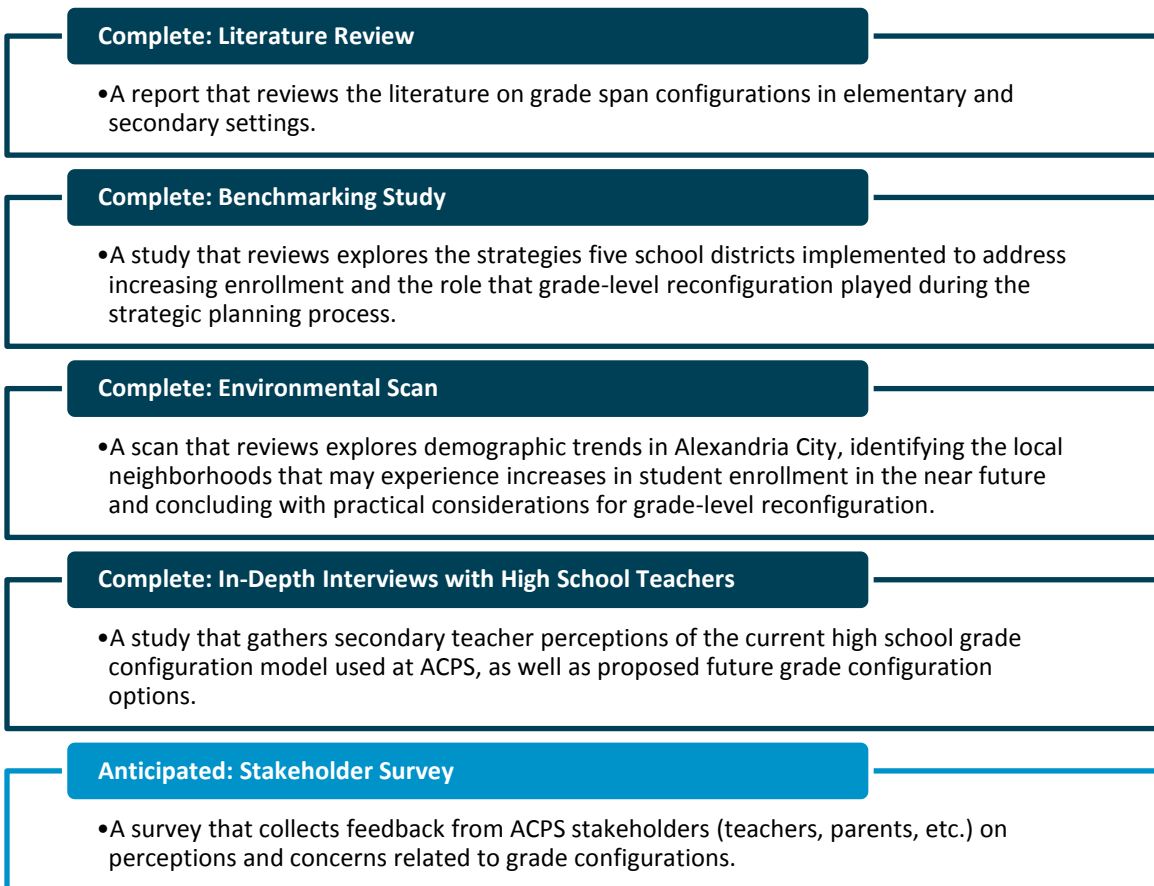
EXECUTIVE SUMMARY

INTRODUCTION

The following document comprises an executive summary of key findings from a series of reports by Hanover Research (Hanover) delivered to Alexandria City Public Schools (ACPS) that assess the feasibility of PK-12 grade level configurations. In the last decade, ACPS experienced large increases in student enrollment, creating overcrowding and space constraints at the Division’s schools. To confront this challenging trend of overpopulation, ACPS has considered reconfiguring grade levels across schools and/or building an additional facility. Overall, ACPS aims to identify solutions to address the increasing student populations by establishing a long-term plan for grade-level feasibility and sustainability.

Hanover’s research agenda to date included four distinct projects, and is anticipated to include a survey within the next twelve months. Figure A provides an overview of the research agenda.

Figure A: Hanover’s Research Agenda



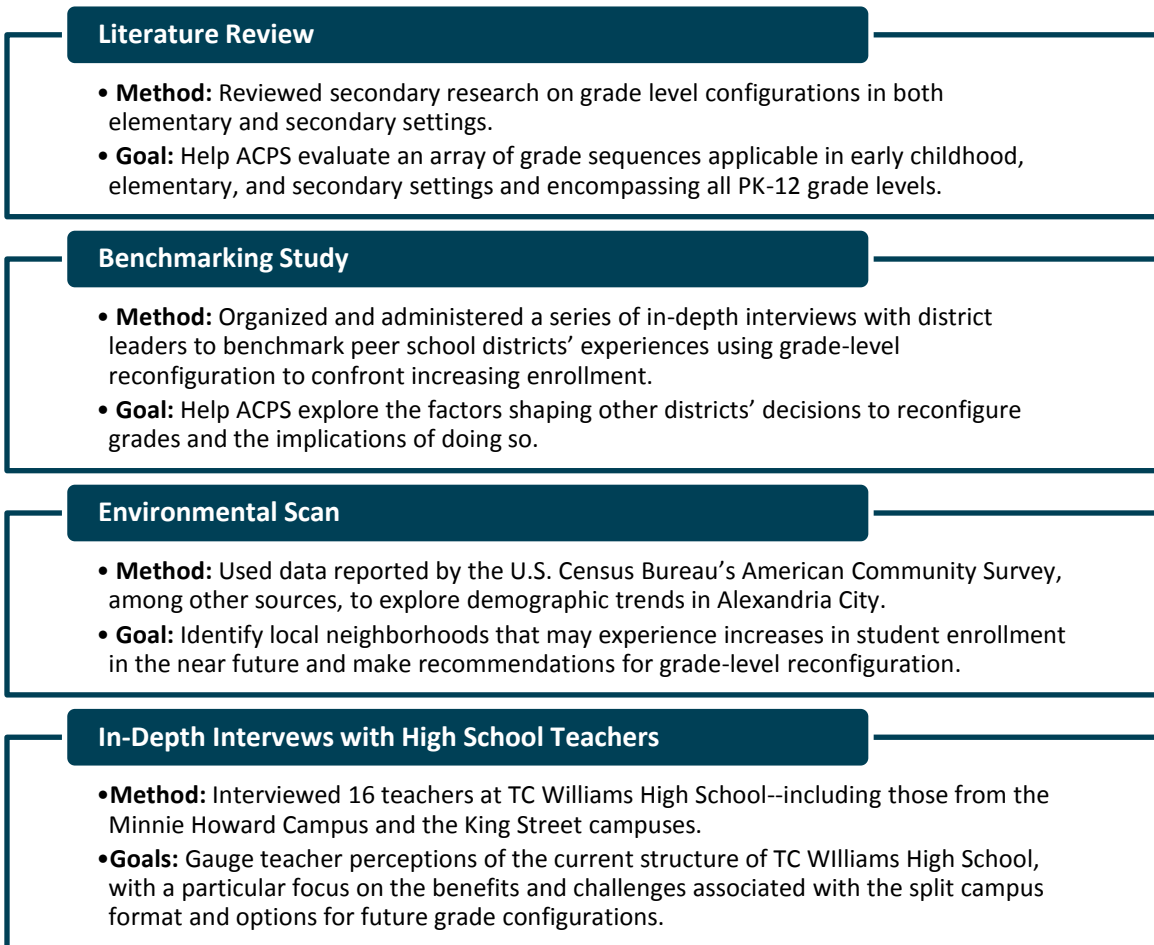
This summary proceeds in two sections. Section I reviews the methodologies of the studies completed to date, linking research approach with the research agenda's goals. Section II synthesizes these studies' key findings as they correspond with prominent themes, such as what demographic trends in ACPS' local neighborhoods may impact school enrollment, how districts typically address rising enrollment, best practices in deciding whether to reconfigure grades to address rising enrollment, and features of effective grade level configurations.

SECTION I: A REVIEW OF METHODOLOGIES

To assess the feasibility of PK-12 grade level configurations, Hanover took a comprehensive, multi-methods research approach. In this section, Hanover describes each of the projects' methodologies in detail, linking research approach with the research agenda's goals.

Below, Figure 1.1 briefly summarizes the methodology and goal of each project.

Figure 1.1: Summary of Research Methodologies



LITERATURE REVIEW

In November 2016, Hanover conducted a review of secondary research on grade level configurations in both elementary and secondary settings. When possible, this review relied on data-driven studies. Hanover reviewed several online databases to identify high-quality studies to address this topic, including ProQuest, EBSCOHost, ERIC, and the U.S. Department of Education. Secondary anecdotal literature supplements research-based findings from these studies throughout the report to offer a holistic assessment of the

major grade configuration models available to public school districts similar to ACPS. Overall, the central aim of this review is to help ACPS evaluate an array of grade sequences applicable in early childhood, elementary, and secondary settings and encompassing all PK-12 grade levels.

BENCHMARKING STUDY

In November 2016 through February 2017, Hanover organized and administered a series of in-depth interviews with district leaders to benchmark peer school districts' experiences using grade-level reconfiguration to confront increasing enrollment. The following sub-sections detail three components of this environmental scan's methodology (see Figure 1.2).

Figure 1.2: Methodological Components



Overall, the central aim of this benchmarking study was to help ACPS explore the factors shaping other districts' decisions to reconfigure grades and the implications of doing so.

SAMPLE DEVELOPMENT

To draft an initial sample of target school districts for outreach, Hanover identified school districts associated with the fastest-growing U.S. Metropolitan Statistical Areas (MSAs) based on an analysis of population change from April 1, 2010, to July 1, 2015. This analysis used data reported by the U.S. Census Bureau.¹ Analysts then used the National Center for Education Statistics' (NCES) database search tool to identify the public K12 education providers serving these regions and enrolling at least 10,000 students.² This step produced a total of 60 potential school districts likely to have experienced increases in student populations in recent years.

SAMPLE OUTREACH

After identifying these school districts, interview outreach (conducted via email) targeted districts similar to ACPS in size as defined by: student enrollment between 10,000 and 30,000 students and/or 50 or fewer total schools. Outreach efforts also focused on districts that considered or employed grade-level reconfiguration as a strategy for managing increasing enrollment. Ultimately, Hanover conducted phone interviews with respondents across five school districts, two of which requested complete anonymity (see Figure 1.3 for details).

¹ "American FactFinder - Advanced Search." U.S. Census Bureau. <http://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>

² "Search for Public School Districts." National Center for Education Statistics. <https://nces.ed.gov/ccd/districtsearch/>

Figure 1.3: Summary of Qualitative Data Collection

| PARTICIPANT | PARTICIPANT TITLE | DISTRICT | STATE |
|------------------------|---|------------------------------------|-------|
| Josh Hensley | Planning Coordinator | Aurora Joint District 28 | CO |
| Terry Worcester | Director of Planning and Design | Scottsdale Unified School District | AZ |
| Scott McCully | Executive Director for Planning and Student Placement | Charlotte-Mecklenburg Schools | NC |
| Respondent 1 | -- | Anonymous District 1 | -- |
| Respondent 2 | -- | Anonymous District 2 | -- |

IN DEPTH INTERVIEW GUIDE DESIGN

In collaboration with ACPS, Hanover developed an interview guide that contained questions tailored to district responses to growing enrollment. The complete guides are available in the interview protocol previously delivered to ACPS.

In brief, these questions focused on:

- Recent changes in enrollment
- Solutions districts used to address increasing enrollment
- Why districts chose to reconfigure grades
- How districts chose to reconfigure grades
- Challenges districts faced when reconfiguring grades
- Outcomes from reconfiguring grades

ENVIRONMENTAL SCAN

In February 2017, Hanover used data reported by the U.S. Census Bureau’s American Community Survey to explore demographic trends in Alexandria City. The following sub-sections detail three components of this environmental scan’s methodology (see Figure 1.4).

Figure 1.4: Methodological Components



Overall, the central aim of this study was to identify the local neighborhoods that may experience increases in student enrollment in the near future and make practical considerations for grade-level reconfiguration based on those demographic trends.

AMERICAN COMMUNITY SURVEY (ACS) DATA

All data used to assess demographic trends in Alexandria City were derived from the American Community Survey (ACS).³ The ACS is a survey administered by the U.S. Census Bureau to a subpopulation of residents every month, containing a range of questions that focus on age, sex, race, education, income, occupation, and many other personal characteristics.⁴ Estimates were taken from five ACS 5-Year Summary Files that contain aggregated demographic data from 2011 to 2015 for small geographic areas. These data were extracted from the U.S. Census Bureau’s American FactFinder database.

GEOGRAPHIC SCOPE

To provide ACPS with the most detailed analysis of regional population change, Hanover analyzed data that reflect two geographic levels: Zip Code Tabulation Areas (ZCTAs) and census tract estimates. ZCTAs are closely related to the U.S. Postal Service’s ZIP Code service areas; however, because the Postal Service uses ZIP Codes to inform mail delivery routes—not to define population features—ZCTAs allow the Census Bureau to segment population and housing data into more clearly-demarcated geographic zones. Census tracts are “small, relatively permanent statistical subdivisions of a county or equivalent entity that [...] have a population size between 1,200 and 8,000 people.”⁵ Census tracts are typically embedded within ZCTAs and are often bordered by “visible or identifiable features.”⁶ Census tracts are regularly understood as neighborhood-level communities that range in geospatial size depending on the density of their resident populations.⁷

Unfortunately, the American FactFinder does not match a state’s ZCTAs to other geographic units, including Virginia’s counties or school divisions. To determine which ZCTAs correspond with ACPS’s geographic domain, Hanover consulted the Missouri Census Data Center’s (MCDC) Geographic Correspondence Engine, a database that allows users to match geocodes.⁸ The six ZCTAs that correspond with ACPS as reported by the MCDC are illustrated in a map provided in Panel A in Figure 1.5 on the next page.⁹ In total, 38 census tracts, otherwise referred to as neighborhoods, lie within Alexandria City’s ZCTAs (see Panel B in Figure 1.5). A map of these census tracts can be found [here](#).

³ “American Community Survey: Methodology.” U.S. Census. <https://www.census.gov/programs-surveys/acs/methodology.html>

⁴ “ACS Information Guide.” U.S. Census Bureau. <https://www.census.gov/programs-surveys/acs/about/information-guide.html>

⁵ “Geographic Terms and Concepts - Census Tract.” U.S. Census Bureau. https://www.census.gov/geo/reference/gtc/gtc_ct.html

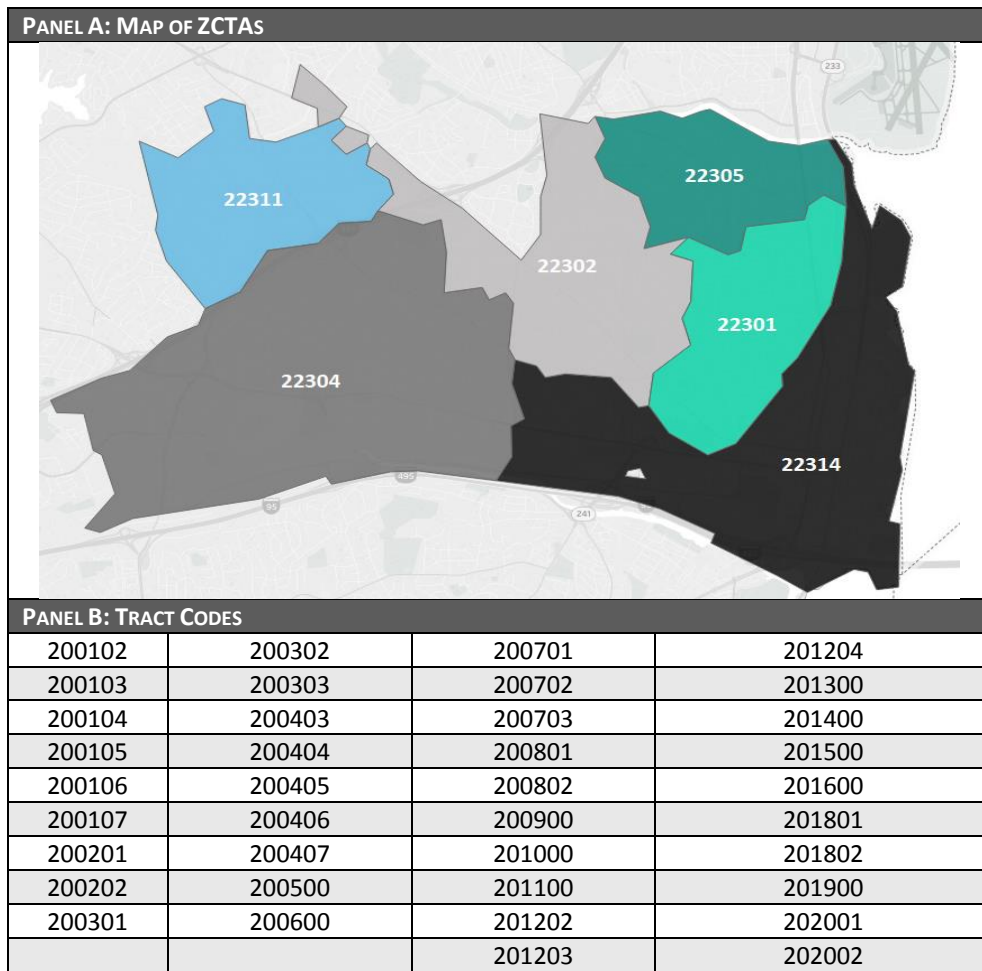
⁶ *Ibid.*

⁷ *Ibid.*

⁸ “Geographic Correspondence Engine.” Missouri Census Data Center. <http://mcdc.missouri.edu/websas/geocorr12.html>

⁹ It should be noted that the boundaries of two ZCTAs, areas 22206 in Shirlington and 22312 in Lincolnia, overlap with ACPS but are excluded from this list because the proportion of their boundaries that lie within ACPS are relatively small.

Figure 1.5: ZCTAs and Census Tracts in Alexandria City Public Schools



Source: Missouri Census Data Center,¹⁰ map made using Tableau software.

VARIABLE OF INTEREST AND ANALYTICAL STRATEGY

Using the American Factfinder, Hanover collected multiple ACS data files that contain demographic measures relevant to ACPS’s interest in grade-level feasibility and potential reconfiguration. In total, the data reflect five-year trends in family residency and fertility estimates, student-aged population and race estimates, income estimates, and mobility estimates. For every ACS measure, Hanover discussed population change over time, citing how these rates of change, if held constant, can be used to understand population growth in the years to come. For a more in-depth examination, Hanover identified top areas (ZCTAs and census tracts, where appropriate) with large and fast growth. Aside from an analysis of this data, information obtained from secondary sources about population change and projected growth in the region were included in the discussion to help contextualize findings.

¹⁰ Ibid.

IN-DEPTH INTERVIEWS WITH HIGH SCHOOL TEACHERS

This study focused on gathering perceptions of current teachers surrounding the impact of the split campus model and Ninth Grade Academy on both the Minnie Howard and King Street campuses.

SAMPLE DEVELOPMENT & OUTREACH

This report involved qualitative research findings from 16 in-depth interviews with TC Williams High School teachers conducted during fall 2017. Hanover recruited interview participants using a list provided by ACPS. In conducting outreach, Hanover made best efforts to recruit teachers from a variety of subjects, and with different levels of tenure at the district. In two cases, participants answered interview questions in a written format rather than over the phone. All teachers interviewed for the study remain anonymous.

INTERVIEW GUIDE DESIGN

In collaboration with ACPS, Hanover developed an interview guide that contained questions tailored to TC Williams High School's current design and structure. A complete in-depth interview guide is provided in the interview protocol previously delivered to ACPS. Questions presented to teachers focused on two major themes:

- Perceptions of the current split campus model
- Thoughts on potential future grade configuration options

SECTION II: KEY FINDINGS AND THEMES

Hanover’s multi-method research approach uncovered several findings on the feasibility of PK-12 grade level configurations. The following section synthesizes these studies’ key findings as they correspond with several prominent themes, such as: what demographic trends in ACPS’ local neighborhoods may impact school enrollment, how districts typically address rising enrollment, best practices in deciding whether to reconfigure grades to address rising enrollment, and features of effective grade level configurations (see Figure 2.1).

Figure 2.1: Themes




IDENTIFYING DEMOGRAPHIC TRENDS IN ACPS

The following sub-section identifies demographic trends in in Alexandria City and discusses how those demographic trends may impact specific neighborhoods and schools.

POPULATION GROWTH

Alexandria City experienced growth in family residency as well as sizable increases in student-aged populations from 2011 to 2015. Alexandria City’s six ZCTAs grew by a total of over 3,000 families from 28,311 in 2011 to 31,375 in 2015. During the same period, the population ages 0 to 17 increased from 22,128 to 25,557 persons, an increase of 15.5 percent.

| | | | |
|---|-------------------------|-----------------|---------------------------|
|  | 2011 | 28,311 families | 22,128 people age 0 to 17 |
| | 2015 | 31,375 families | 25,557 people age 0 to 17 |
| | Percent Increase | 10.8% | 15.5% |

While Alexandria City experienced sizable growth in residency, this growth was unevenly experienced across different geographies. Area 22311 (Alexandria West) witnessed some of the largest percent increases in total families from 2011 to 2013 but experienced a sharp decline in families between 2013 and 2014 prior to experiencing growth again by 2015. Area 22305 in Potomac West experienced the most consistent growth in family residency. At the same time, area 22304 in Van Dorn made large gains in those ages 0 to 4 and 12 to 17, with increases of 588 and 524 persons, respectively.

CHANGING DEMOGRAPHICS

The racial composition of Alexandria City’s ZCTAs among those ages 0 to 17 drastically differ and have grown even more segregated during the 2011 to 2015 period. In 2015, 42.3 percent of persons ages 0 to 17 residing within all six of Alexandria City ZCTAs identified as white, 25.5 percent as black, 22.6 percent as Hispanic, 4.6 percent as Asian, and 5.0 percent as another race. This same year, 72, 58, and 55 percent of area 22301 (Del Ray), 22302 (central Alexandria), and 22314’s (Old Town) population was majority white, respectively. Approximately 44 and 41 percent of area 22305 (Potomac West) and 22311’s (Alexandria West) population was majority Hispanic. Only area 22304 (Van Dorn) has continued to maintain racial balance. Beyond these recent trends, white residents are expected to continually make up a smaller portion of Alexandria City’s residents between 2020 and 2040 per projection estimates released by the Virginia Employment Commission (VEC).

Such segregation is likely to increase the difficulty of maintaining racial balance and equity among ACPS’s schools. Given these projections and current patterns in the racial composition of the student-aged population, ACPS is likely to witness increases in students of color, yet may encounter racial segregation across schools as a reflection of neighborhood segregation.

Disparities in the median household income of Alexandria City’s ZCTAs have also grown wider over time, which may impact inequalities in student access to resources across neighborhoods and schools. Inequalities in household income are even more apparent at the neighborhood level, in which low-income census tracts saw reductions in median incomes while high-income tracts saw increases in median income. Taken together, spatial unevenness in racial makeup and socioeconomic status across Alexandria City’s communities may pose challenges to the division as it considers grade level reconfiguration. Should division leaders choose to reorganize grades, ACPS must consider how such reconfiguration will impact the balance of students across schools and equitable access to opportunity.

Figure 2.2: District Example: Charlotte-Mecklenburg Schools

Maintaining equity in educational offerings is a priority of Charlotte-Mecklenburg Schools (CMS) when planning for grade-level reconfiguration and the construction of new schools. CMS uses a blind lottery to assign students to its full and partial magnet schools. In these cases, students record their first, second, and third priority schools. The district has since expanded the capacity of the most popular schools to accommodate “students who really have a desire to be in [those] program[s].” Overall, the district has not received any major concerns or pushback from the community on these policies.

IMPACTS ON ACPS

The three high-growth areas within the city are ZCTA 22304 in Van Dorn, ZCTA 22305 in Potomac West, and ZCTA 22311 in Alexandria West. ACPS may wish to monitor these areas due to their large growth, and consider how grade reconfiguration or other strategies to address rising enrollment may help ease enrollment pressure on local schools. See Figure 2.3, on the following page, for details.

Figure 2.3: Three High Growth Areas in Alexandria City

| COMMUNITY | DEMOGRAPHIC TRENDS | IMPLICATIONS | SCHOOLS IN THE COMMUNITY |
|---|---|--|---|
| <p>ZCTA 22304 in Van Dorn</p> | <ul style="list-style-type: none"> ▪ Population Growth: Between 2011 and 2015, family residency grew by over 10 percent with an increase of 929 more families. The birth rate and the population ages 0 to 4 and 12 to 17 has also steadily increased during this period. ▪ Racial Composition: Should the division reconfigure grade levels in area 22304, ACPS should consider the community’s racial composition, which displays the greatest racial balance compared to other ZCTAs in Alexandria City. ▪ Median Income: The median income has remained fairly stable from \$70,145 in 2011 to \$76,071 in 2015; although, this median income is much lower compared to the median incomes of Alexandria City’s other communities. A closer look at the median incomes of the neighborhoods within area 22304 reveal wide discrepancies across census tracts. | <p>Maintaining equity in student socioeconomic status across the community’s schools may prove challenging should these discrepancies in median incomes persist.</p> | <ul style="list-style-type: none"> ▪ Francis C. Hammond Middle ▪ James K. Polk Elementary ▪ Patrick Henry Elementary ▪ Samuel W Tucker Elementary |
| <p>ZCTA 22305 in Potomac West</p> | <ul style="list-style-type: none"> ▪ Population Growth: Between 2011 and 2015, family residency grew by over 20 percent with an increase of 593 families. In addition to large family growth, the birth rate continued to rise. ▪ Racial Composition: From 2011 to 2015, the racial composition of area 22305 shifted from a white-majority to a Hispanic-majority population ages 0 to 17. ▪ Median Income: The community declined in the percent of households earning annual incomes less than \$50,000 while increased in the percent of households with incomes of \$150,000 or more. | <p>Overall, these trends suggest that a considerable amount of demographic change has occurred while the community has grown. Such change may make it difficult to ensure equitable racial and socioeconomic representation should ACPS reconfigure grade levels across schools.</p> | <ul style="list-style-type: none"> ▪ Cora Kelly Magnet Elementary ▪ Mount Vernon Elementary |
| <p>ZCTA 22311 in Alexandria West</p> | <ul style="list-style-type: none"> ▪ Population Growth: Between 2011 and 2015, family residency grew by about 400 families, with large increases in family residency in the northern part of the community. ▪ Racial Composition: Approximately 85 percent of the those aged 0 to 17 residing within area 22311 are non-white, a majority of whom are Hispanic. ▪ Median Income: The community’s median household income has remained the lowest of all six ZCTAs from \$65,700 in 2011 to \$61,829 in 2015, and was the only ZCTA estimate to decline during this five-year period. | <p>Many children residing within this community are likely to face racial and socioeconomic disadvantages than those in Alexandria City’s other communities.</p> | <ul style="list-style-type: none"> ▪ John Adams Elementary ▪ William Ramsey Elementary |

TEACHER PERCEPTIONS OF THE CURRENT CONFIGURATION OF TC WILLIAMS HIGH SCHOOL

In addition to demographic pressures, ACPS must consider the challenges associated with the current configuration of TC Williams High School. The following pages summarize teacher perceptions surrounding the School’s current split campus model.

SCHOOL UNITY

Teachers at Minnie Howard benefit from a smaller and more intimate teaching environment. Participants consistently refer to the ninth-grade campus as ‘close-knit’ and position this as an advantage for student learning.

Despite noting a strong sense of community, almost all teachers view Minnie Howard campus as its own entity and not part of TC Williams. Teachers are quick to note that students also feel a sense of separation from the high school. As a result of the disconnect between the ninth-grade campus and main campus, teachers express concern that rather than thinking of Minnie Howard as high school, “most students think of it as an extension of their middle school years.” This, teachers feel, lowers student expectations and has a negative impact on student performance and achievement. Furthermore, some teachers note a lack of consistency in administration between the two campuses, as well as a lack of attention given to the Minnie Howard campus due to the shared administration.

“THE REAL TC WILLIAMS”

Teachers describe the ninth-grade campus at Minnie Howard as a way station, not perceived as the ‘real’ high school

“Holding Place” “Stop over”
“Dead zone”

In general, teachers believe that **the intimacy and focus of the ninth-grade academy can be recreated in a larger school** through holding ninth grade orientation sessions, spatially grouping students into wings, or social grouping into academies.

STUDENT BEHAVIOR AND MATURITY

Both Minnie Howard and King Street teachers acknowledge the benefits of giving ninth graders their own space and attention to transition into high school life and expectations. However, while acknowledging the benefit of having a space to transition, most teachers feel the transformation into mature high school students is ultimately delayed by the current ninth-grade academy structure. **Most teachers agree that ninth-graders would benefit from the presence of older peers to set expectations and demonstrate appropriate behavior.**

COMMUNICATION

Teachers at the ninth-grade campus praise the ability of the smaller school to facilitate communication and collaboration between teachers within the school. Participants highlight that teachers from different disciplines, who might not be expected to work together in a

larger building, are coming together to align on ninth-grade curriculum and create a comprehensive and supportive learning experience for their students. **However, teachers at both Minnie Howard and King Street note a lack of communication that prevents vertical planning and expectation-setting for students across grade levels.**

LOGISTICS: SCHEDULING AND TRANSPORTATION

The split campus model has a limited impact on core subject courses and teaching, largely because Grade 9 students are able to travel to the King Street campus for those courses that

“SCHEDULING COMPLICATIONS”

Teachers note that scheduling complications tend to arise when there are changes to the schedule at either school due to testing or assemblies.

“... [I]f King Street’s got something else going on... we’ve got to babysit 300 kids for a period during the day.”

“When... the ninth graders don’t come because of whatever reason, I have to reteach everything we have just done.”

are not offered at Minnie Howard. However, teachers report challenges in scheduling related to electives, as well as for those students who fail a class during ninth grade. Students “cannot repeat ninth grade classes for all subject areas easily,” one teacher noted, and summer may be the only option to retake certain courses.

Teachers also report scheduling conflicts due to testing and assemblies that sometimes result in wasted or lost class time. Transportation challenges, such as traffic buses encounter en route between the two campuses, can also result in lost class time.

Some teachers report that the split campus model hinders participation in afterschool activities and clubs, although participation in athletics is notably not affected by the split.

RESOURCES AND RELATIONSHIPS

Teachers at Minnie Howard also note that, while students are able to access resources by traveling back and forth between the two campuses, the Grade 9 campus is smaller and not equipped with many of its own resources. For example, teachers

expressed interest in establishing more resources at Minnie Howard for electives and afterschool programming. **In general, teachers at each campus expressed a desire for their own campus to be equipped with its own resources, have its own administrators, and hold decision-making power.**

Finally, as a result of a smaller, tight-knit community, students in the ninth-grade campus receive more time and attention from teachers than they would at a comprehensive high school. However, teachers at Minnie Howard note that while they are able to provide

additional attention to Grade 9 students during the current school year, relationships suffer over time, as students move to the King Street campus and lose touch.

REVIEWING DISTRICT STRATEGIES TO ADDRESS RISING ENROLLMENT

Districts like ACPS have used several capital and non-capital strategies to accommodate increases in local population like those described above, including:



Grade reconfiguration: School districts may choose to reconfigure grades to better meet the instructional needs of a growing student body. Two of the three districts in the benchmarking study that reconfigured grade levels chose to combine K-5 elementary and 6-8 middle schools into single K-8 schools. One instituted the change to accommodate a growing student body, while the other made the change to use facility space across the district more efficiently. The third district that reconfigured grade levels separated K-8 schools into K-5 elementary and 6-8 middle schools to encourage instructional focus.



Space renovations: School districts may also choose to make internal building modifications, expand schools, or renovate schools. Two anonymous school districts in the benchmarking study rearranged classrooms, offices, and/or other facility spaces within schools as a first step to maximize the usage of space.



Portable units: Another strategy to address enrollment growth is the use of mobile or portable units to expand space. However, while mobile units may provide quick and temporary facilities space, and while research has not identified any detrimental effects of their use for learning, several studies have documented some health and safety hazards to their use. Nevertheless, none of the three districts in the benchmarking study that introduced portable units discussed such complications.



New school zone boundaries: Altering school zone boundaries is a non-capital strategy to curb enrollment pressure. Adjusting school boundaries helps to redistribute student populations across schools where one school may be above enrollment capacity while another has excess space. Researchers warn, however, that frequent “non-promotional school change” negatively affects students’ academic achievement, their social adjustment, and the school environment.



Restructured class schedules: Extending the school day or creating a year-round schedule is another non-capital strategy that districts facing over-enrollment consider. Indeed, proponents of a year-round academic calendar often cite the benefit of facilities efficiency in addition to other academic benefits.



Increased online learning: Offering more online learning opportunities shift the focus of strategic enrollment planning from facilities space to instructional practice.

Rather than relying solely on grade level reconfiguration, ACPS leaders may wish to consider how the division could use a combination of the above strategies over the short- and long-term to address rising enrollment and counteract the growing spatial unevenness in racial makeup and socioeconomic status in Alexandria City communities.

CHOOSING TO RECONFIGURE GRADES

Districts that choose to reconfigure grades as a strategy to accommodate increases in local population should understand that the empirical data does not universally support any specific configuration as “the best” for students. Instead, much of the support (or not) for a grade span model is based on anecdotal and descriptive literature. Nevertheless, districts can reorganize schools in several ways to reflect their internal capabilities and the needs of their student population, which can positively influence student outcomes despite the inconclusive literature. In many cases, reforming a school’s organization or management style can represent a potentially cost-effective way to stimulate student performance and other indicators of success. Compared to policy changes regarding teacher tenure or the implementation of new standards, for example, school organization is a high-impact, low-cost reform that schools can enact to drive district-wide improvements in targeted areas such as achievement scores or non-academic growth.

Before reorganizing grade configurations, districts may wish to consider several key questions (see Figure 2.4). It is critical for district leaders to consider the potential benefits and challenges, both in terms of cost and student impact, of reorganizing buildings and grade spans. Experts believe that “school districts poised on the brink of making these decisions must consider factors beyond simply what is best for the students. They also must consider projected enrollments, transportation costs, number of transitions to be made by students, size of school, and overall school goals.”¹¹ Moreover, education practitioners note that grade spans that are effective in some districts may be less effective in others, cautioning district administrators to consider the context of reform efforts.

¹¹ Howley, C.B. “Grade-Span Configurations.” The School Superintendents Association. <http://www.aasa.org/SchoolAdministratorArticle.aspx?id=10410>

Figure 2.4: Key Questions to Ask When Considering New Grade Configurations

- Will the grade configuration increase or decrease parent involvement?
- How many students will be enrolled at each grade level and what implication does this have on course offerings and instructional grouping?
- How many transition points will occur? How will these be addressed?
- How will the presence or absence of older students affect younger students?
- Is the design of the school building suited to this grade configuration?
- What is the cost and length of student travel?
- What are the opportunities for interaction between age groups?
- What are the effects of the grade configuration on curriculum? Is there better continuity and articulation in curriculum with fewer gaps and overlaps?
- Are there stronger ties among schools, students, and parents?

Source: Barton and Klump¹²

FEATURES OF EFFECTIVE CONFIGURATIONS


To reorganize schools in a way that reflect their internal capabilities and the needs of their student population, districts like ACPS may wish to consider grade configuration *models* and the configuration *process*. By considering grade configuration models, districts can develop a strong understand of the models that exist, which models are most common, and the features of models that can impact student achievement. By considering grade configuration processes, districts can better understand how to implement grade configurations in a way that accounts for the needs and interests of their community stakeholders.

CONFIGURATION MODELS

State-level data on grade level configurations suggests that there is no limit to the division of grades that is possible, and common models range from wide-scale schools that serve up to seven grade levels to single- or two-grade buildings.

However, the most *common* grade configurations for public schools nationally and in ACPS' region are generally PK/K-5 at the elementary level and 9-12 at the high school level. Three-year middle schools are the most common model nationally and regionally, although K-8 schools are becoming more popular. The number of K-8 schools nationally has increased substantially over the past 20 years from 2,500 schools in 1994 to 6,500 schools in 2014.

¹² Barton, R. and J. Klump. "Figuring Out Grade Configurations." *Principal's Research Review*, 7:3, May 2012. p. 6. <http://educationnorthwest.org/sites/default/files/resources/PRR-Figuring-Out-Grade-Configurations.pdf>



| | | |
|----------------------|----------------------------------|----------------------------------|
| Grades PK/K-5 | 25,309 schools nationally (2014) | 38 percent of elementary schools |
| Grades 9-12 | 16,361 schools nationally (2014) | 13 percent of secondary schools |
| Grades PK/K-8 | 6,553 schools nationally (2014) | 10 percent of elementary schools |

Although the research does not universally support any specific configuration as “the best” for students, some studies do suggest that some configurations are better than others. For example, researchers have found that young students do not benefit from isolated early childhood experiences in PK-K schools. Likewise, students do not benefit from isolated intermediate experiences in 5-6 schools. On the following page, Figure 2.5 summarizes these research findings for all major grade level configurations.

Figure 2.5: Summary of Research Findings for Grade Level Configurations

| GRADE LEVELS | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|----|----|----|
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Students do not appear to benefit from isolated early childhood experiences. Students in standalone pre-primary schools do not gain skills as fast over the course of the school year as their peers in elementary schools. Generally, researchers find that more time is dedicated to instruction when Kindergarten is included in elementary grade spans. | | | | | | | | | | | | | |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| PK/K-5 schools are the most common grade configuration for public schools at the elementary level. However, the data indicates that Grade 6 students have higher academic outcomes and better behavior in elementary school settings. In two separate studies, researchers found that Grade 6 students who attended K-6 schools outperformed their peers in Grades 6-8 schools in ELA and math on end-of-year assessments. Moreover, when comparing infraction rates for Grade 6 students between the two school settings, researchers found that these students, when attending a middle school, acquired more infractions than peers in elementary schools. However, districts transitioning to a K-6 grade configuration will need to consider how they will address increased student enrollment in elementary schools. | | | | | | | | | | | | | |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Intermediate schools are not supported by the literature. Students in Grades 5-6 perform better as part of larger elementary grade spans, and there is no evidence that intermediate schools are better equipped to provide students with dedicated social and emotional supports resources than more standard elementary school settings. | | | | | | | | | | | | | |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Despite the wealth of literature and recent school district trends favoring K-8 schools, studies comparing student outcomes at K-8 schools and middle schools have found conflicting results. Several studies found improved academic and behavior outcomes for K-8 students compared to middle school students, while others found no difference in outcomes between K-8 and middle school students. Other studies, however, found grade span is not associated with negative outcomes. Rather, classroom quality or the social environment may be better predictors of student outcomes. | | | | | | | | | | | | | |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Relatively few studies have compared junior high and middle school grade configurations to each other or to other secondary configurations. One study found that the 7-8 pattern was superior to the 6-8 model, as students in Grade 7 were more likely to have higher test scores and less likely to have disciplinary infractions. Other studies, however, have found grade span itself is not associated with negative academic or behavioral outcomes. Rather, classroom quality or the social environment may be better predictors of student outcomes. | | | | | | | | | | | | | |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Ninth grade academies are often difficult for schools to implement, as academies have distinct administrative structures and programmatic characteristics, which can be difficult to implement without substantial district support and resources. Moreover, research on their effects is inconclusive. While some studies have found that students attending such academies have higher achievement levels than students in typical high schools, other studies have found no differences. | | | | | | | | | | | | | |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 7-12 schools are not generally supported by the literature. Proponents of the 7-12 model argue that it is effective because it minimizes school transitions and allows middle grades students to access high school facilities and advanced coursework. However, research and anecdotal accounts of the model's outcomes have been mixed. Adopters of the model have acknowledged that middle and high school students have different needs, and typically use school-within-school models to serve 7-8 and 9-12 students separately on the same campus. | | | | | | | | | | | | | |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 9-12 schools are by far the most prevalent type of secondary school configuration. The empirical evidence supporting the use of alternative secondary school configurations, like Ninth grade academies, is limited. | | | | | | | | | | | | | |

BEST PRACTICE FEATURES OF CONFIGURATION MODELS

A focus on school quality and effective educational practices should underpin any grade reconfiguration effort. Regardless of the grade span configuration used in a district, leaders should focus on implementing best practice features of K-12 education, such as:

- **Alignment in Grades K-3:** Comprehensive PreK-3 alignment is critical to ensure successful transitions into formal schooling and maintain student achievement. A dedicated PreK-3 framework ensures that curricula and pedagogy are aligned across early childhood and early elementary classrooms, and this sequences points to the efficacy of including early childhood grades with elementary sequences.
- **Support of Student Transitions:** Transition programs, which address students' concerns and expectations about new schools, should align with overall K-12 articulation efforts; teachers and administrators at each school level should coordinate efforts to address transition issues.
- **Developmentally Appropriate Instruction:** Districts should strive to meet students' academic and developmental needs at all ages. High-impact schools will address the developmental and academic needs of students regardless of how grades are organized, and this will ultimately boost outcomes.

CONFIGURATION PROCESSES

Once a grade configuration is selected, implementing new configurations can initially be disruptive or frustrating for teachers, students, and parents as schools adjust to serving new student populations. This section reviews strategies that other districts have used to facilitate the implementation of new grade configurations, including: engaging stakeholders, considering costs and resources, and committing to student achievement and well-being.

Engage all stakeholders throughout the process



Districts typically review the grade configuration literature and solicit feedback from stakeholders when deciding whether to adopt new grade configurations. Experts recommend that districts first review the literature on grade configurations and visit or speak with other districts with the same configuration to learn about the benefits and disadvantages of potential configurations. After selecting potential configurations based on the research literature and regional trends, districts should assess stakeholders' views on these potential configurations by administering surveys, interviews, or focus groups. Districts have also created boundary review committees, consisting of parents, teachers, and staff, which have reviewed district plans for grade configuration and school boundary zones.

District's experiences also suggest that engaging with stakeholders after the process is completed is likewise valuable. In Colorado, Aurora Joint District 28's (APS) stakeholders were generally pleased with the change from Grades K-5 to K-8 schools. However, a primary

challenge the district faced to combining elementary and middle school grades was preparing students for the transition, particularly those that were moving from a middle to a K-8 school. As a planning coordinator in the district’s planning department explained, students already in traditional middle schools struggled with switching to a K-8 school because they had developed different expectations surrounding school and instructional culture.

Consider costs and resources needed



Cost considerations are a key issue for districts to weigh when considering new grade spans. Transportation costs could increase or decrease depending on the details of the new configuration. Schools may also need to add classrooms, purchase additional furniture, or modify their facilities to meet the needs of older or younger students; space is often a limiting factor for districts that wish to modify their grade configurations.

Scottsdale Unified School District (SUSD) in Arizona, for example, found that efficiently managing facilities and costs was difficult when restructuring K-8 schools into K-5 schools to meet population needs. Ultimately, the restructure left SUSD with extra classrooms. The district decided to use this space for the instruction of small-scale programs, such as special education programs, pull-out instruction, or classes for the community. Meanwhile, CMS has found that PK-8 schools required more features than previous K-5 schools. After prior attempts to shift middle schoolers into buildings that were previously used as elementary schools, administrators learned that while such buildings were not fully utilized, the spaces within the schools still lacked the features and amenities needed to accommodate instruction for middle grade students. Finally, APS found that switching to K-8 models required teachers to obtain new certifications to be able to teach in both Grades K-6 or Grades K-8. **Thus, if ACPS decides to reconfigure grades, leaders should weigh how different configurations would impact their human resources (e.g., staff), fiscal resources, and facilities.**

Commit to student achievement and wellbeing



Educators, researchers, and district leaders emphasize that a commitment to “sound educational practices” should be the underlying goal of any grade reconfiguration. Districts should a) be aware of the developmental issues facing students at different grade levels and ensure that the curriculum, class schedules, and behavioral expectations meet students’ needs, b) consider whether staff and teachers need additional training to serve new student populations, and c) ensure articulation between K-12 curricula.

Some stakeholders may worry that administrators are not considering student achievement and well-being adequately. At APS, for example, a few stakeholders expressed concern that their younger children would attend school with much older students in K-8 schools. **Thus,**

as part of the stakeholder engagement process, ACPS may wish to reassure parents, teachers, and students of this commitment to student achievement and wellbeing.

TEACHER PERCEPTIONS OF FUTURE GRADE CONFIGURATION OPTIONS

The results of the In-Depth Interviews with High School Teachers suggest that **ACPS should consider implementing one large or two smaller comprehensive high schools**. In general, teachers expressed a preference for a 9-12 grade configuration among upper-secondary students. Teachers stress a sense of community and feel that ninth graders should be in the presence of older grades to learn appropriate behavior and academic expectations. Dividing students by grade level leads to perceptions of the lower school not being “real” high school, a lack of vertical planning among teachers, and logistical challenges.

PERCEPTIONS OF THE 9-10/11-12 GRADE CONFIGURATION PROPOSAL

Teachers who find the current ninth-grade academy problematic express concern over a 9-10/11-12 configuration and feel that it would create even more complications for the district in terms of school unity, scheduling electives, and continuity of curriculum. **While a few teachers suggest ninth graders would benefit from having an older grade to look up to, many teachers feel the format would instead hold back tenth graders.** Teachers also suggest that the proposal configuration would limit the availability of electives at both campuses.

Teachers note that certain student populations may not benefit if the campuses are split into a 9-10/11-12 configuration without providing comprehensive, consistent resources at each campus. Several teachers emphasize the importance of addressing the needs of students who require additional support or an alternative educational environment, and express uncertainty that a 9-10/11-12 configuration would allow for this. Furthermore, several teachers highlight the International Academy specifically, and wish to maintain this program throughout the high school grades.

CONCERNS SURROUNDING DIVERSITY

Many teachers acknowledge concerns around dividing the district up into two high school populations, but express different views on the attainability of diverse and equitable schools. Several frame concerns as justified, and feel that two high schools would breed unhealthy competition and racial/socio-economic segregation, while others position this a problem that can be avoided through proper planning and ignoring opinions that are not in the best interest of the students.

CONCERNS FOR EQUITY

Teachers are divided as to whether the district can be equitably divided into two, integrated high schools.

“I would be concerned a bit if there were two different high schools.... [D]oes that segregate students socioeconomically?”

“You can control district lines. You can control what teachers you hire at each school, and provide the same thing equally, but you can’t change the nature of a ninth and tenth grader.”

PROJECT EVALUATION FORM

Hanover Research is committed to providing a work product that meets or exceeds client expectations. In keeping with that goal, we would like to hear your opinions regarding our reports. Feedback is critically important and serves as the strongest mechanism by which we tailor our research to your organization. When you have had a chance to evaluate this report, please take a moment to fill out the following questionnaire.

<http://www.hanoverresearch.com/evaluation/index.php>

CAVEAT

The publisher and authors have used their best efforts in preparing this brief. The publisher and authors make no representations or warranties with respect to the accuracy or completeness of the contents of this brief and specifically disclaim any implied warranties of fitness for a particular purpose. There are no warranties that extend beyond the descriptions contained in this paragraph. No warranty may be created or extended by representatives of Hanover Research or its marketing materials. The accuracy and completeness of the information provided herein and the opinions stated herein are not guaranteed or warranted to produce any particular results, and the advice and strategies contained herein may not be suitable for every client. Neither the publisher nor the authors shall be liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages. Moreover, Hanover Research is not engaged in rendering legal, accounting, or other professional services. Clients requiring such services are advised to consult an appropriate professional.



4401 Wilson Boulevard, Suite 400
Arlington, VA 22203
P 202.559.0500 F 866.808.6585
www.hanoverresearch.com

BENCHMARKING STUDY OF GRADE-LEVEL FEASIBILITY

Prepared for Alexandria City Public Schools

February 2017



In the following report, Hanover Research explores the strategies five school districts implemented to address increasing enrollment and the role that grade-level reconfiguration played during the strategic planning process. These strategies and their implications are first summarized followed by in-depth case profiles of each school district.

TABLE OF CONTENTS

- Executive Summary and Key Findings4**
 - INTRODUCTION4
 - KEY FINDINGS.....5
- Section I: Overview of Grade-Level Feasibility Strategies.....7**
 - STRATEGIES TO ALLEVIATE OVERCROWDING7
 - Grade-Level Reconfiguration7
 - Internal Modification, Expansion, and Renovating Facilities10
 - Alternative Non-Capital Options11
 - IMPLICATIONS FOR CONSIDERATION12
 - District Resources and Operating Costs12
 - Student Wellbeing13
 - Considerations for Educators and Community Feedback14
- Section II: In-Depth Interview Profiles..... 16**
 - METHODOLOGY16
 - AURORA JOINT DISTRICT 2820
 - Challenges to Enrollment.....20
 - Reconfiguring Grade Levels21
 - The Planning and Decision Making Process.....22
 - Challenges to Reconfiguration.....23
 - Outcomes.....24
 - SCOTTSDALE UNIFIED SCHOOL DISTRICT.....25
 - Challenges to Enrollment.....26
 - Reconfiguring Grade Levels27
 - The Planning and Decision Making Process.....27
 - Challenges to Reconfiguration.....28
 - Outcomes.....29
 - CHARLOTTE-MECKLENBURG SCHOOLS30
 - Challenges to Enrollment.....31
 - Reconfiguring Grade Levels31
 - The Planning and Decision Making Process.....33
 - Alternative Strategies to Reconfiguration and Challenges.....34

| | |
|---|----|
| Outcomes..... | 35 |
| ANONYMOUS DISTRICT 1..... | 36 |
| Challenges to Enrollment..... | 36 |
| Alternative Strategies to Reconfiguration | 36 |
| Outcomes..... | 38 |
| ANONYMOUS DISTRICT 2..... | 38 |
| Challenges to Enrollment..... | 39 |
| Alternative Strategies to Reconfiguration | 39 |
| Outcomes..... | 40 |

EXECUTIVE SUMMARY AND KEY FINDINGS

INTRODUCTION

In the last decade, Alexandria City Public Schools (ACPS) experienced large increases in student enrollment, creating overcrowding and space constraints at the Division’s schools. ACPS continues to experience these trends in overpopulation, and in an effort to confront such challenges, has considered reconfiguring grade levels across the Division’s schools and/or building an additional facility. With these considerations in mind, ACPS aims to identify solutions to address the increasing student populations by establishing a long-term plan for grade-level feasibility and sustainability.

To support ACPS’s efforts in examining grade-level feasibility, Hanover has proposed a series of mixed methods studies (Figure ES.1). The following study consists of the second phase of this ongoing research and benchmarks best practices, possible challenges, and observed outcomes of grade-level reconfiguration and other strategies peer school districts have implemented to confront increasing enrollment. This information is primarily drawn from five in-depth interviews with district personnel who have insight about decisions to either pursue grade-level reconfiguration or alternative solutions to overcrowding. Additional information about grade-level reconfiguration for feasibility is supplemented from secondary literature and published reports. In all, findings from this phase of investigation are organized into two key sections:

- **Section I: Overview of Grade-Level Feasibility Strategies** summarizes information obtained from in-depth interviews with district leaders as well as secondary articles and reports to explore the factors shaping decisions to reconfigure grades and the implications of doing so. Altogether, Hanover reviews several main strategies for addressing enrollment and considerations for operating costs, students, educators, and the community.
- **Section II: In-Depth Interview Profiles** details the practices of five peer school districts that have faced challenges to increasing enrollment and/or student overpopulation. Each of these profiles reviews a district’s decision making processes and factors for considering grade-level reconfiguration; the strategies that were ultimately used to address increasing enrollment; and the outcomes of these strategic decisions.

Figure ES.1: Summary of Proposed Work in Series

| TITLE | TYPE | DATE COMPLETED |
|---|---|----------------|
| Analysis of Elementary and Secondary Grade Span Configurations | Literature Review | November 2016 |
| Benchmarking Study of Grade-Level Feasibility | Mixed Methods: In-Depth Interviews; Synthesis of Supplementary Articles | February 2017 |
| Environmental Scan of ACPS Service Area | Mixed Methods: Data Analysis; Synthesis of Supplementary Articles | Pending |
| Study of ACPS Ninth Grade Models | Data Analysis | Pending |
| Capstone Report | Synthesis | Pending |

KEY FINDINGS

- **Three out of the five school districts have reconfigured grade levels across schools.** Two school districts, Aurora Joint District 28 in Colorado (referred to as Aurora Public Schools; APS) and Charlotte-Mecklenburg Schools in North Carolina (CMS), combined traditional K-5 elementary and 6-8 middle schools into single K-8 schools. At APS, this reconfiguration was made to accommodate the space and instructional needs of a growing student body. At CMS, K-8 schools were reconfigured for greater efficiency in the use of facilities space across schools. These grade span configurations align with a growing trend in schools across the nation that have transitioned from separate middle or junior high schools into more comprehensive K-8 schools. In the mid-1990s, there were approximately 2,500 K-8 schools. As of 2014, the number of K-8 schools grew to over 6,500. Only one school, Scottsdale Unified School District (SUSD), separated K-8 schools into distinct elementary and middle schools. This was done to support greater instructional focus tailored to the developmental and academic needs of young and middle grade students.
- **While more schools have reconfigured to K-8 models, studies comparing student outcomes at K-8 schools and middle schools have found conflicting results.** Some research documents improved academic and behavior outcomes for K-8 students as compared to those who attend traditional middle schools. These outcomes include better attendance, decreased suspensions and other disciplinary infractions, and improved academic achievement as measured by math and reading scores. Yet, many of these studies' findings are weakened by a number of methodological issues, such as study designs that limit ability to determine causality or a lack of statistical controls. Overall, the evidence suggests that no single grade span configuration across schools works best for all districts' needs, nor do researchers unanimously agree on a "best" grade span configuration model.
- **Internal building modifications, school expansion, and building renovations are some alternative strategies districts have done or have considered implementing to address overcrowding.** Two anonymous school districts have rearranged classrooms, offices, and/or other facility spaces within schools as a first step to maximize the usage of space. Both of these districts and CMS also reported using mobile or portable units to meet short-term space needs. Although, research shows that temporary units can have poor ventilation for student health. As another alternative, CMS and an anonymous district have planned to renovate existing schools while constructing new schools in the same enrollment boundaries. Opening multiple schools in a single boundary provides the district with greater space for enrollment.
- **Altering school zone boundaries, restructuring the class schedule, and offering more online learning opportunities are non-capital strategies to curb enrollment pressure.** Adjusting school boundaries helps to redistribute student populations across schools where one school may be above enrollment capacity while another has excess space. Restructuring the class schedule, such as lengthening the school day or creating a year-round calendar, increase the use of existing facilities spaces; although,

districts in Hanover's benchmarking study have not taken these steps. Finally, Anonymous District 1 and CMS have considered offering more online learning opportunities to create flexible use of learning spaces.

- **There are several key considerations districts should take into account when contemplating grade-level reconfiguration.** Reconfiguration often entails added costs associated with new materials, classroom items, facilities space, and student transportation. These costs may range from \$50 to \$250 per student as one report by the Brookings Institute estimated. Student wellbeing is also of critical importance when reconfiguring grades or adjusting boundaries that require student transitions between schools. Transitions can disrupt academic performance and social adjustment. At SUSD, these issues came to light among students required to transition from a traditional middle school to a K-8 school. Schools should also consider implications to educators and the community. At APS, licensing and certification requirements presented challenges to teacher assignments in new schools, and at several districts, parents expressed concerns for student wellbeing. These concerns ranged from different student age groups learning in the same environment to opportunities for quality programming at new schools.

SECTION I: OVERVIEW OF GRADE-LEVEL FEASIBILITY STRATEGIES

In the following section, Hanover summarizes salient themes from the five in-depth interviews recorded with professional staff of school districts that have reconfigured or implemented alternative strategies for increasing enrollment. Secondary sources are consulted to provide further information about the practices reported by the interview respondents.

STRATEGIES TO ALLEVIATE OVERCROWDING

GRADE-LEVEL RECONFIGURATION

Of the five districts Hanover interviewed, three reconfigured grade levels across schools to accommodate growth in enrollment. This aligns with the academic literature that suggests re-sequencing grade spans across schools is a common organizational consideration used to address a myriad of educational needs, including: content knowledge and alignment to state standards; development needs; district staffing and employment; and program design, length, and availability.¹ In the United States, the most traditional grade span model follows students from kindergarten to at least Grade 4.² After Grade 4, grade configuration varies, with some students transitioning to middle school (Grades 5 to 8 or Grades 6 to 8) or junior high (Grades 7 to 8). Other models may combine junior and senior high schools, which can span from Grades 6 to 12. Though, students commonly enter high school in Grade 9.³ Districts that have reconfigured grades have typically done so in response to enrollment pressure or new pedagogical theories concerning the educational and developmental needs of students.⁴

In Hanover's benchmarking analysis, two school districts combined traditional K-5 elementary and 6-8 middle schools into single K-8 schools: Aurora Joint District 28 in Colorado (referred to as Aurora Public Schools; APS) and Charlotte-Mecklenburg Schools in North Carolina (CMS). From a historical standpoint, K-8 schools were initially popular in the 19th century, but they became less common in the 20th century as a movement towards the separation of students in the middle grades began.⁵ More recently, however, school districts across the nation have

¹ "Illinois P-20 Council Grade Span Configuration Meeting: Recommendations to Illinois State Board of Education." Illinois Department of Education, June 2012. pp.1-2.
<https://www.illinois.gov/gov/P20/Documents/Educator%20Licensure/Grade%20Span%20Configuration%20Recommendations%20to%20ISBE%20final.pdf>

² Renchler, R. "Grade Span." *National Association of Elementary School Principals*, 16:3, Spring 2000. p.2.
<http://files.eric.ed.gov/fulltext/ED440471.pdf>

³ "The Structure of Education in the United States." National Center for Education Statistics.
https://nces.ed.gov/programs/digest/d13/figures/fig_01.asp?referrer=figures

⁴ Schwerdt, G. "The Impact of Alternative Grade Configurations on Student Outcomes through Middle and High School." Harvard University Institute for Economic Research, September 2011. p.1.
<http://www.edweek.org/media/gradeconfiguration-13structure.pdf>

⁵ [1] McEwin, C.K. and M.W. Greene. "The Status of Programs and Practices in America's Middle Schools: Results from Two National Studies." Association for Middle Level Education, 2011. p. 5.
http://www.amle.org/portals/0/pdf/articles/status_programs_practices_amle.pdf [2] Byrnes, V. and A. Ruby.

transitioned from middle or junior high schools into more comprehensive K-8 schools.⁶ As of 2014, there were over 6,500 K-8 schools in the United States, a large increase from around 2,500 K-8 schools 20 years earlier.⁷ In the local region, Grade K-8 schools account for a larger proportion of elementary schools in the District of Columbia and Maryland than in Virginia. More specifically, in the District of Columbia, there are 32 K-8 schools compared to 68 K-5 schools; in Maryland, there are 92 K-8 schools compared to 667 K-5 schools; and in Virginia, there are 12 K-8 schools compared to 839 K-5 schools.⁸

While both APS and CMS reconfigured some schools to reflect K-8 grade spans, their reasons for doing so differ somewhat. As reported by APS’s interview contact, Josh Hensley (Hensley), the district’s Planning Coordinator, building K-8 schools and reconfiguring others to include this grade span was a more efficient use of resources for accommodating capacity needs. Building multiple elementary and

| Number of K-8 to K-5 Schools in 2014: | |
|--|----------------|
| District of Columbia | 32: 68 |
| Maryland | 92: 667 |
| Virginia | 12: 839 |

middle schools would have required more resources and time. Including upper middle grades with lower grades, on the other hand, enables the district not only to meet current enrollment needs, but it also provides the district with facilities space for future growth.⁹ Efficiency aside, Hensley described that K-8 schools are more popular among parents, reduce the number of transitions that students have to make from elementary to middle grades, and promotes closeness among students and teachers.¹⁰ At CMS, Scott McCully (McCully), the district’s Executive Director for Planning and Student Placement, stated that reconfiguring to K-8 grade spans allowed the district to optimize space at schools with fewer enrolled students.¹¹

Despite recent trends favoring K-8 grade configurations, the benefits to this model, including some of those cited by APS and CMS, lack clear empirical support. Research regarding ideal

“Comparing Achievement between K-8 and Middle Schools: A Large-Scale Empirical Study.” *American Journal of Education*, 114, November 2007. pp. 102–103.

http://web.jhu.edu/CSOS/images/TDMG/ComparingAchievement_btwK_8.pdf

⁶ [1] “Table 216.80: Public secondary schools, by grade span, average school enrollment, and state or jurisdiction: 2013-14,” Op. cit., p. 26. [2] “Table 216.10. Public Elementary and Secondary Schools, by Level of School: Selected Years, 1967-68 through 2011-12.” National Center for Education Statistics, 2013. p. 216. http://nces.ed.gov/programs/digest/d13/tables/dt13_216.10.asp

⁷ [1] “Table 216.80: Public secondary schools, by grade span, average school enrollment, and state or jurisdiction: 2013-14,” Op. cit., p. 26. [2] “Table 216.10. Public Elementary and Secondary Schools, by Level of School: Selected Years, 1967-68 through 2011-12.” National Center for Education Statistics, 2013. p. 216. http://nces.ed.gov/programs/digest/d13/tables/dt13_216.10.asp

⁸ Information taken from: “Table 216.75: Public Elementary Schools, by Grade Span, Average School Enrollment, and State or Jurisdiction: 2013-14.” National Center for Education Statistics, 2015. https://nces.ed.gov/programs/digest/d15/tables/dt15_216.75.asp?current=yes

⁹ Hensley, Josh. Planning Coordinator, Aurora Joint District 28, Phone interview. December 14, 2016.

¹⁰ Ibid.

¹¹ McCully, Scott. Executive Director for Planning and Student Placement, Charlotte-Mecklenburg Schools, Phone interview. December 8, 2016.

grade configurations for middle grade students is inconclusive, and studies comparing student outcomes at K-8 schools and middle schools have found conflicting results. For example, some have found improved academic and behavior outcomes for K-8 students compared to middle school students, such as better attendance,¹² decreased suspensions and other disciplinary infractions,¹³ and improved academic achievement (e.g., improved math and reading scores).¹⁴ Yet, many of these studies' findings are weakened by a number of methodological issues, such as study designs that limit ability to determine causality, or lack of statistical control for potential confounding variables such as class size, student demographics, or school/district policies.¹⁵ One notable benefit to K-8 reconfiguration, however, is reducing the number of transitions students have to make from school to school. Research shows that such transitions are linked with a wide range of academic and behavioral problems, such as decreased self-esteem, grades, test scores, engagement, attendance, and increased disciplinary infractions and suspensions.¹⁶

The only other district to reconfigure grades in Hanover's benchmarking study is Scottsdale Unified School District (SUSD). Contrary to APS and CMS, SUSDS separated K-8 schools into distinct elementary and middle schools. Terry Worcester (Worcester), the district's Director of Planning and Design, explained that this was done to enhance instruction at both levels. By taking this step, the district ultimately sought to improve elementary and middle grade academic performance and better prepare students in 6-8 schools for the transition to high

-
- ¹² [1] Abella, R. "The Effects of Small K-8 Centers Compared to Large 6-8 Schools on Student Performance." *Middle School Journal*, 37:1, September 2005. Accessed via Web of Science [2] Cook, P.J. et al. "The Negative Impacts of Starting Middle School in Sixth Grade." *Journal of Policy Analysis and Management*, 27:1, December 1, 2008. <http://dx.doi.org/10.1002/pam.20309> [3] Arcia, E. "A Comparison of Elementary/K-8 and Middle Schools' Suspension Rates." *Urban Education*, 42:5, September 2007. Accessed via Web of Science
- ¹³ [1] Ibid. [2] Cook, P.J. et al. "The Negative Impacts of Starting Middle School in Sixth Grade." *Journal of Policy Analysis and Management*, 27:1, December 1, 2008. <http://dx.doi.org/10.1002/pam.20309> [3] Arcia, E., Op. cit.
- ¹⁴ [1] Cook, P.J. et al., Op. cit. [2] Alspaugh, J.W. "Achievement Loss Associated with the Transition to Middle School and High School." *Journal of Educational Research*, 92:1, October 1998. Accessed via EBSCOhost [3] Schwerdt, G. and M.R. West. "The Impact of Alternative Grade Configurations on Student Outcomes through Middle and High School." July 15, 2011. Accessed via Web of Science [4] Rockoff, J. and B. Lockwood. "Stuck in the Middle: Impacts of Grade Configuration in Public Schools." *Journal of Public Economics*, 94:11/12, December 2010. Accessed via EBSCOhost [5] Clark, D.M. et al. "Math and Reading Differences Between 6-8 and K-8 Grade Span Configurations: A Multiyear, Statewide Analysis." *Current Issues in Education*, 16:2, August 15, 2013. <http://researchnetwork.pearson.com/wp-content/uploads/Clark-D-2013-Current-Issues-in-Education-2.pdf>
- ¹⁵ [1] "What the Research Says (or Doesn't Say) About K-8 Versus Middle School Grade Configurations." *Education Northwest*, August 18, 2011. <http://educationnorthwest.org/news/what-research-says-or-doesnt-say-about-k-8-versus-middle-school-grade-configurations> [2] "WWC Quick Review of the Article 'The Negative Impacts of Starting Middle School in Sixth Grade.'" Institute of Education Sciences What Works Clearinghouse, June 2008. http://ies.ed.gov/ncee/wwc/pdf/quick_reviews/sixthgrademiddle_060308.pdf [3] Jacob, B.A. and J.E. Rockoff. "Organizing Schools to Improve Student Achievement: Start Times, Grade Configurations, and Teacher Assignments." Hamilton Project, Brookings Institution, September 2011. p. 5. https://www0.gsb.columbia.edu/faculty/jrockoff/papers/092011_organize_jacob_rockoff_paper.pdf
- ¹⁶ [1] Benner, A.D. "The Transition to High School: Current Knowledge, Future Directions." *Educational Psychology Review*, 23:3, April 2011. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3182155/> [2] Cook, P.J. et al., Op. cit. p. 106. <http://dx.doi.org/10.1002/pam.20309> [3] Juvonen, J. et al. "Focus on the Wonder Years - Challenges Facing the American Middle School." RAND Corporation, 2004. pp. 13-15. http://www.rand.org/content/dam/rand/pubs/monographs/2004/RAND_MG139.pdf



"[...] the body of evidence highlights that no single grade span configuration across schools works best for all districts' needs, nor do researchers unanimously agree on a "best" configuration model."

school. At large, experts find that the dedicated alignment between early childhood and early elementary education facilitates longer-term learning and performance gains. In fact, some researchers find that "creating an intentionally aligned educational system for children 3 to 8 years old based on their developmental characteristics and abilities could be a major factor in sustaining public investments in education."¹⁷ Dedicated PreK-3 alignment, for example, is shown to help reduce the fade out effects that are

common among young children and promote more successful transitions in school.¹⁸ Nonetheless, the body of evidence highlights that no single grade span configuration across schools works best for all districts' needs, nor do researchers unanimously agree on a "best" configuration model.¹⁹

INTERNAL MODIFICATION, EXPANSION, AND RENOVATING FACILITIES

Two school districts in the benchmarking study did not report the use of grade-level reconfiguration for addressing increased student enrollment. Rather, these school districts, both of which request complete anonymity, turned to alternative strategies for overcrowding. CMS also implemented some of these alternative strategies as well to help alleviate enrollment pressure. One such strategy is altering the structure of existing spaces across classes and other rooms in a school to maximize the use of space. As one respondent with Anonymous District 1 explained, altering classroom space is typically the first strategy for making the most of a district's resources.²⁰ Of course, as the respondent for Anonymous District 2 stated, this seemingly simple step is not without its challenges. A district modifying the use of internal spaces may likely face pushback from staff who are affected by such changes and the reduction of space that was once theirs.²¹

Another strategy to address enrollment growth is the use of mobile or portable units to expand space. Indeed, both anonymous districts and CMS reported the use of temporary, mobile units for short-term use to combat space constraints.²² According to Community and

¹⁷ Bogard, K. and R. Takanishi. "PK-3: An Aligned and Coordinated Approach to Education for Children 3 to 8 Years Old." *Social Policy Report*, 19:3, 2005. p.5. <http://files.eric.ed.gov/fulltext/ED521747.pdf>

¹⁸ [1] "PreK-3rd Annual Report: Year One: 2011-2012." San Francisco Unified School District, December 2012. p.6. http://www.sfusd.edu/en/assets/sfusd-staff/programs/files/Early%20Education/PreK-3rd%20Report%20Year%20One_7-18-13.pdf [2] Reynolds, A., K. Magnuson, and S. Ou. "PK-3 Education: Programs and Practices that Work in Children's First Decade." Foundation for Child Development, January 2006. p. 5. <https://fcd-us.org/sites/default/files/ProgramsandPractices.pdf>

¹⁹ Sellar, W. "Configuring Schools: A Review of the Literature." Ontario Institute for Studies in Education, August 2004. p.2. <http://www.hpedsb.on.ca/ec/directorsOffice/arc/documents/Configuringschools.pdf>

²⁰ Respondent 1. Anonymous District 1, Phone interview. December 7, 2016.

²¹ Respondent 2. Anonymous District 2, Phone interview. December 6, 2016.

²² [1] McCully, Op. cit. [2] Respondent 2, Op. cit. [3] Respondent 1, Op. cit.

Environmental Defense Services (CEDS), a network of professionals that help solve the environmental concerns of private, nonprofit, and public entities, nearly one-third of all U.S. schools during the 2012-2013 school year relied on the use of mobile units to house classrooms.²³ While mobile units may provide quick and temporary facilities space, and while research has not identified any detrimental effects of their use for learning,²⁴ several studies have documented some health and safety hazards to their use.²⁵ A 2004 case study of portable units in Los Angeles County, for instance, showed poor ventilation and cooling.²⁶ None of the respondents that spoke with Hanover analysts, however, discussed such complications. In fact, research shows that the structural flaws of permanent facilities may sometimes raise even more concern for students' health and safety than mobile units.²⁷

Adding portable units to a school is not the only structural solution to overcrowding and enrollment growth. Two of the interviewed districts have, or have considered, renovating existing or replacement schools in an effort to expand space. At CMS, the district recently constructed a new school within the same boundaries as a replacement school.²⁸ The district plans to renovate the replacement school and retool its classrooms so that it may be reopened as a magnet school. Taking these steps will ease enrollment pressure as students have the option of enrolling in either program. A similar plan has been made at Anonymous District 2 where the district plans to build a new middle school and renovate an old middle school. This plan is in its earliest stages, stated the interview respondent, and the older school may actually be transformed into an elementary school depending on need.²⁹

ALTERNATIVE NON-CAPITAL OPTIONS

Altering school zone boundaries, restructuring the class schedule, and offering more online learning opportunities comprise three additional strategies for curbing pressure to the use of facilities space. As noted by CEDS, adjusting school boundaries makes sense if one school is above enrollment capacity while another has excess space.³⁰ With a similar approach, Anonymous District 1 has considered "teaming elementary schools" in which adjacent school boundaries are clustered.³¹ Students residing within the boundaries of a cluster of schools then have the option of enrolling in any program. In this case, school boundaries are flexible to population growth and allow the district to maximize the use of space.³² Researchers warn,

²³ "Preventing School Overcrowding & Other Development Impacts." Community and Environmental Defense Services. <http://ceds.org/school.html>

²⁴ Cheung Chan, T. "Do Portable Classrooms Impact Teaching and Learning?" *Journal of Educational Administration*, 47:3, May 8, 2009.

²⁵ [1] Shendell, D.G., A.M. Winer, et al. "Evidence of Inadequate Ventilation in Portable Classrooms: Results of a Pilot Study in Los Angeles County." *Indoor Air*, 14:3, June 1, 2004. [2] Shendell, D.G., R. Prill, et al. "Associations between Classroom CO2 Concentrations and Student Attendance in Washington and Idaho." *Lawrence Berkeley National Laboratory*, January 1, 2004. <http://escholarship.org/uc/item/88r0924r>

²⁶ Shendell, Winer, et al., Op. cit.

²⁷ Cheung Chan, Op. cit.

²⁸ McCully, Op. cit.

²⁹ Respondent 2, Op. cit.

³⁰ "Preventing School Overcrowding & Other Development Impacts," Op. cit.

³¹ Respondent 1, Op. cit.

³² Ibid.

however, that frequent “non-promotional school change” negatively affects students’ academic achievement, their social adjustment, and the school environment.³³ With these detrimental effects in mind, school districts should only enact boundary changes when necessary, never making these changes common practice.

Restructuring the class schedule and offering more online learning opportunities shift the focus of strategic enrollment planning from facilities space to instructional practice. Extending the school day or creating a year-round schedule is a practice that districts facing over-enrollment often consider.³⁴ Indeed, proponents of a year-round academic calendar often cite the benefit of facilities efficiency in addition to other academic benefits and opportunities for enrichment.³⁵ Both APS and Anonymous District 1 have considered switching to a year-round program but have not done so given the complexity of the process.³⁶ Similarly, Anonymous District 1 and CMS have considered offering more online learning opportunities to create flexible use of learning spaces. Though, empirical research yields mixed findings about whether or not online education is comparable with or more effective than in-person instruction.³⁷



Alternative Strategies to Alleviate Overcrowding

- Internal Modifications to Classrooms and Facilities Space
- School Expansion Using Mobile Units
- School Renovations
- Alter School Boundaries
- Restructure Class Schedule
- Offer Extended or Online Learning

IMPLICATIONS FOR CONSIDERATION

DISTRICT RESOURCES AND OPERATING COSTS

Whether a district decides to reconfigure grades or implement alternative strategies to address overcrowding and space constraints, there are a number of factors to consider. As it relates to grade-level reconfiguration, operating costs and the management of resources are

³³ Isernhagen, J.C. and N. Bulkin. “The Impact of Mobility on Student Performance and Teacher Practice.” *The Journal of At-Risk Issues*, 16:1, 2011. pp. 17–18. <http://files.eric.ed.gov/fulltext/EJ942895.pdf>

³⁴ “Preventing School Overcrowding & Other Development Impacts,” Op. cit.

³⁵ [1] “Year-Round Education Program Guide - Multitrack Year-Round Education.” California Department of Education. <http://www.cde.ca.gov/ls/fa/yr/guide.asp> [2] “Research Spotlight on Year-Round Education.” National Education Association. <http://www.nea.org/tools/17057.htm>

³⁶ [1] Hensley, Op. cit. [2] Respondent 1, Op. cit.

³⁷[1] Means, B. et al. “Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies.” U.S. Department of Education, 2010. <https://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf> [2] Miron, G. and J.L. Urschel. “Understanding and Improving Full-Time Virtual Schools: A Study of Student Characteristics, School Finance, and School Performance in Schools Operated by K12 Inc.” National Education Policy Center, 2012. <http://files.eric.ed.gov/fulltext/ED533960.pdf> [3] Bakia, M. et al. “Understanding the Implications of Online Learning for Educational Productivity.” U.S. Department of Education, Office of Educational Technology. <http://files.eric.ed.gov/fulltext/ED532492.pdf>

key issues for consideration. More specifically, grade-level reconfiguration often entails added costs associated with new materials, classroom items, facilities space, and student transportation.³⁸ A report published by the Brookings Institute found that these costs vary by district, however. The authors of this study estimated that the costs of reconfiguring from K-5/6-8 to K-8 schools ranges from about \$50 to \$250 per student based on national data and data reported by specific districts that have undertaken these efforts.³⁹ The costs of grade-level reconfiguration ultimately depend on the resources already available to the district and how much change is needed to accommodate the needs of new grade levels.

Among the respondents Hanover interviewed, each noted that reconfiguring grades and/or expanding facilities space were much less expensive options compared to building new schools. From this perspective, such strategies for addressing increasing enrollment are worth the costs when the alternative is to construct new schools. Hensley and Worcester also added that the new grade span configurations at both APS and SUSD are more conducive to student transportation and commuting needs than they were under their original arrangements.⁴⁰

STUDENT WELLBEING

Student wellbeing is of critical importance when reconfiguring grades or adjusting school boundaries that require student transitions between schools. As noted above, transitions can disrupt academic performance and social adjustment. Some districts have created comprehensive transition programs to support students and reduce the potential negative effects of school transitions.⁴¹ Overall, transition programs should be comprehensive efforts that involve input and collaboration between students, families, and staff; address students' academic and social needs through coordinated instruction and support programs; and occur on an ongoing basis.⁴² Just as the literature suggests, without a transition program in place, students at APS that transitioned from a middle school to a K-8 school did have difficulty

³⁸ Paglin, C. and J. Fager. "Grade Configuration: Who Goes Where?" Northwest Regional Educational Laboratory, July 1997. p. 10. <http://www.cityofportsmouth.com/school/centraloffice/eefc/4g.pdf>

³⁹ Jacob and Rockoff, Op. cit., pp. 5-6.

⁴⁰ Hensley, Op. cit. [2] Worcester, Terry. Director of Planning and Design, Scottsdale Unified District, Phone interview. December 16, 2016.

⁴¹ "The Power of a Great Education: PSEA's 20/20 Vision for the Future - Implement Transition Programs for Middle School and 9th Grade." Pennsylvania State Education Association, January 2010. https://www.psea.org/uploadedfiles/legislationandpolitics/vision/vision_transitionprograms.pdf

⁴² [1] "The Importance of Easing Transitions for Young Adolescents." California Department of Education. <http://pubs.cde.ca.gov/tcsii/ch6/trnsitionyngadlsnt.aspx> [2] "Research Brief - Transition from Middle School to High School." Education Partnerships, Inc. pp. 1–5. <http://files.eric.ed.gov/fulltext/ED538706.pdf> [3] "Supporting Students in Their Transition to Middle School." National Middle School Association and the National Association of Elementary School Principals, 2002. <http://www.nppsd.org/vimages/shared/vnews/stories/525d81ba96ee9/Tr%20-%20Supporting%20Students%20in%20Their%20Transition%20to%20Middle%20School.pdf> [4] Niesen, V. and P.S. Wise. "Transition from Elementary to Middle School: Strategies for Educators." National Association of School Psychologists. http://www.nasponline.org/communications/spawareness/transition_elem2mid.pdf

acclimating to the new environment.⁴³ To prepare for these changes, districts should consider answers to the following key questions for reconfiguration:⁴⁴

- Will the grade configuration increase or decrease parent involvement?
- How many students will be enrolled at each grade level and what implication does this have on course offerings and instructional grouping?
- How many transition points will occur? How will these be addressed?
- How will the presence or absence of older students affect younger students?
- Is the design of the school building suited to this grade configuration?
- What is the cost and length of student travel?
- What are the opportunities for interaction between age groups?
- What are the effects of the grade configuration on curriculum? Is there better continuity and articulation in curriculum with fewer gaps and overlaps?
- Are there stronger ties among schools, students, and parents?

CONSIDERATIONS FOR EDUCATORS AND COMMUNITY FEEDBACK

In addition to student wellbeing, strategies to address increasing enrollment should be informed by their implications for educators and feedback from the community at large. In the case of APS, for instance, licensing requirements for elementary and secondary teaching certification presented challenges when reconfiguring to K-8 schools. To this end, making teacher assignments to the new K-8 schools was difficult for administrators because separate certification is needed to instruct Grades K-6 and 7-8.⁴⁵ At APS, SUSD, and CMS, all districts faced some parent and community pushback to reconfiguration. At schools where elementary and middle grades were combined, parents expressed some concern about the mixing of younger and older students. Some also felt that Grade 8 students' preparation for the transition to high school would be negatively impacted when attending a school with much younger children. At schools where elementary and middle grades were separated, parents expressed displeasure at the fact that siblings close in age would be attending separate schools. Rather, these parents preferred the continuity that K-8 schools offered. Finally, at CMS, parents were concerned that combining grade levels would diminish the quantity and quality of offerings to older students.

To prepare for potential concerns, districts considering grade-level reconfiguration should make a concerted effort to solicit feedback from the community. After selecting potential configurations based on research, secondary literature, and regional trends, districts should assess stakeholders' views on these potential configurations.⁴⁶ To ensure alignment with

⁴³ Hensley, Op. cit.

⁴⁴ List of bulleted information taken from: Barton, R. and J. Klump. "Figuring Out Grade Configurations." *Principal's Research Review*, 7:3, May 2012. pp.4–5. <http://educationnorthwest.org/sites/default/files/resources/PRR-Figuring-Out-Grade-Configurations.pdf>

⁴⁵ Hensley, Op. cit.

⁴⁶ Paglin, C. and J. Fager., Op. cit., p. 9.

stakeholder values, a number of districts have conducted surveys and focus groups with students, parents, and other community members to determine which grade configuration to adopt. Districts have also created boundary review committees, consisting of parents, teachers, and staff, which have reviewed district plans for grade configuration and school boundary zones.⁴⁷

⁴⁷ [1] Reid, M. "SKSD Grade Reconfiguration Memo." South Kitsap School District, July 15, 2015. <http://www.skitsap.wednet.edu/cms/lib/WA01000495/Centricity/Domain/49/2015%20Grade%20Reconfiguration%20Memo%20final.pdf> [2] "Benefits/Challenges: Next Generation EPS Secondary Learning Experiences/Grade Configuration." Edina Public Schools. <http://www.edinaschools.org/cms/lib07/MN01909547/Centricity/Shared/PDFs/Grade%20Configuration%20-%20Benefits-Challenges.pdf> [3] "Edina School Board Approves Future Direction for Middle School, High School Configurations." Edina Public Schools, June 20, 2014. <http://www.edinaschools.org/site/default.aspx?PageType=3&DomainID=30&ModuleInstanceID=3758&ViewID=047E6BE3-6D87-4130-8424-D8E4E9ED6C2A&RenderLoc=0&FlexDataID=7533&PageID=109> [4] "FAQs - Middle School Grade Configurations." Jeffco Public Schools. http://www.jeffcopublicschools.org/fmp/sixth_grade_faq.pdf [5] Smith, C. "District-Wide Enrollment Balancing Recommendations." Portland Public Schools, March 19, 2016. p. 10. <http://www.pps.net/cms/lib8/OR01913224/Centricity/Domain/182/3-29-16-Super-Final-Recommendations-March-29-16.pdf>

SECTION II: IN-DEPTH INTERVIEW PROFILES

In the following section, Hanover profiles five school districts that have implemented various strategies to address increasing enrollment and the role grade-level reconfiguration played during the strategic planning process using information recorded in in-depth interviews with district leaders. In the first phase of Hanover’s ongoing study, previous reports noted that districts must take into account a number of factors when considering potential grade configurations. This include projected enrollment, school size, transportation costs, the number of transition points, stakeholder values, and school goals, among other factors. The profiles in this section review how such considerations were made when confronting challenges to student overpopulation and are guided by the following key research questions:

- What varieties of “grade reconfiguration” or alternative strategies are considered and used by public school districts in high-growth areas?
- How do districts navigate the challenges of carrying out a grade reconfiguration plan?
- What are the impacts – positive, neutral, and negative – of grade reconfiguration on district stakeholder experiences (students, families, teachers, administrators, and community members)?

Prior to reviewing each district’s approach in detail, Hanover briefly reviews methods for peer district selection.⁴⁸

METHODOLOGY

To draft an initial sample of target school districts, Hanover first identified school districts associated with the fastest-growing U.S. Metropolitan Statistical Areas (MSAs) based on an analysis of population change from April 1, 2010, to July 1, 2015. This analysis was performed using data reported by the U.S. Census Bureau.⁴⁹ Analysts then used the National Center for Education Statistics’ (NCES) database search tool to identify the public K12 education providers serving these regions and enrolling at least 10,000 students.⁵⁰ This step produced a total of 60 potential school districts likely to have experienced increases in student populations in recent years.

After identifying these school districts, interview outreach via email was specifically targeted to districts similar to ACPS in size as defined by: student enrollment between 10,000 and 30,000 students and/or 50 or fewer total schools. Outreach efforts were also focused on districts that considered or employed grade-level reconfiguration as a strategy for managing increasing enrollment. Hanover secured interviews with five school districts, two of which interview respondents requested complete anonymity. Figure 2.1 on the next page lists these

⁴⁸ A complete description of Hanover’s methods for district selection is made available in the interview protocol guide, *Protocol: Benchmarking Study of Grade Level Feasibility*

⁴⁹ “American FactFinder - Advanced Search.” U.S. Census Bureau.
<http://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>

⁵⁰ “Search for Public School Districts.” National Center for Education Statistics. <https://nces.ed.gov/ccd/districtsearch/>

districts, interview respondents, and notable strategies for addressing increases in enrollment.

Figure 2.1: Interview Participants and Notable Strategies for Planning

| ENROLLMENT CHALLENGES | RECONFIGURATION IMPLEMENTED? | ADDITIONAL OR ALTERNATIVE STRATEGIES | POSITIVE IMPLICATIONS TO RECONFIGURATION | NEGATIVE IMPLICATIONS TO RECONFIGURATION |
|---|--|---|--|--|
| Josh Hensley, Planning Coordinator; Aurora Joint District 28, CO | | | | |
| <p>The district experienced a 19 percent increase in enrollment in the last 10 years (an additional 6,500 students). Approximately 40,000 students were enrolled as of the 2014-2015 school year.</p> | <p>Yes; starting in 2002, the district began planning for and building new schools that combine elementary and middle grades. Current buildings were reconfigured from separate elementary and middle schools into K-8 schools.</p> | <p>Additional K-8 schools were built in conjunction with reconfiguration.</p> | <ul style="list-style-type: none"> ▪ Transitions: Reduces the number of student transitions between schools. ▪ Transportation: More middle school-aged students are able to ride the bus. ▪ Positive Feedback: Parents perceive impact positively with regard to school environment, student-teacher relationships, and climate | <ul style="list-style-type: none"> ▪ Transitions: Middle school students struggled to acclimate to K-8 setting. ▪ Stakeholder Pushback: Some concern has been expressed about the wellbeing of students. ▪ Licensure: State licensing requirements make it difficult to assign teachers to schools and grades |
| Terry Worcester, Director of Planning and Design; Scottsdale Unified School District, AZ | | | | |
| <p>The district experienced major increases in enrollment between the years 1990 and 2000 at a rate above 30 percent. Administrators are now facing declines in enrollment. Approximately 26,000 students are currently enrolled.</p> | <p>Yes; in 2006, the district began creating K-5 schools out of what used to be K-8 schools; although, some K-8 schools were maintained given their areas of academic interest.</p> | <p>An additional 6-8 middle school was built in a central location.</p> | <ul style="list-style-type: none"> ▪ Transportation: New school locations work well for student commuting. ▪ Instructional Focus: Separate schools allow for more focused academic instruction, programs, and enrichment opportunities. | <ul style="list-style-type: none"> ▪ Managing Facilities and Operating Costs: Reconfiguring requires careful consideration of how to reconsolidate resources. ▪ Stakeholder Pushback: Some concern has been expressed about separating siblings from the same families into two different schools. |
| Scott McCully, Executive Director for Planning and Student Placement; Charlotte-Mecklenburg Schools, NC | | | | |
| <p>The district experienced major increases in enrollment between the years 1990 and 2000. At 145,000 students, the district anticipates high enrollment growth in the coming years.</p> | <p>Yes; the district created K-8 schools adapted from older buildings with reduced enrollment and low utilization. Though, administrators have not reconfigured grades in an explicit attempt to prioritize a specific grade-level model. Rather, many schools vary in their grade-level configurations.</p> | <p>The district adds mobile units for temporary need. Replacement buildings have also been updated to provide alternative enrollment options.</p> | <ul style="list-style-type: none"> ▪ Instructional Focus: Separate schools allow for more focused academic instruction, programs, and enrichment opportunities. | <ul style="list-style-type: none"> ▪ Managing Facilities: Some reconfigured schools are not conducive for instruction of new grade-levels and negatively affect the quality of offerings. ▪ Stakeholder Pushback: Some concern has been expressed about offerings at schools where attendance is lowered |

| ENROLLMENT CHALLENGES | RECONFIGURATION IMPLEMENTED? | ADDITIONAL OR ALTERNATIVE STRATEGIES | POSITIVE IMPLICATIONS TO RECONFIGURATION | NEGATIVE IMPLICATIONS TO RECONFIGURATION |
|--|--|--------------------------------------|---|--|
| Respondent 1; Anonymous District 1 | | | | |
| <p>The district has experienced substantial growth and is above its maximum capacity by 500 students. Capacity is projected to exceed by 1,000 students in the 2017-2018 school year.</p> | <p>No; the district has implemented alternative strategies to combat issues with overcrowding.</p> | | <p>A lottery system is used to manage the enrollment of students into prekindergarten. Existing facilities space is re-altered for more efficient use. Mobile units are added for temporary need. Teaming elementary schools allows students to enroll in schools in other boundaries. The district has also considered adjusting the class schedule and expanding online learning.</p> | |
| Respondent 2; Anonymous District 2 | | | | |
| <p>The district has experienced minimal pressure to enrollment given recent expansion of charter schools. Some schools, however, have faced high enrollment and pressure to capacity levels.</p> | <p>No; the district has implemented alternative strategies to combat issues with overcrowding.</p> | | <p>Existing facilities space is re-altered for more efficient use. Mobile units are added for temporary need, and the district has considered updating existing buildings. The district has also re-altered school boundaries and the class schedule.</p> | |

AURORA JOINT DISTRICT 28

Aurora Joint District 28 (often referred to as Aurora Public Schools; APS) is a large school district in Colorado that serves 39,184 total students according to 2014-2015 estimates provided by the district's website.⁵¹ APS is located near the Denver-Aurora-Lakewood MSA,

Overview



- **Total students:** ~40,000
- **Recent Growth:** 19 percent increase in enrollment in 10-year span
- **Enrollment Strategy:** Build and reconfigure to K-8 schools

which has experienced considerable population growth in the last several years. In April 2010, the population was a recorded 2,543,482 people; as of July 2015, the U.S. Census Bureau estimated a population of 2,814,330 people.⁵² This equates to an approximate 10.6 percent increase in total population size. In addition to this expanding resident population, APS also serves a number of student populations that face barriers to learning. Over two-thirds of the student body receives free or reduced price lunch while another third

consists of second language learners.⁵³ These student populations often require additional support services and resources, which can place pressure on a school district as it seeks to meet the needs of a diverse student body. To learn more about the challenges APS has faced with regard to student enrollment as well as the strategies the district has used to overcome these challenges, Hanover spoke with Josh Hensley (Hensley), a Planning Coordinator with APS's Planning Department.

CHALLENGES TO ENROLLMENT

Just as the larger region has witnessed population growth, Hensley shared that APS has experienced rapid growth in the last 10 years, with a 19 percent increase in enrollment (approximately 6,500 students).⁵⁴ The cause of this growth, Hensley described, is linked, in part, with the community's working class environment conducive to the needs of new immigrants settling in the area. More families relocating from Denver's urban core to the community is another reason the local population has witnessed increases in recent years as the city continues to experience gentrification and demographic change.⁵⁵ Aside from these changes, Hensley stated that the eastern neighborhoods located within APS's boundaries are planned for further development: "At the same time [that] we've been seeing growth within the existing part of the district, we've also been experiencing [...] typical suburban enrollment growth from new housing developments."⁵⁶

While APS has historically experienced steady population growth over the past decade, within the last several years, Hensley explained, economic decline, fewer births, and increases in young residents without children have caused enrollment to slow. "In the last couple years,"

⁵¹ "Demographics." Aurora Public Schools. <http://aurorak12.org/about-aps/fast-facts/demographics/>

⁵² "American FactFinder - Advanced Search," Op. cit.

⁵³ "Demographics," Op. cit.

⁵⁴ Hensley, Op. cit.

⁵⁵ Ibid.

⁵⁶ Ibid.

Hensley continued, “we've had somewhat of a reversal of this growth trend [...] in 2015 last year, we saw a bit of a flattening of enrollment. We still grew, but at about half the rate we had been.”⁵⁷ Despite these slight declines in growth, APS still had to take proactive steps to manage facilities space and resources as more students flooded the hallways of the district’s schools.

RECONFIGURING GRADE LEVELS

CREATING K-8 SCHOOLS

Hensley noted that, APS began planning for and building new schools that combined elementary and middle grades in 2002. Prior to this, the district sorted grades into Grade K-5 elementary, Grade 6-12 secondary, and Grade 9-12 high schools. “We decided that in our new schools, we were going to move to K-8, so we have built four new K-8's in the district in our new residential development,” Hensley described.⁵⁸ Although the district continues to operate separate elementary and middle schools, schools built to accommodate the growing student population at the start of the 21st century were made to serve all students in Grades K-8. Several other schools have been reconfigured to serve these grades as well.⁵⁹ Aside from early childhood education, technical, pilot, charter, and alternative schools and programs, currently, APS operates 29 elementary schools, six PK-8 and K-8 schools, eight middle schools, two PK-8 exploratory schools, and nine high schools.⁶⁰



“We decided that in our new schools, we were going to move to K-8, so we have built four new K-8's in the district in our new residential development”

-Josh Hensley

MOTIVATING FACTORS FOR RECONFIGURATION

APS made the decision to build and combine some elementary and middle schools to offer Grades K-8 for several reasons.⁶¹ Foremost, explained Hensley, reconfiguring grades to include K-8 enables the district “to build more seats in a developing area quicker.” In other words, building facilities with the capacity to serve students up through Grades 7 and 8 in areas with the greatest growth is more efficient for managing resources as it eliminates the need to build a separate middle school building. “[W]e can add [the] unit as a K-8 and serve more students immediately,” Hensley reiterated.⁶² Originally, administrators planned to build elementary schools that could eventually be transformed into larger schools. However, APS did not “have the luxury of additional space to do that.”⁶³ In addition to the benefit of

⁵⁷ Ibid.

⁵⁸ Ibid.

⁵⁹ Ibid.

⁶⁰ “Schools.” Aurora Public Schools. <http://aurorak12.org/schools/>

⁶¹ Hensley, Op. cit.

⁶² Ibid.

⁶³ Ibid.

resource efficiency, reconfiguring grades to include K-8 in a single school setting reduces the number of transitions students must make as they matriculate into the upper grades.⁶⁴ This rationale is supported in the literature on grade reconfiguration whereupon fewer school transitions are shown to benefit students' academic and social growth.⁶⁵

Aside from these primary considerations, Hensley added that K-8 schools have "become popular" in the greater Denver region.⁶⁶ "Parents like them as a substitute for these large middle schools" where students entering their early teen years would otherwise find themselves learning in a crowded environment.⁶⁷ Hensley noted that the K-8 configuration "also helps promote [student] relationships with the teachers by having just the smaller class sizes."⁶⁸

THE PLANNING AND DECISION MAKING PROCESS

While Hensley began working with APS in 2004 after the decision to build K-8 schools had been made, based on his understanding of the planning process, the plan to build and reconfigure K-8 schools was promoted through a bond election: "At the time, we were going for a bond election, and we promoted [K-8 plans] through our bond advertising for our bond election."⁶⁹ Conversations with local developers and the Board of Education helped to solidify and advertise plans for developing and reconfiguring schools. The district also engaged in an "extensive boundary process" to determine which students living in different neighborhood



"I would say that [...] there's more middle school kids that are able to ride the bus than there would be had [the district planned for] a traditional elementary and middle school feeder pattern"

-Josh Hensley

residencies would be eligible for enrollment in a K-8 school. In fact, the boundaries made for the new and reconfigured K-8 schools are more fitting for transportation needs. "I would say that [...] there's more middle school kids that are able to ride the bus than there would be had [the district planned for] a traditional elementary and middle school feeder pattern," stated Hensley.⁷⁰

Overall, Hensley reported an overwhelmingly positive response from parents about the plans.⁷¹ This positive

feedback can be attributed, in part, to the timing of school construction and new housing development. Because plans to reconfigure and build K-8 schools were underway prior to developers' investment in new construction and neighborhood expansion, many families

⁶⁴ Ibid.

⁶⁵ [1] Benner, A.D. Op. cit. [2] Cook, P.J. et al. Op. cit. [3] Juvonen, J. et al. Op. cit.

⁶⁶ Hensley, Op. cit.

⁶⁷ Ibid.

⁶⁸ Ibid.

⁶⁹ Ibid.

⁷⁰ Ibid.

⁷¹ Ibid.

moving to the area were pleased to find out that their children would be attending new schools. “We received a very favorable response from parents about wanting to attend a new school and also the K-8 model that we were going to be opening.”⁷²

CHALLENGES TO RECONFIGURATION

STUDENT TRANSITIONS FROM MIDDLE TO K-8 SCHOOLS

Although parent feedback comprises just one of several challenges a district often faces to reconfiguration, and while Hensley reported a positive response from families to APS’s K-8 schools, these changes were not without other challenges to implementation. A primary challenge to combining elementary and middle school grades the district faced was preparing students for the transition, particularly those that were moving from a middle to a K-8 school:

I would say the biggest challenge [...] when we first opened a school is [when] we moved all of the students that were in that attendance area to the new schools, so we took kids that already been in a traditional middle school and moved them to a smaller K-8 model, and that was a big of a challenge in that they had developed different expectations [...]⁷³

As Hensley continued to explain, students in the middle schools had grown accustomed to interacting with a large number of other students their age. They had also become familiar with more autonomy permitted in middle schools, such as not waiting in line with others to walk to lunch. Returning to a school modeled more closely with elementary-level practices was difficult for cohorts of students that had been exposed to middle grades-only schools.⁷⁴

STUDENT WELLBEING

A less common yet notable challenge the district continues to face is apprehension from parents who express concern that their younger children attend school with much older students.⁷⁵ Some have also felt that students who attend the K-8 schools may be inadequately prepared for making the transition to high school, that matriculating directly from a primary school model to one that requires more maturity may be more difficult than making those transitions from middle to high schools. Though, Hensley stated that he has never personally heard these concerns from either families or high school administrators.⁷⁶ As such, concerns for student wellbeing a rarely voiced.

⁷² Ibid.

⁷³ Ibid.

⁷⁴ Ibid.

⁷⁵ Ibid.

⁷⁶ Ibid.

STATE LICENSURE REQUIREMENTS

“One of the real issues that has been expressed and has been a bit of a difficulty for us,” Hensley highlighted, “[is that] there's different licensure requirements for elementary schools.”⁷⁷ Here, Hensley referred to teacher licensure in which educators may obtain certification for teaching in either Grades K-6 or 7-8. “When you have a K-8 model, unless you have a teacher that's dual qualified or dual licensed to teach both, then there can be an issue within teaching in the primary grades and then teaching in seventh and eighth grades.”⁷⁸ Assigning teachers with the appropriate certifications to grade levels became an even more difficult task when APS considered offering year-round education. The district originally proposed this solution for areas within the district experiencing rapid growth. However, creating a year-round calendar “became difficult in how [to] staff [schools] and have enough middle school qualified teachers that can teach” at different periods of time over the full year.⁷⁹ “That was something that we worked on that we didn't really have an answer for,” Hensley concluded.⁸⁰



“One of the real issues that has been expressed and has been a bit of a difficulty for us [is that] there's different licensure requirements for elementary schools.”

-Josh Hensley

OUTCOMES

CREATING MORE INTIMATE SCHOOL CLIMATES

Hensley listed several benefits to K-8 reconfiguration, mainly in the form of community reception. Based on his observations as a Planning Coordinator, Hensley stated that since the creation of the K-8 schools, parents have enjoyed:⁸¹

- The proximate location of the schools to homes and within neighborhoods;
- The lengthened school days that the model enables;
- The closer interactions and relationships the students are able to forge with educators;
- The more intimate environment that the schools offer; and
- The opportunities for older students to work with and assist young students.

These benefits aside, APS has yet to assess the impact K-8 grade-level reconfiguration has had on student academic performance. “I know that our K-8 schools are some of our higher

⁷⁷ Ibid.

⁷⁸ Ibid.

⁷⁹ Ibid.

⁸⁰ Ibid.

⁸¹ Ibid.

performing schools [...] but it's not something that we've, at least that I have seen, where we've done any in depth study on," Hensley acknowledged.⁸²

RECOMMENDATIONS

While district leaders have yet to evaluate the success of the K-8 schools for student academic and social outcomes, Hensley emphasized the importance of taking "purposeful" action when asked about his recommendations for implementing reconfiguration.⁸³ "[D]o you have the support of administration? Is this what your community wants long-term?" Hensley asked hypothetically as if he were contemplating reconfiguration as strategy for resolving student overpopulation.⁸⁴ Indeed, an important part of the planning process is determining which locations are projected to experience population growth and then working with developers to assess need. "[F]or us we, have about anywhere from 30- to 40,000 new homes planned in our eastern areas over the next 20 years to 25 years" Hensley added, "We're actively out working with developers getting school sites."⁸⁵

Hensley also discussed the need to give thoughtful consideration to facility size, or "being purposeful about how big you want your K-8's to be."⁸⁶ According to Hensley, APS offers two facilities models; the smaller schools include three "rounds" per grade level, and the larger schools offer four "rounds" per grade level. For APS, the larger schools have proven to be more compatible with the needs of the community. Of course, for any district, altering facilities spaces or building new schools depends on the district's long-term goals and the types of environments the district wants its students learning in.⁸⁷

SCOTTSDALE UNIFIED SCHOOL DISTRICT

Scottsdale Unified Schools District (SUSD), Arizona, is a large, urban school district that serves nearly 26,000 students.⁸⁸ SUSD overlaps with the Phoenix-Mesa-Scottsdale MSA, which has experienced large population growth in recent years. From April 2010 to July 2015, the Phoenix-Mesa-Scottsdale MSA grew from an estimated 4,192,887 to 4,574,531 people as reported by the U.S. Census Bureau.⁸⁹ This represents a population growth rate of 9.1 percent over the five-year period. While the larger region has experienced significant increases in population

Overview



- **Total students:** ~26,000
- **Recent Growth:** Over 30 percent increase in enrollment from 1990 to 2000
- **Enrollment Strategy:** Build and reconfigure to separate K-5 and 6-8 schools

⁸² Ibid.

⁸³ Ibid.

⁸⁴ Ibid.

⁸⁵ Ibid.

⁸⁶ Ibid.

⁸⁷ Ibid.

⁸⁸ "General Information." Scottsdale Unified Schools District. <https://concrete.susd.org/search/general-information/>

⁸⁹ "American FactFinder - Advanced Search," Op. cit.

size, student data provided by SUSD actually reveal larger enrollment growth between 1990 and 2000 than in more recent years.⁹⁰ According to SUSD, students under age 5 and ages 5 to 13 declined in their enrollment by 16 percent from 2000 to 2010, with little increases to enrollment among students in the 14 to 17 age range.⁹¹ A decade earlier, however, students in all three age groups grew in their rates of enrollment by 31.2 percent or more.⁹²

To learn more about how SUSD addressed these demographic and enrollment changes, Hanover interviewed Terry Worcester (Worcester), the district’s Director of Planning and Design. As confirmed in the interview, Worcester has a background in architecture specialized in K12 education and has been working with the district for the last two years.⁹³ Worcester’s role as Director of Planning and Design is to help the district plan for and design the use of facilities space.

CHALLENGES TO ENROLLMENT

Confirming the demographic trends discussed above, Worcester stated that much of the local area’s population growth occurred between the 1990s and the early 2000s.⁹⁴ Because of Scottsdale’s high population density and proximity to the Phoenix metropolitan area, this growth curtailed after the beginning of the 21st century, with little space left to grow. “Much of the geographic area for the city to grow has been consumed by growth, so we as a district do not grow as rapidly as other cities’ districts that are further out on the perimeter of the metropolitan area,” discussed Worcester, “My perspective specifically to Scottsdale Unified is from a context of rapid growth, and then a decline of sudden rapid growth.”⁹⁵

Worcester continued to explain that Arizona’s patterns in rapid growth often produce an “enormous influx of students” in a given area.⁹⁶ Initially, developers will build on a given tract of land, allowing for an elementary, middle, or high school site. As these communities continue to expand, districts find themselves needing to accommodate the educational needs of even more students. As Worcester described, “suddenly, there are hundreds, if not thousands, of students that need to be accommodated in that new tract for this new development, which triggers new construction. With new construction, you have to make a decision on how to deal with that extraordinary rapid growth.”⁹⁷ Drawing on his expertise and demographic research, Worcester stated that, after a couple of decades of rapid growth, these communities typically witness a decrease in population size. Consequently, school

⁹⁰ “Scottsdale Unified Schools District Demographics and Enrollment Analysis.” Scottsdale Unified Schools District Governing Board, January 14, 2014. <https://concrete.susd.org/files/5514/2447/0334/SUSD-Enrollment-and-Demographics-Projection-to-2022.pdf>

⁹¹ Ibid.

⁹² Ibid.

⁹³ Worcester, Op. cit.

⁹⁴ Ibid.

⁹⁵ Ibid.

⁹⁶ Ibid.

⁹⁷ Ibid.

districts in the region must plan for a boom in enrollment followed by a slow decline. Patterns in SUSD’s growth suggest that the district is now entering this phase of decline.⁹⁸

RECONFIGURING GRADE LEVELS

CREATING K-5 SCHOOLS

In 2006, the district began creating K-5 schools out of what used to be K-8 schools; although, SUSD maintained some K-8 schools in given areas of academic interest.⁹⁹ The district also built a centrally located middle school for students in Grades 6-8. Today, the district operates 16 elementary schools, three Grade K-8 schools, six Grade 6-8 middle schools, and five high schools (plus one online high school program).¹⁰⁰

MOTIVATING FACTORS FOR RECONFIGURATION

According to Worcester, SUSD decided to break up the district’s K-8 schools into separate elementary and middle schools so that the elementary schools could focus on the instruction and support of younger children. Ultimately, SUSD sought to improve the academic performance of students in these early grades while enabling students in 6-8 middle schools to prepare for the transition to high school.¹⁰¹

THE PLANNING AND DECISION MAKING PROCESS

The first step to planning for reconfiguration, Worcester explained, is estimating the number of students projected per household in new communities with large growth: “The first question to ask is how do we, as educators, make the decision on what composition the school needs to be? That decision typically is related to how many students are actually going to be projected per household in that new growth area.”¹⁰² Once a district has calculated enrollment projections, Worcester stated that the next step is to scan the area for facilities space. If both an elementary and a middle school are absent from areas with expected increases in enrollment, for example, it may be best to create K-8 schools that contain both elementary and middle



“The first question to ask is how do we, as educators, make the decision on what composition the school needs to be? That decision typically is related to how many students are actually going to be projected per household in that new growth area”

-Terry Worcester

⁹⁸ Ibid.

⁹⁹ Ibid.

¹⁰⁰ “General Information,” Op. cit.

¹⁰¹ Worcester, Op. cit.

¹⁰² Ibid.

grades. “That typically is what has happened in Scottsdale and other growth districts around the metropolitan area,” Worcester noted.¹⁰³

When SUSD began to stall and even decline in its enrollment growth, the district then focused efforts on the separation of K-8 into K-5 and 6-8 schools for more tailored instruction and organization suited for young- and mid-grade-level students.¹⁰⁴ With these aims, the district decided to build a middle school, holding a bond election to make the final decision to separate K-8 and establish 6-8 middle schools. With approval, the district moved forward with the plan and adapted new school boundaries. Worcester emphasized that the new boundaries work well for commuting and student transitions from elementary to middle school.¹⁰⁵

CHALLENGES TO RECONFIGURATION

MANAGING FACILITIES AND OPERATING COSTS

Worcester responded that efficiently managing facilities and costs was immensely difficult when asked about the challenges of restructuring K-8 to K-5 schools. “When you have a facility designed for K-8 and then it goes to K-5, you have surplus facilities,” Worcester discussed—surplus facilities “become an alligator within the district in that you have



Leaders planning for reconfiguration should prepare for and consider...

- **Projected enrollment**
- **School location**
- **Operating costs, including utilities and staffing expenses**
- **Stakeholder pushback**

operating costs and you have maintenance costs [...] In the case of our district, suddenly some of these fantastic growth areas now are in such population decline that schools are half populated.”¹⁰⁶ After reconfiguring grades across schools to address population needs, SUSD had extra classrooms. The district decided to use these empty spaces for the instruction of small-scale programs, such as gifted or special education programs, pull-out instruction, or classes for the community.¹⁰⁷ When making decisions on how to consolidate resources, the district considered costs for consumables, such as electricity or other utilities expenses, as well as the costs of full-price employees and staffing.¹⁰⁸

¹⁰³ Ibid.

¹⁰⁴ Ibid.

¹⁰⁵ Ibid.

¹⁰⁶ Ibid.

¹⁰⁷ Ibid.

¹⁰⁸ Ibid.

STAKEHOLDER PUSHBACK

Aside from having to reconsolidate resources, another challenge to reconfiguration was managing negative feedback from the community and parents. As Worcester noted, splitting K-8 into K-5 elementary and 6-8 middle schools means that students from the same family will attend different facilities.¹⁰⁹ This disrupts the “continuity” and “convenience” for parents when different-aged siblings were once able to attend the same K-8 school.¹¹⁰ Indeed, these concerns were voiced by community members as SUSD planned to create separate elementary and middle school facilities: “[O]ur public constituents, and I assume most public constituents, like K-8 simply because you may have age groups within your family; so if you have [...] an upper-elementary and you have a junior-higher, they’re going to the same facility.”¹¹¹ In these instances, stakeholders were displeased with the separation of the schools. Overall, Worcester described the community’s perceptions of grade-level reconfiguration as “[v]ery much negative.”¹¹²



“Our decision-making is to make our decisions based upon facility equity.”

-Terry Worcester

OUTCOMES

By separating the K-8 into distinct elementary and middle schools, SUSD has been able to take a more “progressive focus on academic achievement.”¹¹³ Worcester gave the example that the 6-8 middle schools can better focus on offering higher-level enrichment opportunities, such as robotics or sports teams. Though, to Worcester’s knowledge, SUSD has not taken steps to evaluate the impact of the reconfiguration on students, the community, educators, or other schooling operations.¹¹⁴ Rather, reconfiguration was implemented at a time when the district was facing severe budget cuts, undermining SUSD’s ability to thoroughly assess the feasibility and outcomes of reconfiguration. To this point, Worcester remarked:

The reality is that the reconsideration would have been as the district was going into severe recession. Arizona was severely in recession from 2006 or 2007 [and] that state funding was literally cut to zero. Millions and millions of dollars were lost, and so the evaluations that you mention would mostly be in context of being able to afford schools, and keeping them open versus closing them, and consolidation.¹¹⁵

¹⁰⁹ Ibid.

¹¹⁰ Ibid.

¹¹¹ Ibid.

¹¹² Ibid.

¹¹³ Ibid.

¹¹⁴ Ibid.

¹¹⁵ Ibid.

RECOMMENDATIONS

Worcester recommended that districts considering reconfiguration establish a baseline estimate for approximating how many students, classrooms, and staff a school should consist of for the most efficient use of resources.¹¹⁶ He mentioned that SUSD recently passed a \$229 million bond election for the building of eight new elementary schools. “I would give advice to a district superintendent and governing board to establish a baseline [...] Our point of view is that we establish a baseline of most-productive facilities for the K-5, and that tends to be 700 students, 4 classrooms for each grade level.”¹¹⁷ Maintaining a balance of 700 students at these schools, Worcester and his colleagues have found, is productive from a leadership perspective as well.

Aside from establishing a baseline for operational use, Worcester encourages decision makers to be equitable in their planning of reconfiguration and school construction. “Our decision-making is to make our decisions based upon facility equity,” which, Worcester admits, can be a very difficult goal to accomplish when creating school boundaries.¹¹⁸ At SUSD, for instance, the district’s boundaries overlap with very affluent and socioeconomically disadvantaged communities.¹¹⁹ With equity in mind, district leaders have remained firm about ensuring equitable educational opportunities for students from all socioeconomic backgrounds. “Within our communication department, we use the slogan, ‘One size does not fit all,’” Worcester explained, “meaning that there are other educational opportunities in different places. If there is an academic program for one area, then we try to make it for others.”¹²⁰

CHARLOTTE-MECKLENBURG SCHOOLS

Charlotte-Mecklenburg Schools (CMS) is large, urban school district in Mecklenburg County, North Carolina, that serves just over 145,000 students based on the latest estimates provided by the NCES.¹²¹ According to U.S. Census Bureau records, the Charlotte-Concord-Gastonia, NC-SC MSA has grown by more than 200,000 people from April 2010 to July 2015, just under 10 percent of the total population during this five-year period.¹²² Indeed, the CMS Planning Services Department states that the district “continues to experience major growth within its communities

Overview



- **Total students:** ~145,000
- **Recent Growth:** 3 percent annual county growth
- **Enrollment Strategy:** Build and reconfigure to K-8 schools, add mobile units and update replacement schools

¹¹⁶ Ibid.

¹¹⁷ Ibid.

¹¹⁸ Ibid.

¹¹⁹ Ibid.

¹²⁰ Ibid.

¹²¹ “Search for Public School Districts,” Op. cit.

¹²² “American FactFinder - Advanced Search,” Op. cit.

and schools” with an average county growth rate of 3 percent each year.¹²³ When segmented by different geographies within the county, northern and southern communities are witnessing much of this growth. “It is anticipated that this growth trend will continue for at least the next ten years,” writes the Planning Services Department on the CMS website, “Given the changing demographics of our school-age population and the amount of growth we anticipate, CMS will continue to face challenges as we plan for student assignment and how we can best meet the needs of each child we serve.”¹²⁴ Hanover interviewed Scott McCully (McCully), the Executive Director for Planning and Student Placement, to learn more about CMS’s strategies for addressing student overpopulation.

CHALLENGES TO ENROLLMENT

When asked about the population changes the district has endured in recent years, McCully responded that the region experienced immense growth from the 1990s into the 2000s, with substantial slowing after the Great Recession in 2008: “We have experienced what I would call pretty consistent and rapid growth [...] since probably the early 1990s. That has



“While CMS has not reconfigured grades in an explicit attempt to prioritize a specific model, the district has ‘experimented with other grade configuration’ with the expansion of new facilities and among its existing buildings.”

crescendo or peaked in the mid-2000s and has slowed pretty substantially with the recession of 2008.”¹²⁵ Aside from economic factors, part of the reduction in growth can be attributed to demographic changes in the residency of families with no children, McCully added. “[T]he growth that we’re seeing now is probably more so from younger, single, non-children family individuals.”¹²⁶ In addition to this demographic trend, McCully shared that the state recently lifted the cap on the number of students that may enroll in charter schools. Consequently, students attending charters would otherwise attend CMS, reducing enrollment in the district’s public schools. Regardless of these factors and their effects on enrollment, the district still grew by over 1,000 students in the past year. With this, McCully concluded that CMS is “a growing district year after year.”¹²⁷

RECONFIGURING GRADE LEVELS

VARIED GRADE CONFIGURATIONS

While CMS has not reconfigured grades in an explicit attempt to prioritize a specific model, the district has “experimented with other grade configurations” with the expansion of new

¹²³ “Charlotte-Mecklenburg Schools Demographic Overview.” Charlotte-Mecklenburg Schools.
<http://www.cms.k12.nc.us/cmsdepartments/StudentPlacement/PlanningServices/Pages/Charlotte-MecklenburgSchoolsDemographicOverview.aspx>

¹²⁴ Ibid.

¹²⁵ McCully, Op. cit.

¹²⁶ Ibid.

¹²⁷ Ibid.



“We actually have a PK-8 opening next year that’s designed and built specifically for a PK-8. Typically, that’s a middle school kind of configuration, even though most of the grades are younger [...] That way we can ensure that we have the adequate facilities for those older students.”

-Scott McCully

facilities and among its existing buildings.¹²⁸ In total, the district operates about 170 facilities: 95 elementary schools, 39 middle schools, and 32 high schools.¹²⁹ Many of these schools are composed of non-traditional grade-level arrangements.¹³⁰ For instance, roughly 10 schools are K-8 plus two magnet schools consisting of K-12 and 6-12 configurations, respectively. Another program is offered in a Montessori school with Grades PK-6, and a second Montessori school is set to open with Grades 7-12.¹³¹ McCully also added that the district operates three “middle colleges” for students in Grades 11-13

with another opening next year.¹³² In addition to these arrangements, the district has also used Gates grants in the past to separate high schools into different buildings on a single campus. While some of these schools have since rejoined into a single high school, CMS’s Olympic campus is still devised as separate buildings with multiple principals.¹³³

As it relates to the interests of ACPS, the district has had to create K-8 schools adapted from older buildings with reduced enrollment and low utilization. Altogether, these grade configuration patterns demonstrate CMS’s unique need to create schools with varied and, in many respects, non-traditional grade-level offerings.¹³⁴

MOTIVATING FACTORS

The reasons for opening schools with these alternative configurations and reconfiguring other schools are multifaceted. Primarily, the decision to offer diverse schools is rooted in students’ academic needs.¹³⁵ Many of the K-8 schools at CMS are specialized for instruction concentrated in particular disciplines, such as STEM or languages. However, McCully explained that rearranging grades in older buildings to serve students in Grades K-8 was driven, in part, to create more efficiency in funding use:

¹²⁸ Ibid.

¹²⁹ These estimates are provided by McCully. The CMS website provides other school counts. Aside from one alternative school and two programs for exceptional children, according to district’s webpage, CMS currently operates 108 elementary schools, 43 middle schools, and 34 high schools (including academies and eLearning programs). This information can be found at: “Schools.” Charlotte-Mecklenburg Schools. <http://www.cms.k12.nc.us/cmsschools/Pages/default.aspx>

¹³⁰ McCully, Op. cit.

¹³¹ Ibid.

¹³² Ibid.

¹³³ Ibid.

¹³⁴ Ibid.

¹³⁵ Ibid.

It's an interesting phenomenon because we have kind of an older corridor area for which the enrollment had actually shrunk a little bit. We had schools that were 50 percent, 60 percent utilized. [A] review of those schools in that area occurred in 2010 as a direct result of the budgetary cliff that we're experiencing here in the school system. It was really more for budgetary reasons to go with [the K-8] model for those schools.¹³⁶

THE PLANNING AND DECISION MAKING PROCESS

When planning, CMS does not move forward with reconfiguration unless the district has determined that the facilities available are appropriately suited for the proposed grades: “what we've said is that we will not go forth with a K-8 unless there's an appropriate facility to match the grade configuration,” McCully clarified.¹³⁷ This decision is based on the district’s prior experience shifting middle schoolers into buildings that were previously used as elementary schools. Administrators learned that while such buildings were not fully utilized, the spaces within the schools still lacked the features and amenities needed to accommodate instruction for students in the middle grades. “Oftentimes, [these buildings] lacked some of the other amenities that would be needed for an older student, a middle school student such as a gym, a track, [or] lockers.”¹³⁸ Thus, grade-level reconfiguration is only approved unless the school building can sufficiently meet the needs of the student body.

Should Planning Services determine that new K-8 facilities are fitting for enrollment need, CMS constructs new buildings aligned with the features typical of middle schools. In fact, the district is underway with the creation of a new PK-8 school. “We actually have a PK-8 opening next year that’s designed and built specifically for a PK-8,” stated McCully, “Typically, that's a middle school kind of configuration, even though most of the grades are younger [...] That way we can ensure that we have the adequate facilities for those older students.”¹³⁹ Likewise, the curriculum at the new K-8 school will be adapted to middle school learning, with extracurricular offerings to enrich the school’s core programs. Again, this decision is informed by CMS’s past reconfiguring experiences in which too few students were assigned to a K-8 school limiting the district’s ability to offer a broad range of electives. When discussing this, McCully mentioned that “[s]ome of the feedback [CMS] received is there's just not enough critical mass of students to be able to offer a full complement of electives. That includes choral and band, and all of the other extracurricular [classes] that middle school students have grown to expect. I think that is certainly a lesson learned.”¹⁴⁰

Maintaining equity in educational offerings is also valued when the district plans for grade-level reconfiguration and the construction of new schools.¹⁴¹ For example, CMS uses a blind lottery to assign students to its full and partial magnet schools. In these cases, students record

¹³⁶ Ibid.

¹³⁷ Ibid.

¹³⁸ Ibid.

¹³⁹ Ibid.

¹⁴⁰ Ibid.

¹⁴¹ Ibid.

their first, second, and third priority schools.¹⁴² The district has since expanded the capacity of the most popular schools to accommodate “students who really have a desire to be in [those] program[s].”¹⁴³ When asked how the community has responded to these and other decision making practices, McCully stated that, overall, there have been no major concerns or pushback. McCully elaborated on this point, mentioning that “[i]f there [are] any concerns, it's more of a concern about maybe a parent wanting their child to get into a specific program.”¹⁴⁴

ALTERNATIVE STRATEGIES TO RECONFIGURATION AND CHALLENGES

EXPANSION AND UPDATING REPLACEMENT SCHOOLS

While the district has added new schools and reconfigured school grades where possible, CMS has had to implement other strategies to accommodate growth in student enrollment. To put recent growth in perspective, McCully noted that this year’s increase in enrollment is roughly the equivalent of adding a new elementary school to the system. In other words, an ‘elementary school’s worth’ of students enrolled in CMS this year alone.¹⁴⁵ Notably, the district did not construct a new school this year, although school development is underway. “What we have done to accommodate that growth,” McCully expanded, “is very similar to what other districts do, and that's to continue to add mobile units [...] Unfortunately, that seems to be the only way that we can manage at least the short-term growth.”¹⁴⁶ The decision to add mobile units is strongly linked with CMS’s budget, which does not lend itself easily to the construction of new buildings:

Our facilities are basically funded through a general obligation bond issue, and usually the cycle on that is every four years. The last bond that we had was in 2013 for approximately 295 million. Frankly, that's a lot of money, there's no question about that, but it didn't go very far. When a high school costs anywhere from 60 to 80 million, a middle school about 30 to 40 million, and an elementary around 20, it goes quickly. Then that also includes any renovations or any school replacements.¹⁴⁷

Aside from adding mobile units, the district has strategically built a new school in the same attendance zone as a replacement school.¹⁴⁸ After the district updates the replacement school building, students will have the option to enroll in either school. To this point, McCully stated: “we aren't forcing anybody to go to the school that we've just rebuilt, but we're giving that as an option.”¹⁴⁹ Ultimately, the district aims to use its “existing assets to the greatest extent possible and [reopen] schools that have been closed and converting those to high

¹⁴² Ibid.

¹⁴³ Ibid.

¹⁴⁴ Ibid.

¹⁴⁵ Ibid.

¹⁴⁶ Ibid.

¹⁴⁷ Ibid.

¹⁴⁸ Ibid.

¹⁴⁹ Ibid.

desirable magnet programs,” steps which can help optimize facilities space as the population continues to grow.¹⁵⁰

OUTCOMES

Overall, McCully has found the strategies the district uses to address enrollment challenges helpful for leveling the pressure to accommodate growth.¹⁵¹ Reconfiguring grades in buildings where enrollment was low and updating existing buildings into magnet schools have helped to ease pressure for slots. Though, McCully did not speak to the implications these practices have had for students or educators.¹⁵²

RECOMMENDATIONS

McCully emphasized the importance of planning ahead and being creative with the use of space available to the district to create room for more students. Even solutions that only increase capacity by a small margin are still important for addressing over enrollment:



“For districts pressed with overcrowding, McCully encouraged looking to redevelop old schools, redesigning commercial spaces, or leasing existing facilities from developers as a means to increase facilities space.”

“[r]eally keep that capital plan up-to-date, and then just really from there look at creative solutions. Even though it may not yield a huge number in terms of general release. I mean, every student counts.”¹⁵³ For districts pressed with overcrowding, McCully encouraged looking to redevelop old schools, redesigning commercial spaces, or leasing existing facilities from developers as a means to increase facilities space. For instance, McCully noted that “[i]n high growth areas or high transient areas, sometimes it's better to lease, [or] get into a long-term lease, and then that way [a district] can get out of it if you need to;

or at the end of the lease, evaluate if that's the right place to have a school.” Extending this discussion, McCully added that collaboration with external partners to determine projections in enrollment can help a district plan accordingly.¹⁵⁴ At CMS, professional staff are actively collaborating with demographers at the University of North Carolina, Chapel Hill to understand what the enrollment needs might be in the next 10 to 20 years.¹⁵⁵ Doing so has helped to gauge the need for facilities and other resources in the long-term.

¹⁵⁰ Ibid.

¹⁵¹ Ibid.

¹⁵² Ibid.

¹⁵³ Ibid.

¹⁵⁴ Ibid.

¹⁵⁵ Ibid.

ANONYMOUS DISTRICT 1

Anonymous District 1 (District 1) is a midsize, urban school district located in the Southeastern region of the United States. The metropolitan area in which the district is located has witnessed substantial population growth at a rate above 8 percent from April 2010 to July 2010 based on data reported by the U.S. Census Bureau. With high population growth, the

Overview



- **Total students:** ~26,000
- **Recent Growth:** Capacity expected to exceed 1,000 students in 2017-2018
- **Enrollment Strategy:** Internal space modification, add mobile units, adjust class schedule, team elementary schools, expand online learning options

district has faced considerable increases in student attendance. As of the 2016-2017 academic year, over 26,000 students attended District 1, more than 500 above the district's capacity.¹⁵⁶ Projection estimates released by District 1 suggest that by the next school year, enrollment will exceed capacity by nearly 1,000 students. This estimate even accounts for increased capacity at several of the district's schools. To better understand these challenges and District 1's strategies for meeting enrollment demand, Hanover interviewed Respondent 1 who requested complete anonymity.

CHALLENGES TO ENROLLMENT

As District 1's enrollment records would suggest, Respondent 1 stated that the district has faced issues with increasing student populations and pressure to accommodate all students with only the resources and facilities that the district has: "[w]e're in need of more seats to accommodate our students. That's sort of the biggest challenge. More seats, more funding, everything that's associated with more students in school. So we're in need of a lot of resources to accommodate schools and kids."¹⁵⁷ Respondent 1 noted that while some schools within the district are facing more pressure than others, on the whole, most of District 1's schools are growing.¹⁵⁸ Adding to these challenges, the district's urban location and population density makes it difficult to expand facilities as there is little space to expand. "We're sort of in a place where land is extremely expensive, we don't have a lot of sites," Respondent 1 described, "the county's essentially built out. So it gets a little more challenging for us."¹⁵⁹

ALTERNATIVE STRATEGIES TO RECONFIGURATION

PRE-KINDERGARTEN LOTTERY SYSTEM

Respondent 1 stated that the district has not reconfigured grades in an attempt to curb pressure for facilities space; although, this is a strategy that leaders have considered. Rather,

¹⁵⁶ This information is based on enrollment estimates provided by District 1. This and other sources that disclose the name of the district are kept confidential.

¹⁵⁷ Respondent 1, Op. cit.

¹⁵⁸ Ibid.

¹⁵⁹ Ibid.

Respondent 1 affirmed that District 1’s current grade-level configuration works well for organizing students.¹⁶⁰ The district currently operates traditional PK-5 elementary, Grade 6-8 middle, and Grade 9-12 high schools in addition to two 6-12 schools.¹⁶¹ Slots for the pre-kindergarten program are limited to about 1,200 seats, however, which are assigned to students through a lottery system. Some spaces are reserved for low-income students and others are open to all student applicants.¹⁶²

INTERNAL MODIFICATIONS AND EXPANSION

To address issues of student overpopulation, District 1 follows a sequence of facility alteration options, from small-scale adjustments to large-scale solutions. When classrooms first require more seats to meet increased enrollment, the district’s first response is to make internal modifications to space arrangements.¹⁶³ As Respondent 1 explained, “[f]irst we look at if we can do, what we call, internal space modifications. [Asking,] Can we change rooms that are non-capacity generating into capacity generating rooms?”¹⁶⁴ If increases to enrollment are steady, and if it appears that the school’s population will remain high, the district will then consider more extensive modifications. In these cases, district leaders will consider building additional facilities space to an existing school.¹⁶⁵ For temporary accommodations, District 1 will add “relocatables” to schools in need.¹⁶⁶ The final step District 1 will take to address increasing enrollment is to build a new school. Of course, this step is “last on the hierarchy,” Respondent 1 noted, as the district tries “to go through another means prior to full-out building a new school.”¹⁶⁷ Most recently, District 1 considered offering pre-kindergarten and kindergarten in separate centers as part of its expansion.¹⁶⁸



“First we look at if we can do, what we call, internal space modifications. [Asking,] Can we change rooms that are non-capacity generating into capacity generating rooms?”

-Respondent 1

NON-CAPITAL OPTIONS

When asked about the use of any additional creative or alternative strategies to accommodate increasing enrollment, Respondent 1 listed a variety of “non-capital options,” or “options where instead of building more space, we use our existing space more efficiently.”¹⁶⁹ These options include adjusting class schedules, “teaming elementary

¹⁶⁰ Ibid.

¹⁶¹ Ibid.

¹⁶² Ibid.

¹⁶³ Ibid.

¹⁶⁴ Ibid.

¹⁶⁵ Ibid.

¹⁶⁶ Ibid.

¹⁶⁷ Ibid.

¹⁶⁸ Ibid.

¹⁶⁹ Ibid.

schools,” and expanding online learning options.¹⁷⁰ With regard to scheduling, Respondent 1 elaborated, the district considered offering year-round education so that students could learn at different times, but thus far, the district has not made this change. Teaming elementary schools, on the other hand, clusters the boundaries of schools in close proximity so that students may choose to enroll in any one of the team schools. This enables students to attend schools with greater capacity. District 1 has also considered developing 24-7 online learning options in an effort to consolidate the district’s resources while meeting the needs of a growing student body.¹⁷¹

Another non-capital option that has been proposed is to change admission and transfer policies to better manage the flow of incoming students. Altering school boundaries, instituting shared spaces, and leasing spaces are similar strategies District 1 has considered to manage the distribution of students across schools.¹⁷²

OUTCOMES

While Respondent 1 did not comment on how these processes have impacted students, educators, or the community at large, he did emphasize that expansion presents opportunities for improving instruction:

[...] I guess [expansion is] an opportunity. Instead of looking at it as something negative, we see it as an opportunity. We're really looking to improve instruction. That's first and foremost here. While we're expanding space, we're also looking at putting instruction first in doing so.¹⁷³

ANONYMOUS DISTRICT 2

Anonymous District 2 (District 2) is a large, urban school district located in the Southern region of the United States that serves over 50,000 students. The metropolitan area in which District 2 is located grew by approximately 8 percent from April 2010 to July 2015 based on calculations of U.S. Census Bureau population estimates. Already much larger than most U.S. districts, District 2 has witnessed steady growth in recent years with a 4 percent increase in its student body from 2010 to 2016.¹⁷⁴ To learn more about how District 2 has managed the increase in enrollment, Hanover spoke with Respondent 2 who requested complete anonymity.

Overview



- **Total students:** ~50,000
- **Recent Growth:** 4 percent increase in enrollment from 2010 to 2016
- **Enrollment Strategy:** Internal space modification, add mobile units, adjust boundaries, adjust class schedule,

¹⁷⁰ Ibid.

¹⁷¹ Ibid.

¹⁷² Ibid.

¹⁷³ Ibid.

¹⁷⁴ This information is based on enrollment estimates provided by the state that District 2 is located in.

CHALLENGES TO ENROLLMENT

In email correspondence with Hanover, Respondent 2 noted that the district has not faced major challenges to growth in enrollment. Respondent 2 clarified that while some schools have faced capacity challenges, pressure to accommodate growing student populations is not felt district-wide.¹⁷⁵ In one instance, District 2 split an elementary school into Grade K-2 and 3-5 configurations, resulting in two campuses with one school administration. The district also recently created a traditional school set to expand from a K-5 to a K-8, with grade-level configuration designed to incrementally expand into a K-8 over time.¹⁷⁶ By adding one grade each consecutive year, the K-8 school will meet its full capacity in three years. Aside from these configurations, Respondent 2 confirmed that the district has not had to reconfigure grades in response to overcrowding.¹⁷⁷ During the interview, rather, Respondent 2 stated that the district's current configuration—which is made up of K-5 elementary, 6-8 middle, and 9-12 high schools—has worked well for organizing school grades. Even so, the district's urban location does present challenges to expansion when necessary.¹⁷⁸

ALTERNATIVE STRATEGIES TO RECONFIGURATION

INTERNAL MODIFICATIONS, EXPANSION, AND UPDATING REPLACEMENT SCHOOLS

Respondent 2 touched on how the development of charter schools has drawn more students away from the district's traditional public schools. This can, in part, explain why District 2 has experienced minimal increases in enrollment recently: "As an overall district [...] we're actually bleeding students to the charter schools every year [...] Charter schools stand alone and they draw students from certain attendance boundaries based on capped enrollment that's approved by the School Board."¹⁷⁹ Nonetheless, District 2 has implemented several techniques to address temporary need. Foremost, the district will assess the use of facilities space to determine if adjustments can be made for more efficient use of classrooms. Respondent 2 gave an example and added that "[i]f classrooms are being used as offices, obviously that impacts your capacity, as a rather obvious point."¹⁸⁰ In this instance, a school may reassess the use of classroom space for an office while taking into consideration the autonomy the department needs in order to manage operations. "There are several variables that you can look at to try and get more kids in the building without impacting the delivery of instruction."¹⁸¹

¹⁷⁵ Respondent 2, Op. cit.

¹⁷⁶ Ibid.

¹⁷⁷ Ibid.

¹⁷⁸ Ibid.

¹⁷⁹ Ibid.

¹⁸⁰ Ibid.

¹⁸¹ Ibid.

As another option, the district will extend facilities through the use of portable structures. The district is also planning on building a bigger middle school using an older building that hasn't been operating for some time. "[W]e're actually going to be building a bigger middle school in a location that hasn't been used for 25 years and perhaps turn the existing middle into an elementary to help relieve some of the overcrowding in elementary, but that's all, it isn't something we've done. This is something we're planning."¹⁸² Together, these rearrangements help to modify existing facilities without having to reconfigure grades across schools.

NON-CAPITAL OPTIONS

Restructuring school boundaries and altering the class schedule are other non-capital strategies District 2 has implemented at schools faced with increasing enrollment. In either case, however, it can be challenging to make these decisions.¹⁸³ Teachers typically enjoy block scheduling and assigned classrooms, for example, as it provides opportunities to complete work during open block times. As Respondent 2 pointed out, however, this scheduling arrangement results in unoccupied classroom space during a teacher's open block period—space that is in high demand at schools pressured to accommodate increases in enrollment.¹⁸⁴ To maximize the use of space, the district may require teachers to "float," freeing space during a period an educator is not scheduled to teach.¹⁸⁵ While this practice is more efficient for the use of resources, teachers prefer assignments to a single classroom, Respondent 2 explained.

OUTCOMES

Because District 2 has not faced much pressure to reconfigure grades or expand facilities, Respondent 2 did not speak directly to the outcomes of any changes that have been made to its high-capacity schools.¹⁸⁶ Rather, Respondent 2 concluded that districts facing this pressure, particularly in urban and dense areas, must approach such challenges creatively and consider how to reorganize the existing use of facilities to maximize efficiency.¹⁸⁷



“ “[W]e're actually going to be building a bigger middle school in a location that hasn't been used for 25 years and perhaps turn the existing middle into an elementary to help relieve some of the overcrowding in elementary, but that's all, it isn't something we've done. This is something we're planning”

-Respondent 2

¹⁸² Ibid.

¹⁸³ Ibid.

¹⁸⁴ Ibid.

¹⁸⁵ Ibid.

¹⁸⁶ Ibid.

¹⁸⁷ Ibid.

PROJECT EVALUATION FORM

Hanover Research is committed to providing a work product that meets or exceeds client expectations. In keeping with that goal, we would like to hear your opinions regarding our reports. Feedback is critically important and serves as the strongest mechanism by which we tailor our research to your organization. When you have had a chance to evaluate this report, please take a moment to fill out the following questionnaire.

<http://www.hanoverresearch.com/evaluation/index.php>

CAVEAT

The publisher and authors have used their best efforts in preparing this brief. The publisher and authors make no representations or warranties with respect to the accuracy or completeness of the contents of this brief and specifically disclaim any implied warranties of fitness for a particular purpose. There are no warranties that extend beyond the descriptions contained in this paragraph. No warranty may be created or extended by representatives of Hanover Research or its marketing materials. The accuracy and completeness of the information provided herein and the opinions stated herein are not guaranteed or warranted to produce any particular results, and the advice and strategies contained herein may not be suitable for every client. Neither the publisher nor the authors shall be liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages. Moreover, Hanover Research is not engaged in rendering legal, accounting, or other professional services. Clients requiring such services are advised to consult an appropriate professional.



4401 Wilson Boulevard, Suite 400
Arlington, VA 22203
P 202.559.0500 F 866.808.6585
www.hanoverresearch.com

ANALYSIS OF ELEMENTARY AND SECONDARY GRADE SPAN CONFIGURATIONS - UPDATE

Prepared for Alexandria City Public Schools

June 2017



In the following report, Hanover Research explores the literature on grade span configurations in both elementary and secondary settings. This report introduces the topic of grade configuration at a broad level, and then examines specific grade span models from elementary and secondary perspectives. Throughout, this report discusses potential benefits, limitations, and implementation considerations for common sequences.

TABLE OF CONTENTS

| | |
|---|-------------------------------------|
| Executive Summary and Key Findings | 3 |
| INTRODUCTION | 3 |
| GENERAL KEY FINDINGS..... | 5 |
| KEY FINDINGS: ELEMENTARY GRADE CONFIGURATIONS..... | 5 |
| KEY FINDINGS: SECONDARY GRADE CONFIGURATIONS | 6 |
| Section I: Overview of Research on Grade-Level Configuration | 8 |
| OVERVIEW OF GRADE CONFIGURATION MODELS IN THE UNITED STATES | 8 |
| EFFECTIVENESS OF GRADE SPAN REFORMS | 11 |
| IMPACT OF SCHOOL TRANSITIONS | 14 |
| Effective Transition Support | 15 |
| Section II: Models of Elementary Grade Configuration | 20 |
| KEY SECTION FINDINGS..... | 20 |
| STANDALONE PRE-KINDERGARTEN/KINDERGARTEN..... | 21 |
| PRE-KINDERGARTEN/KINDERGARTEN WITH HIGHER GRADES..... | 25 |
| ENDING ELEMENTARY SCHOOL IN GRADE 5 VERSUS GRADE 6..... | 33 |
| INTERMEDIATE SCHOOL (GRADES 5 AND 6) | 38 |
| Section III: Models of Secondary Grade Configuration | 42 |
| KEY SECTION FINDINGS..... | 42 |
| KINDERGARTEN THROUGH GRADE 8..... | 43 |
| JUNIOR HIGH AND MIDDLE SCHOOL (GRADES 6-8, 7-8, OR 7-9) | 55 |
| NINTH GRADE ACADEMIES..... | 59 |
| ALTERNATE SECONDARY SCHOOL CONFIGURATIONS (GRADES 7-12) | ERROR! BOOKMARK NOT DEFINED. |
| Section IV: Best Practices in Re-Configuring Grades | 72 |
| ENGAGE STAKEHOLDERS | 72 |
| CONSIDER COSTS AND RESOURCES..... | 73 |
| COMMIT TO ACADEMIC ACHIEVEMENT | 74 |

EXECUTIVE SUMMARY AND KEY FINDINGS

REPORT UPDATE

This document is an updated version of a report delivered to Alexandria City Public Schools (ACPS) in November 2016. To inform its grade reconfiguration efforts, ACPS requested additional information regarding the following topics:

- What research studies, if any, address outcomes for students in standalone Pre-K or Kindergarten centers compared to students in Pre-K or Kindergarten classrooms which are integrated into the elementary school building?
- What research studies, if any, compare Grades 9-10 and Grades 11-12 high school grade configurations to traditional high schools (i.e. Grades 9-12)?
- What is the ideal number of students per grade in elementary, middle, and high school, based on existing empirical evidence?
- What guiding questions should ACPS use to make decisions regarding grade reconfiguration?

To address these research questions, Hanover has provided additional information about these topics in the Key Findings section and throughout the body of the report. Unfortunately, there are no additional research studies comparing Grades 9-10 and Grades 11-12 grade spans to traditional high schools or comparing standalone Pre-K/Kindergarten centers to integrated Pre-K/Kindergarten and elementary schools. However, Hanover has drawn on literature related to school transitions, along with anecdotal evidence from school districts with these grade span configurations, in order to provide ACPS with additional data to inform its grade configuration decisions.

Hanover was unable to address an additional ACPS research question regarding the number of K-6 and K-8 schools throughout the United States due to the way that the National Center for Education Statistics (NCES) collects this data—NCES classifies schools as beginning in either Pre-K, Kindergarten, or Grade 1 and spanning to Grade 6 or Grade 8; the specific number of K-6 and K-8 schools is unavailable.¹

INTRODUCTION

Districts looking to improve student and teacher outcomes often consider structural and organizational changes that can be implemented at a low cost and have a high impact. One common organizational consideration that district leaders can assess is grade span configurations, which dictate how grade levels are sequenced across schools. According to district administrators, grade configuration can have a noticeable impact on a variety of

¹ "Table 216.75: Public Elementary Schools, by Grade Span, Average School Enrollment, and State or Jurisdiction: 2013-14." National Center for Education Statistics, 2015.
https://nces.ed.gov/programs/digest/d15/tables/dt15_216.75.asp?current=yes

indicators, including: content knowledge and alignment to state standards; development needs; district staffing and employment; and program design, length, and availability.² However, there is much debate over the true effectiveness of these structural changes in promoting student achievement. Generally, experts acknowledge the importance for schools to take into account the broader needs of their students, without isolating the effects of grade sequences. Indeed, “every grade configuration has its own strengths and weaknesses relative to the context in which the grade span occurs.”³

To this end, this report examines both empirical and anecdotal research from a variety of perspectives to provide Alexandria City Public Schools (ACPS) with a large-scale analysis of recent literature that addresses grade span configurations. Where possible, research is focused on data-driven studies. Hanover Research reviewed several online databases to identify high-quality studies to address this topic, including ProQuest, EBSCOHost, ERIC, and the U.S. Department of Education. Secondary anecdotal literature supplements research-based findings throughout the report to offer a holistic assessment of the major grade configuration models available to public school districts.

Hanover Research evaluates an array of grade sequences that can be applied in both early childhood, elementary, and secondary settings, encompassing all grade levels from Pre-Kindergarten to Grade 12. Accordingly, this report is organized in four sections:

- **Section I: Overview of Research on Grade-Level Configuration** introduces the topic of grade configuration, and reviews the literature at a broad level. This section considers the overall effectiveness of grade span reforms and issues commonly associated with school-to-school transitions.
- **Section II: Models of Elementary Grade Configuration** assesses the impacts of various grade sequences at the elementary level. This includes standalone early childhood campuses, alignment from Pre-Kindergarten through Grade 3, ending elementary school in Grade 5 versus Grade 6, and intermediate schools.
- **Section III: Models of Secondary Grade Configuration** investigates common grade span models through middle and high school. This includes K-8 schools, middle and junior high school models, ninth grade academies, and Grade 7 through 12 high schools.
- **Section IV: Best Practices in Reconfiguring Grades** provides an overview of strategies that other districts have used to facilitate the implementation of new grade configurations, with a particular focus on stakeholder engagement, cost considerations, and indicators of success.

² “Illinois P-20 Council Grade Span Configuration Meeting: Recommendations to Illinois State Board of Education.” Illinois Department of Education, June 2012. pp.1–2.
<https://www.illinois.gov/gov/P20/Documents/Educator%20Licensure/Grade%20Span%20Configuration%20Recommendations%20to%20ISBE%20final.pdf>

³ Renchler, R. “School Organization: Grade Span: Trends and Issues.” ERIC Clearinghouse on Educational Management, 2002. p.4. <http://files.eric.ed.gov/fulltext/ED472994.pdf>

GENERAL KEY FINDINGS

- **Nationally and in ACPS' region, the most common grade configurations for public schools are generally Pre-K/Kindergarten through Grade 5 at the elementary level and Grades 9-12 at the high school level.** Three-year middle schools are the most common model nationally and regionally, although Grade K through 8 schools are becoming increasingly popular. Grade K through 8 schools account for a larger proportion of elementary schools in the District of Columbia and Maryland than in Virginia. Nationally, the number of Grade K through 8 schools has increased substantially over the past 20 years from 2,500 schools in 1994 to 6,500 schools in 2014.
- **Regardless of the grade span configuration used in a district, schools should focus on school quality and provide comprehensive transition programs to support students when they change schools.** Districts should strive to meet students' academic and developmental needs at all ages, and a focus on school quality and effective educational practices should underpin any grade re-configuration effort. Transition programs, which address students' concerns and expectations about new schools, should align with overall K-12 articulation efforts; teachers and administrators at each school level should coordinate efforts to address transition issues.
- **When considering potential grade configurations, districts should take into account student performance as well as projected enrollments, school sizes, transportation costs, number of transition points, stakeholder values, and overall school goals.** Districts typically consider local and state trends and solicit feedback from students, parents, and staff when making decisions about grade re-configurations. The costs of re-configuring grades can vary widely depending on existing district resources. Schools may need to purchase additional furniture, upgrade labs, add extracurricular programming or additional classes, hire additional staff, renovate existing facilities, or build new classrooms when adopting new grade configurations.
- **Research on the impacts of school and class size is somewhat mixed, but in general, most studies show that smaller school and class sizes are associated with positive outcomes.** A 2009 review of school size studies recommends that elementary schools not exceed 600 students and secondary schools not exceed 1,000 students; schools with large proportions of disadvantaged students should be smaller. In terms of class size, research on students in Grades K-3 indicates that class sizes of 18 students or fewer produce the largest benefits in terms of academic achievement. No studies have examined the optimal number of students per grade. Hanover recommends that ACPS rely on research related to school and class size in order to determine the number of students per grade level at each school.

KEY FINDINGS: ELEMENTARY GRADE CONFIGURATIONS

- **Students do not appear to benefit from isolated early childhood experiences.** One study found that students in standalone pre-primary schools (i.e., Pre-K and/or

Kindergarten) do not gain skills as fast over the course of the school year as their peers in elementary schools. This study found that more time is dedicated to instruction when Kindergarten is incorporated with elementary grade spans. However, it is possible that quality instruction in standalone pre-primary schools could result in positive outcomes. Recently, several school districts have established standalone pre-primary centers to ease overcrowding and also to better address the needs of young learners, especially those who are typically unprepared for Kindergarten.

- **Comprehensive PreK-3 alignment is critical to ensure successful transitions into formal schooling and maintain student achievement.** A dedicated PreK-3 framework ensures that curricula and pedagogy are aligned across early childhood and early elementary classrooms, and this sequence points to the efficacy of including early childhood grades with elementary sequences. Moreover, reading achievement by Grade 3 is highly predictive of later student outcomes—such as high school completion—and schools should stress proficiency by that time. However, ensuring horizontal and vertical alignment can be a time-consuming and resource-intensive process.
- **Grade 6 students generally benefit from placement in elementary school in terms of both academic and behavioral outcomes.** Elementary school children in Grade 6 gain more academically over the course of the school year and experience significantly fewer behavior infractions than their peers in middle school configurations. However, data suggest that other factors affect Grade 6 performance and that district leaders should carefully consider how this configuration will impact student capacity in elementary school in particular; for example, other districts have had to construct new elementary schools and redistrict some students.
- **Intermediate school (Grades 5 and 6 only) are not supported by the literature.** Students in Grades 5 and 6 perform better as part of larger elementary grade spans than in isolation. Despite suggestions that these students often require dedicated social and emotional supports, there is no evidence that intermediate schools are better equipped to provide these resources than more standard elementary school settings.

KEY FINDINGS: SECONDARY GRADE CONFIGURATIONS

- **Although K-8 schools have become much more popular in recent years, research regarding ideal grade span configurations for middle grades students is inconclusive.** Several studies have found that K-8 schools have more positive environments and are associated with better attendance, decreased behavioral problems, and improved academic achievement compared to middle and junior high schools. The transition to middle school can be difficult for many and is often associated with negative academic and social outcomes. Many view K-8 schools as beneficial because they reduce the number of school transitions students experience. However, the long-term benefits of K-8 schools have not been established; several

studies have found no difference between K-8 schools and middle schools or have found that the differences are too small or unsustainable to be of importance.

- **Because neither K-8 nor middle schools have consistently demonstrated improvements in academic achievement, some experts argue that schools should focus on improving overall school quality.** Middle grades experts assert that schools must design the curriculum and school environment to meet the needs of middle grades students, regardless of whether they are in a K-8 or middle school setting. Use of interdisciplinary teaching teams, an approach commonly recommended for middle schools, has the potential to help students and teachers form positive relationships and improve academic outcomes. Further, comprehensive transition programs can help to mitigate the negative effects of changing schools.
- **Ninth grade academies are often difficult for schools to fully implement, and research on their effects is inconclusive.** Ninth grade academies have distinct administrative structures and programmatic characteristics, which can be difficult for schools to achieve without substantial district support and resources. Academies are usually housed in a dedicated wing or hallway within a school and have their own administrator or interdisciplinary teaching teams. Additional staff typically provide other academic and social supports, such as tutoring, mentoring, counseling, and social services. While some studies have found that students who attended ninth grade academies have higher academic achievement levels and lower non-promotion rates than typical high schools, other studies have found no difference in students who attended academies and those in traditional schools.
- **Alternative secondary configurations, such as 7-12 schools, are not generally supported by the literature.** Proponents of the 7-12 configuration model argue that it is effective because it minimizes school transitions and allows middle grades students to access high school facilities and advanced coursework. However, research and anecdotal accounts of the model's outcomes is mixed. Adopters of the 7-12 model have acknowledged that middle school students have different needs than high school students, and typically use school-within-school models to serve 7-8 and 9-12 students separately within the same campus. Hanover did not identify any studies of other high school models, such as 9-10 and 11-12 schools. In general, school transitions are associated with decreases in student achievement. However, it is unclear whether a school transition during high school would have negative effects.

In addition to these findings, Section IV provides an overview of next steps ACPS can take to plan for grade reconfiguration.

SECTION I: OVERVIEW OF RESEARCH ON GRADE-LEVEL CONFIGURATION

In this section, Hanover Research highlights the research on grade-level configuration. This section broadly examines the extant literature that is applicable across both elementary and secondary school settings, providing a framework for the subsequent analysis of specific configurations in K-12 education.

OVERVIEW OF GRADE CONFIGURATION MODELS IN THE UNITED STATES

Grade configuration has been examined by education practitioners and policymakers for decades as school and district administrators search for ways to leverage organizational and structural elements to improve outcomes. To maximize student achievement and school efficiency, experts have tried an array of grade spans, examining the benefits and challenges of alternative configurations.⁴ Constraints surrounding school and district boundaries, student populations, financial resources, and community preferences—among other factors—can often dictate how a school system configures grade levels. This multiplicity of considerations explains the wide range of grade configurations across the United States.⁵ **However, in the United States, there is no universally agreed-upon best practice for grade span configuration.**

The National Center for Education Statistics (NCES) highlights the variety of possible grade configuration models that are prevalent across the United States (Figure 1.1). The standard progression in most districts begins in Grade 1 at age 6, and students traditionally remain in elementary school until at least Grade 4. After Grade 4, there is significant room for variation in school organizations, with some students transitioning to middle school (Grades 5 to 8 or Grades 6 to 8) or junior high (Grades 7 to 8). Others transition to a larger school that combines junior and senior high schools, which can span from Grades 6 to 12. Students commonly enter high school in Grade 9.⁶

Changes in grade configuration over time have been a result of enrollment pressures and new pedagogical theories. For much of history, the vast majority of public school districts in the United States had a single elementary school for Grades K through 8 and a secondary school for Grades 9 through 12. However, two major shifts—one in the early 1900s, which led to the creation of junior high schools, and a second in the 1960s, which marked the advent of the middle school concept—have changed the landscape of public education permanently. The ideological basis of a middle school or junior high school model lies in the assumption that adolescents have unique needs, as they are in a transitional period during which it is useful

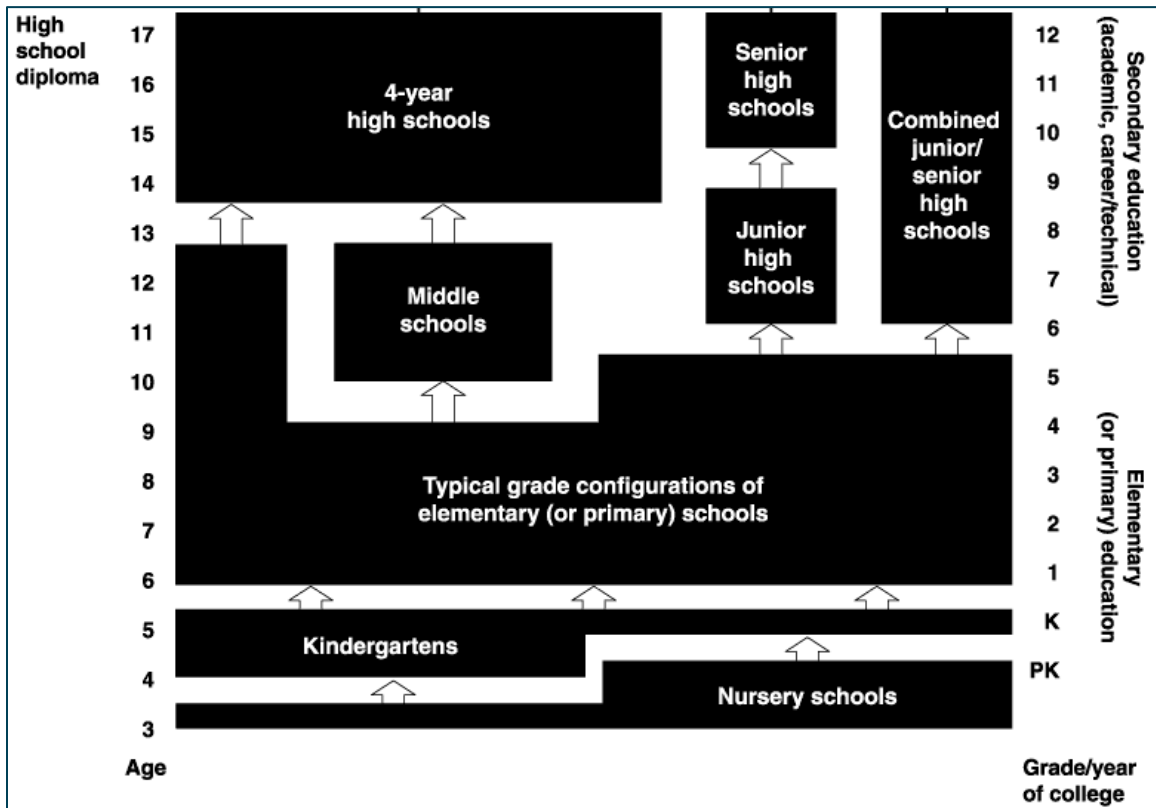
⁴ Renchler, R. "Grade Span." *National Association of Elementary School Principals*, 16:3, Spring 2000. p.2.
<http://files.eric.ed.gov/fulltext/ED440471.pdf>

⁵ Ibid.

⁶ "The Structure of Education in the United States." National Center for Education Statistics.
https://nces.ed.gov/programs/digest/d13/figures/fig_01.asp?referrer=figures

to isolate them from both younger and older students.⁷ While many reformers once argued that middle school-aged students have unique social, psychological, and academic needs that were best served by placement in separate schools, the K-8 model has recently reemerged in many districts across the country.⁸

Figure 1.1: Structure of Public Education in the United States



Source: National Center for Education Statistics⁹

Although there is an array of possible grade span options, the NCES finds that the most common elementary school configuration is Pre-K/Kindergarten through Grade 5, while the most common secondary school configuration is Grades 9 through 12 (Figure 1.2 and Figure 1.3). During the 2013-2014 school year, there were over 25,000 schools in the United States that ended elementary school in Grade 5 and over 16,000 schools that spanned the traditional high school years.¹⁰ Trends in Virginia, Maryland, and the District of Columbia mirror national

⁷ Schwerdt, G. "The Impact of Alternative Grade Configurations on Student Outcomes through Middle and High School." Harvard University Institute for Economic Research, September 2011. p.1. <http://www.edweek.org/media/gradeconfiguration-13structure.pdf>

⁸ Ibid.

⁹ Image taken from: "The Structure of Education in the United States," Op. cit.

¹⁰ [1] "Table 216.75: Public Elementary Schools, by Grade Span, Average School Enrollment, and State or Jurisdiction: 2013-14," Op. cit.

[2] "Table 216.80: Public Secondary Schools, by Grade Span, Average School Enrollment, and State or Jurisdiction: 2013-14." National Center for Education Statistics, 2015. https://nces.ed.gov/programs/digest/d15/tables/dt15_216.80.asp?current=yes

figures – indeed, relatively few elementary schools end before Grade 5 and a very small number of schools operate outside the traditional 9 through 12 structure at the secondary level.

Figure 1.2: Public Elementary School Grade Spans by Number of Schools, 2013-2014

| JURISDICTION | GRADE SPANS | | | | | |
|----------------------|--|---|---|---|---|--------------|
| | <i>Pre-K, Kindergarten, or Grade 1 to Grade 3 or 4</i> | <i>Pre-K, Kindergarten, or Grade 1 to Grade 5</i> | <i>Pre-K, Kindergarten, or Grade 1 to Grade 6</i> | <i>Pre-K, Kindergarten, or Grade 1 to Grade 8</i> | <i>Grade 4, 5, or 6 to Grade 6, 7, or 8</i> | <i>Other</i> |
| District of Columbia | 11 | 68 | 6 | 32 | 26 | 23 |
| Maryland | 13 | 667 | 82 | 92 | 221 | 55 |
| Virginia | 47 | 839 | 150 | 12 | 312 | 135 |
| United States | 5,090 | 25,309 | 10,213 | 6,553 | 12,322 | 6,547 |

Source: National Center for Education Statistics¹¹

Figure 1.3: Public Secondary School Grade Spans by Number of Schools, 2013-2014

| JURISDICTION | GRADE SPANS | | | | | |
|----------------------|--------------------------------|----------------------|----------------------|----------------------|-----------------------|--------------|
| | <i>Grade 7 to 8 and 7 to 9</i> | <i>Grade 7 to 12</i> | <i>Grade 8 to 12</i> | <i>Grade 9 to 12</i> | <i>Grade 10 to 12</i> | <i>Other</i> |
| District of Columbia | 1 | 1 | 0 | 31 | 0 | 6 |
| Maryland | 5 | 3 | 2 | 221 | 3 | 12 |
| Virginia | 33 | 4 | 28 | 337 | 2 | 2 |
| United States | 2,719 | 3,002 | 496 | 16,361 | 576 | 899 |

Source: National Center for Education Statistics¹²

As another example, California operates a large variety of different grade span models, given its population and differing enrollment needs (Figure 1.4). The state’s data provide a more nuanced look at the prevalence of different grade configuration models, and offers an illustration of the different possible organizations that exist in the United States. The most common elementary school settings operate from Kindergarten to Grade 5 or 6, while most middle schools serve students from Grades 6 to 8 and high schools serve students from Grades 9 to 12.¹³ However, California data suggest that **there is no limit to the division of grades that is possible and common models range from wide-scale schools that serve up to seven grade levels to single- or two-grade buildings.**

¹¹ Adapted from: “Table 216.75: Public Elementary Schools, by Grade Span, Average School Enrollment, and State or Jurisdiction: 2013-14,” Op. cit.

¹² Adapted from: “Table 216.80: Public Secondary Schools, by Grade Span, Average School Enrollment, and State or Jurisdiction: 2013-14,” Op. cit.

¹³ “Enrollment/Number of Schools by Grade Span and Type.” California Department of Education. <http://www.cde.ca.gov/ds/sd/cb/cefenrollgradetype.asp>

Figure 1.4: Grade Span Models by Enrollment and Number of Schools in California, 2015

| GRADE SPAN | NUMBER OF SCHOOLS | ENROLLMENT | GRADE SPAN | NUMBER OF SCHOOLS | ENROLLMENT |
|---------------------------|-------------------|------------|-----------------------------------|-------------------|------------|
| ELEMENTARY SCHOOLS | | | MIDDLE/JUNIOR HIGH SCHOOLS | | |
| K | 20 | 2,765 | 4-8 | 12 | 7,469 |
| K-1 | 20 | 4,848 | 5-8 | 61 | 28,209 |
| K-2 | 48 | 17,702 | 6-8 | 862 | 692,249 |
| K-3 | 71 | 23,105 | 6-9 | 8 | 5,660 |
| K-4 | 72 | 28,726 | 7-8 | 332 | 255,776 |
| K-5 | 2,457 | 1,341,288 | 7-9 | 14 | 9,086 |
| K-6 | 2,005 | 1,166,089 | Other | 58 | 23,953 |
| K-7 | 51 | 25,428 | HIGH SCHOOLS | | |
| K-8 | 838 | 407,490 | 6-12 | 40 | 27,019 |
| 1-5 | 11 | 5,250 | 7-12 | 74 | 50,559 |
| 3-5 | 25 | 11,393 | 8-12 | 17 | 26,322 |
| 4-5 | 11 | 4,105 | 9-11 | 15 | 5,706 |
| 4-6 | 17 | 7,550 | 9-12 | 1,003 | 1,414,821 |
| 4-8 | 13 | 4,320 | 10-12 | 8 | 3,248 |
| Other | 167 | 62,729 | Other | 180 | 248,457 |

Source: California Department of Education¹⁴

EFFECTIVENESS OF GRADE SPAN REFORMS

Generally, there is consensus among education researchers that there is no single grade configuration that is universally supported by empirical data. The ERIC Clearinghouse of Rural Education and Small Schools, for example, asserts that “research surrounding the benefits of specific grade-span configurations is seriously wanting. On the other hand, a large amount of prescriptive literature exists around that particular topic.”¹⁵ This implies that much of the support (or not) for a particular grade span model hinges on anecdotal and descriptive literature. In one empirical study of the differences in student achievement across several different grade spans (i.e., K-8, 6-8, and 7-12), researchers concluded that

[...] when taken together, professional development and grade configuration were not found to have a direct relationship to student achievement [...] until empirical evidence is produced, policymakers are encouraged to continue discussions regarding the most appropriate means of addressing young adolescents’ academic needs regardless of other factors.¹⁶

Indeed, an array of factors can contribute to student and school-wide success beyond the organization of grade levels, and administrators are cautioned not to consider grade span

¹⁴ Adapted from: Ibid.

¹⁵ Howley, C.B. “Grade-Span Configurations.” The School Superintendents Association. <http://www.aasa.org/SchoolAdministratorArticle.aspx?id=10410>

¹⁶ Schmitt, V.L. “The Relationship Between Middle Level Grade Span Configuration, Professional Development, and Student Achievement.” *RMLE Online*, 27:2, 2004. p.1. <http://files.eric.ed.gov/fulltext/EJ807406.pdf>

configuration in isolation. In a comprehensive review of the extant literature, the Ontario Institute for Studies in Education found that different configuration models could enhance different outcomes, making it difficult to pinpoint one exemplar model over another. For instance, academic achievement and social development are often two primary indicators of grade span efficacy, yet different configurations are found to benefit different results.¹⁷ In short, the body of evidence highlights that:¹⁸

- There is not a single grade span configuration that will serve all purposes;
- There is not an agreed-on “best model”; and
- Current practice is in a state of flux.

Nevertheless, districts can reorganize schools in a number of ways to reflect their internal capabilities and the needs of their student population, which can positively influence student outcomes despite the inconclusive literature. In many cases, reforming a school’s organization or management style can represent a potentially cost-effective way to stimulate student performance and other indicators of success. Compared to policy changes regarding teacher tenure or the implementation of new standards, for example, school organization is considered to be a high-impact, low-cost reform that schools can enact to drive district-wide improvements in targeted areas such as achievement scores or non-academic growth (Figure 1.5).¹⁹ Three commonly-investigated organizational reforms that experts propose include:

- **School Start Times:** In particular, schools can consider adjusting start times for students in middle and high schools. Early school start times reduce performance among disadvantaged students by an amount equivalent to having a highly ineffective teacher. In school districts with greater flexibility to adjust start times, starting school even an hour later can boost performance at low cost.
- **Teacher Assignments:** Schools can manage teacher assignments with an eye toward maximizing student achievement. For instance, recent evidence suggests substantial benefits from teachers remaining at the same grade level for multiple years. Similarly, a growing body of research documents that elementary teachers are often noticeably more effective in teaching one subject than another, suggesting significant benefits of teacher specialization.
- **School Grade Configuration:** For example, adolescent students attending middle school (Grades 6 to 8) appear to underperform their peers in K-8/9-12 school configurations. Encouraging modifications to grade configurations or taking measures to address the difficult transitions could boost achievement.²⁰

¹⁷ Seller, W. “Configuring Schools: A Review of the Literature.” Ontario Institute for Studies in Education, August 2004. p.2. <http://www.hpedsb.on.ca/ec/directorsOffice/arc/documents/Configuringschools.pdf>

¹⁸ Bullet points taken verbatim from: Ibid.

¹⁹ Jacob, B.A. and J.E. Rockoff. “Organizing Schools to Improve Student Achievement: Start Times, Grade Configurations, and Teacher Assignments.” Hamilton Project, Brookings Institution, September 2011. p. 5. https://www0.gsb.columbia.edu/faculty/jrockoff/papers/092011_organize_jacob_rockoff_paper.pdf

²⁰ Bullet points taken almost verbatim from: Ibid.

Figure 1.5: Estimated Cost-Benefit Ratios for Common Organizational Reforms

| ORGANIZATIONAL REFORM | TEST SCORE GAINS | LIFETIME EARNINGS GAINS PER STUDENT | COST PER STUDENT | BENEFIT/COST RATIO |
|---|------------------|-------------------------------------|------------------|--------------------|
| Convert K-5/6-8 to K-8 | 0.1 SD | \$10,000 | \$50 to \$250 | 40:1 to 200:1 |
| Middle/Upper Grades Start One Hour Later | 0.175 SD | \$17,500 | \$0 to \$1,950 | 9:1 or more |
| Managing Teacher Assignments | 0.02 SD | \$2,000 | \$0 | N/A |

Source: The Hamilton Project²¹

It is critical for district leaders to consider the potential benefits, both in terms of cost and student impact, of reorganizing buildings and grade spans. Indeed, “at the district level, consideration should be given to alterations in grade configuration that benefit students and *make sense given physical and financial constraints.*”²² In most instances, many of the advantages of one grade configuration over the other largely disappear provided that schools offer effective supports for students and teachers.

That is, high-impact schools will address the developmental and academic needs of students regardless of how grades are organized, and this will ultimately boost outcomes. Common features of these effective practices include “caring relationships, high expectations and support to reach [students], enrichment and exploratory options, and socially relevant learning opportunities.”²³ For example, the middle school model is most often criticized for causing dips in student performance, supporting the literature that posits that transitions between schools can adversely affect students. However, the Association for Middle Level Education (AMLE) indicates that grade configurations do not matter as much as fidelity of implementation of key student supports during for these age groups. These attributes of effective education—such as developmental responsiveness, challenging and empowering curriculum, and equity—can support adolescents regardless of how school grade spans are configured.²⁴

By looking only at student performance under different models, administrators can erroneously implement a new grade span that is unsustainable or inefficient. Thus, “school districts poised on the brink of making these decisions must take into account factors beyond simply what is best for the students. They also must consider projected enrollments, transportation costs, number of transitions to be made by students, size of school, and overall school goals.”²⁵ Moreover, education practitioners note that grade spans that are effective in some districts may be less effective in others based on district enrollment demographics and

²¹ Adapted from: Ibid., p.6.

²² Ibid., p.16.

²³ “Grade-Level Configuration and the Connection to Transitions.” California Department of Education. <http://pubs.cde.ca.gov/tcsii/ch6/cnfigconnecttrnsit.aspx>

²⁴ Barton, R. and J. Klump. “Figuring Out Grade Configurations.” *Principal’s Research Review*, 7:3, May 2012. pp.4–5. <http://educationnorthwest.org/sites/default/files/resources/PRR-Figuring-Out-Grade-Configurations.pdf>

²⁵ Howley, Op. cit.

resources.²⁶ In this way, particularly for middle-years students, “investing in ways to improve school attachment [...] may be a better strategy than simply changing the types of schools those students attend.”²⁷

IMPACT OF SCHOOL TRANSITIONS

A large body of research shows that school transitions are difficult for students. Transitions to both middle and high school have been associated with academic and behavioral problems, such as decreased self-esteem, grades, test scores, engagement, and attendance,²⁸ and increased disciplinary infractions and suspensions.²⁹

The transition to middle school is often difficult because students enter a very different school environment at the same time they are undergoing many developmental changes. Students go from being the oldest students in a familiar environment to being the youngest students in a large school where they may not know many of their teachers or peers. Developmentally, however, young adolescents have a high need for stable and close relationships. In addition, instructional practices may be misaligned with students’ needs. The middle school classroom tends to emphasize “teacher control and discipline” at the same time students want to become more autonomous. Further, the middle school curriculum places greater emphasis on strict grading criteria while students are simultaneously becoming more self-conscious or prone to self-esteem issues.³⁰

Similar issues arise in the transition from middle school to high school. The large size of typical high schools can cause students to feel isolated or alienated from teachers and administrators as well as from their peers.³¹ The classroom environment can become more competitive and also more focused on academic content, which can discourage low-performing students. Students may struggle to connect academic content to their own interests or goals.³² Further, students’ levels of preparation for high school can vary greatly, and those who are academically behind their current grade level are particularly prone to additional difficulties upon entering high school.³³

²⁶ Adapted from: Ibid.

²⁷ Barton and Klump, Op. cit., p.6.

²⁸ Jacob and Rockoff, Op. cit., p. 15.

²⁹ Benner, A.D. “The Transition to High School: Current Knowledge, Future Directions.” *Educational Psychology Review*, 23:3, April 2011. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3182155/>

³⁰ Juvonen, J. et al. “Focus on the Wonder Years - Challenges Facing the American Middle School.” RAND Corporation, 2004. pp. 13–15. http://www.rand.org/content/dam/rand/pubs/monographs/2004/RAND_MG139.pdf

³¹ Kemple, J.J. et al. “Making the Move: How Freshman Academies and Thematic Small Learning Communities Can Support Successful Transitions To and Through High School.” MDRC, 2015. p. 10. http://www.irre.org/sites/default/files/publication_pdfs/making_the_move_0_0.pdf

³² [1] Herlihy, C. “Toward Ensuring a Smooth Transition Into High School.” National High School Center, May 2007. p. 2. <http://www.mdr.org/sites/default/files/toward%20ensuring%20policy%20brief.pdf> [2] Kemple et al., Op. cit., pp. 11–12.

³³ Herlihy, C. *Toward Ensuring a Smooth Transition Into High School*. (National High School Center, 2007). <http://www.mdr.org/sites/default/files/toward%20ensuring%20policy%20brief.pdf>

EFFECTIVE TRANSITION SUPPORT

Districts have addressed the issue of school transitions in several ways. First, some districts have reconfigured grade spans to reduce the number of transitions required, such as by creating K-8 schools to eliminate the middle school transition.³⁴ Districts have also created comprehensive transition programs to support students and reduce the potential negative effects of school transitions.³⁵ These transition support programs are a key strategy for improving student achievement and ensuring that students have realistic expectations for middle and high school,³⁶ especially because most common district grade configurations involve at least one school transition. In general, transition programs should be comprehensive efforts that involve all relevant stakeholders, address students' academic and social needs, and occur on an ongoing basis, as shown in Figure 1.6.

Figure 1.6: Elements of Comprehensive Transition Programs

Involve input from all stakeholders (students, families, teachers, and staff).

Provide accurate, useful information to students and parents.

Address students' academic needs and social needs by coordinating instruction and programs between grade levels and providing additional support when necessary.

Provide ongoing support, rather than a one-time orientation or meeting.

Source: Benner;³⁷ California Department of Education;³⁸ Education Partnerships, Inc.;³⁹ National Middle School Association and the National Association of Elementary School Principals;⁴⁰ Niesen and Wise⁴¹

³⁴ Reeves, K. "Figuring and Reconfiguring Grade Spans." School Superintendents Association.
<http://www.aasa.org/SchoolAdministratorArticle.aspx?id=8716>

³⁵ "The Power of a Great Education: PSEA's 20/20 Vision for the Future - Implement Transition Programs for Middle School and 9th Grade." Pennsylvania State Education Association, January 2010.
https://www.psea.org/uploadedfiles/legislationandpolitics/vision/vision_transitionprograms.pdf

³⁶ [1] Jacob and Rockoff, Op. cit., p. 16. [2] Kennelly, L. and M. Monrad. "Easing the Transition to High School: Research and Best Practices Designed to Support High School Learning." National High School Center. pp. 3–13.
<http://files.eric.ed.gov/fulltext/ED501073.pdf>

³⁷ Benner, Op. cit.

³⁸ "The Importance of Easing Transitions for Young Adolescents." California Department of Education.
<http://pubs.cde.ca.gov/tcsii/ch6/trnsitionyngadlsnt.aspx>

³⁹ "Research Brief - Transition from Middle School to High School." Education Partnerships, Inc. pp. 1–5.
<http://files.eric.ed.gov/fulltext/ED538706.pdf>

⁴⁰ "Supporting Students in Their Transition to Middle School." National Middle School Association and the National Association of Elementary School Principals, 2002.
<http://www.npsd.org/vimages/shared/vnews/stories/525d81ba96ee9/Tr%20-%20Supporting%20Students%20in%20Their%20Transition%20to%20Middle%20School.pdf>

⁴¹ Niesen, V. and P.S. Wise. "Transition from Elementary to Middle School: Strategies for Educators." National Association of School Psychologists.
http://www.nasponline.org/communications/spawareness/transition_elem2mid.pdf

The following sub-sections describe examples of strategies for supporting transitions to middle and high school.

K-12 ARTICULATION

Districts should be sure to coordinate curricula and transition support programs between elementary, middle, and high schools.⁴² Elementary school teachers, counselors, and principals should be aware of the concerns and anxieties that students face in transitioning to middle school. School staff can facilitate student transitions beginning in elementary school by emphasizing the positive aspects of middle school and teaching skills such as coping strategies, problem-solving, and study skills. In addition, schools can prepare students for the academic challenges of middle school by slowly increasing the amount of autonomy required for completing assignments.

Districts can also use similar strategies for coordination between K-8 or middle schools and high schools. In eighth grade, schools can begin providing information about what is expected in high school and identify eighth graders who may not be on track for success in high school.⁴³

Finally, school district leaders should facilitate discussions about curriculum alignment between elementary, middle, and high schools to ensure smooth transitions between each level.⁴⁴ Principals and teachers can meet regularly to prevent gaps in content instruction and to ensure that students are gaining the skills necessary to succeed in middle and high school.⁴⁵

MIDDLE SCHOOL TRANSITION SUPPORT

Districts can support students transitioning to middle school in a variety of ways. First, they should engage teachers and staff in addressing students' ongoing social, developmental, and academic needs.⁴⁶ Middle school leaders, teachers and counselors should be knowledgeable about the needs of young adolescents and employ multiple approaches to meet students' needs, such as providing cooperative learning opportunities to encourage peer interaction and encouraging student participation in extra-curricular activities.⁴⁷ In addition, school counselors or social workers can provide individual or small group counseling for students experiencing particular difficulty in transitioning.⁴⁸

⁴² [1] "Supporting Students in Their Transition to Middle School," Op. cit. [2] Lorain, P. "Transition to Middle School." National Education Association. <http://www.nea.org/tools/16657.htm> [3] Niesen and Wise, Op. cit. [4] "Successful K-12 Transitions through Vertical and Horizontal Articulation." American Institutes for Research, October 25, 2011. <http://www.ccrscenter.org/blog/successful-k-12-transitions-through-vertical-and-horizontal-articulation> [5] Parrish, T. et al. "Making the Move: Transition Strategies at California Schools with High Graduation Rates." WestEd, October 2011. pp. 8–9.

⁴³ Herlihy, C. Op. cit., p. 3.

⁴⁴ "NASSP Policy Recommendations for Middle Level Reform." National Association of Secondary School Principals, 2006. <http://www.nassp.org/Portals/0/Content/54017.pdf>

⁴⁵ [1] "Articulation Agreements with Elementary Schools." California Department of Education.

<http://pubs.cde.ca.gov/tcsii/ch6/agreefdrelemntrysch.aspx> [2] Parrish et al., Op. cit., pp. 8–9.

⁴⁶ "Supporting Students in Their Transition to Middle School," Op. cit.

⁴⁷ [1] Ibid. [2] Lorain, Op. cit. [3] Niesen and Wise, Op. cit.

⁴⁸ Niesen and Wise, Op. cit.

Second, districts should provide parents with multiple opportunities for involvement.⁴⁹ Schools should involve parents in school events and regularly interact with parents through various modes of communication, such as in-person meetings, email, regular mail, newsletters, and/or phone calls. Both elementary and middle schools should help parents learn about the developmental issues facing young adolescents and how this relates to transitioning to middle school, as well as encourage parents to talk with their children regarding anxieties about middle school.

Third, districts should provide students with multiple opportunities to meet other students and teachers and to visit the new school.⁵⁰

Schools can plan a variety of activities to introduce students to their new school and address concerns. Districts have provided tours for new students and their families before the start of the school year, which can include maps and class schedules to incoming students, and hosted question and answer sessions as well as panels for current students to speak about their strategies for managing the transition to middle school. In addition, schools can provide opportunities for students to meet peers early in the year after students begin sixth or seventh grade, such as service days, fundraisers, buddy programs with current students, or extracurricular open houses.⁵¹

Finally, middle schools should ensure that students develop good attendance habits.⁵² School districts with low graduation rates often have chronic absenteeism beginning in the middle grades; therefore, it is vital for middle schools to carefully monitor attendance and prevent truancy.⁵³ Education researcher Robert Balfanz recommends that schools track attendance in informative ways, such as by identifying students who are “moderately absent,” “chronically absent,” and “extremely chronically absent.” Then, schools can respond to absences and work with students and/or parents to address the source of absences. Schools can also use positive reinforcement strategies, rather than punitive measures, to encourage good attendance. For example, schools can recognize good attendance through public acknowledgement and social rewards and provide a structure for making up missed assignments, rather than suspending students for having too many absences.⁵⁴

Tips for Providing Middle School Transition Support

- ✓ Engage teachers and staff in addressing students’ ongoing social, developmental, and academic needs.
- ✓ Provide parents multiple opportunities to get involved.
- ✓ Provide students with multiple opportunities to meet other students and teachers and to visit the new school.
- ✓ Ensure students develop good attendance habits.

⁴⁹ “Supporting Students in Their Transition to Middle School,” Op. cit.

⁵⁰ [1] “Supporting Students in Their Transition to Middle School,” Op. cit. [2] Lorain, P. “Transition to Middle School.” National Education Association. <http://www.nea.org/tools/16657.htm> [3] Niesen and Wise, Op. cit.

⁵¹ [1] Niesen and Wise, Op. cit. [2] Lorain, Op. cit.

⁵² Balfanz, R. “Putting Middle Grades Students on the Graduation Path: A Policy and Practice Brief.” National Middle School Association, June 2009. https://www.amlc.org/portals/0/pdf/articles/policy_brief_balfanz.pdf

⁵³ Ibid., p. 8.

⁵⁴ Ibid., pp. 8–9.

HIGH SCHOOL TRANSITION SUPPORT

Strategies to support the transition to ninth grade are similar to those used in middle school. High school transition programs should introduce students to high school expectations during middle grades.⁵⁵ Early orientation programs or visits to high schools during the middle school years can help students understand what they should know and what will be expected of them in high school.⁵⁶

Second, schools should involve all school stakeholders—students, teachers, and parents—in supporting students through the transition process. A study of high school transition programs throughout the country found that programs which involved both teachers and parents were more effective than those that only engaged teachers or only engaged parents in the program.⁵⁷ Some districts have used “transition teams” consisting of teachers, administrators, parents, and students from both middle and high schools to identify transition needs and develop plans for supporting students.⁵⁸ These teams can also review data to further understand students’ needs and identify practices that support students.

Third, districts should ensure that students are academically prepared for high school. Schools should establish ways to identify students who are not on track and provide timely interventions to address achievement issues. Districts can also periodically review middle and high school achievement data and examine middle school curricula to identify areas for improvement.⁵⁹ Summer bridge programs or mathematics “catch-up courses” can be used to provide additional academic support for students who are behind grade level.⁶⁰

Finally, districts can create programs or structures that provide additional social support to students as they adapt to their new environments. Schools can create peer buddy, mentoring, or tutoring programs for new students, introduce them to advisors or counselors early in the year, and promote involvement in extracurricular activities from the start of ninth grade.⁶¹

Tips for Providing High School Transition Support

- ✓ Introduce students to high school expectations during middle grades.
- ✓ Involve all school stakeholders—students, teachers, and parents—in supporting students through the transition process.
- ✓ Ensure students are academically prepared for high school.
- ✓ Create programs or structures that provide additional social support to students as they adapt to their new environments.

⁵⁵ Bottoms, G. “Redesigning the Ninth-Grade Experience - Reduce Failure, Improve Achievement and Increase High School Graduation Rates.” Southern Regional Education Board, 2008. p. 5.
http://publications.sreb.org/2008/08v06_9th-grade_redesign.pdf

⁵⁶ Ibid.

⁵⁷ Benner, Op. cit.

⁵⁸ “Research Brief - Transition from Middle School to High School,” Op. cit., p. 5.

⁵⁹ [1] Ibid., p. 4. [2] Parrish et al., Op. cit., p. 12.

⁶⁰ [1] Bottoms, Op. cit., pp. 5–10. [2] Neild, R.C. “Falling Off Track during the Transition to High School: What We Know and What Can Be Done.” The Future of Children, Spring 2009. pp. 67–69.
http://www.futureofchildren.org/publications/docs/19_01_04.pdf

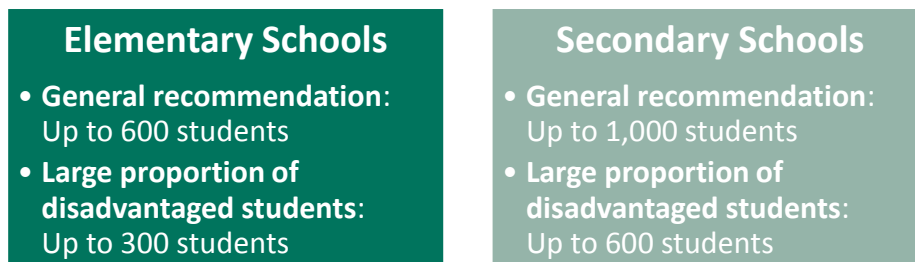
⁶¹ [1] Parrish et al., Op. cit., pp. 8–19. [2] “Research Brief - Transition from Middle School to High School,” Op. cit., p. 3.

Schools can also use smaller learning communities, such as ninth grade academies, to help students develop a sense of community within the school and get to know their teachers (discussed in further detail in Section III).⁶²

IMPACT OF SCHOOL AND CLASS SIZE

Research on the impacts of school and class size is somewhat mixed, but in general, most studies show that smaller school and class sizes are associated with positive outcomes. A 2009 review of 57 school size studies found that smaller schools are more beneficial for students from disadvantaged social and economic backgrounds. The authors recommend that elementary schools not exceed 600 and secondary schools not exceed 1,000 students; schools with large proportions of disadvantaged students should be smaller (Figure 1.7).⁶³

Figure 1.7: School Size Recommendations



Source: Leithwood and Jantzi⁶⁴

In terms of class size, early grades elementary students in particular appear to benefit from smaller classes—**research on students in Grades K-3 indicates that class sizes of 18 students or fewer produce the largest benefits in terms of academic achievement;** disadvantaged students in particular benefit from smaller classes.⁶⁵ At the high school level, evidence regarding class size is mixed—several studies have found no relationship between smaller classes and academic performance—but a recent U.K. study found that smaller high school classes are beneficial for low-achieving students.⁶⁶ **Unfortunately, no studies have examined the optimal number of students per grade.** Hanover recommends that ACPS rely on research related to school and class size in order to determine the number of students per grade level at each school.

⁶² Bottoms, Op. cit., p. 7.

⁶³ Leithwood, K. and D. Jantzi. “A Review of Empirical Evidence About School Size Effects: A Policy Perspective.” *Review of Educational Research*, 79:1, March 2009. p. 464.
<http://search.proquest.com/docview/214115413?accountid=132487>

⁶⁴ Ibid.

⁶⁵ “Class Size and Student Achievement: Research Review.” Center for Public Education.
<http://www.centerforpubliceducation.org/Main-Menu/Organizing-a-school/Class-size-and-student-achievement-At-a-glance/Class-size-and-student-achievement-Research-review.html>

⁶⁶ “Why Class Size Matters Today.” National Council of Teachers of English, April 2014.
<http://www.ncte.org/positions/statements/why-class-size-matters> [2] Blatchford, P., P. Bassett, and P. Brown. “Do Low Attaining and Younger Students Benefit Most from Small Classes? Results from a Systematic Observation Study of Class Size Effects on Pupil Classroom Engagement and Teacher Pupil Interaction.” American Educational Research Association, 2008. https://www.classsizematters.org/wp-content/uploads/2011/04/Blatchford_2008.pdf

SECTION II: MODELS OF ELEMENTARY GRADE CONFIGURATION

In this section, Hanover Research assesses various common grade span configurations for Pre-Kindergarten (Pre-K) and elementary school organization. The configurations presented in the section represent the most frequently used models according to the literature, and consider frameworks currently used in other school districts.

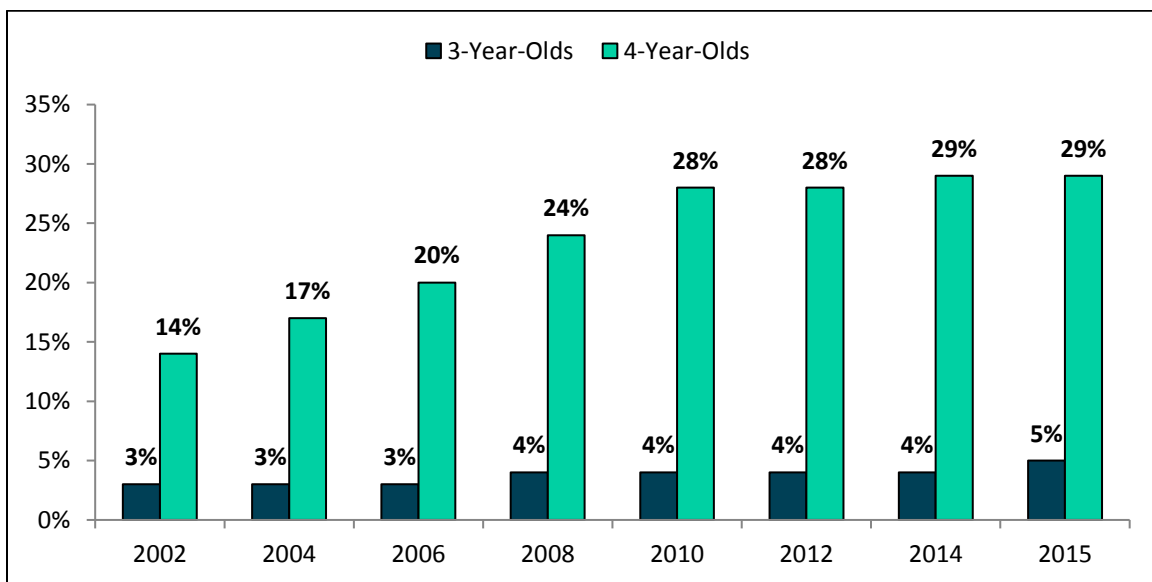
KEY SECTION FINDINGS

- **Students do not appear to benefit from isolated early childhood experiences.** One study found that students in standalone pre-primary schools (i.e., Pre-K and/or Kindergarten) do not gain skills as fast over the course of the school year as their peers in elementary schools. This study found that more time is dedicated to instruction when Kindergarten is incorporated with elementary grade spans. However, it is possible that quality instruction in standalone pre-primary schools could result in positive outcomes. Recently, several school districts have established standalone pre-primary centers to ease overcrowding and to better address the needs of young learners, especially those who are typically unprepared for Kindergarten.
- **Comprehensive PreK-3 alignment is critical to ensure successful transitions into formal schooling and maintain student achievement.** A dedicated PreK-3 framework ensures that curricula and pedagogy are aligned across early childhood and early elementary classrooms, and this sequence points to the efficacy of including early childhood grades with elementary sequences. Moreover, reading achievement by Grade 3 is highly predictive of later student outcomes—such as high school completion—and schools should stress proficiency by that time. However, ensuring horizontal and vertical alignment can be a time-consuming and resource-intensive process.
- **Grade 6 students generally benefit from placement in elementary school in terms of both academic and behavioral outcomes.** Elementary school children in Grade 6 gain more academically over the course of the school year and experience significantly fewer behavior infractions than their peers in middle school configurations. However, data suggest that other factors affect Grade 6 performance and that district leaders should carefully consider how this configuration will impact student capacity in elementary school in particular; for example, other districts have had to construct new elementary schools and redistrict some students.
- **Intermediate school (Grades 5 and 6 only) are not supported by the literature.** Students in Grades 5 and 6 perform better as part of larger elementary grade spans than in isolation. Despite suggestions that these students often require dedicated social and emotional supports, there is no evidence that intermediate schools are better equipped to provide these resources than more standard elementary school settings.

STANDALONE PRE-KINDERGARTEN/KINDERGARTEN

Enrollment in early childhood education programs continues to increase, despite the fact that only a small proportion of preschool-aged children matriculate in such programs each year. Nationwide in 2015, enrollment in pre-primary schools increased by roughly 37,000 children, with children aged 3 years making up the majority of that growth. Similarly, state funding for these programs grew by more than \$553 million between 2014 and 2015.⁶⁷ The proportion of children aged 3 and 4 years who attend early childhood programs has also gone up in recent years, with the largest gains observed in the 4-year-old population. In 2015, 29 percent of 4-year-olds enrolled in pre-primary programs; meanwhile, the proportion of children aged 3 years in these programs has remained relatively stable (Figure 2.1).⁶⁸

Figure 2.1: Percent of National Population Enrolled in Pre-primary Programs by Age



Source: National Institute for Early Education Research⁶⁹

In Virginia, there are over 18,000 students enrolled in the state pre-primary program and attendance trends largely mirror national growth.⁷⁰ These state and national data suggest that school districts can expect to see sustained interest in pre-primary programs, and will have to make important choices regarding how to place these students to ensure equity across demographic groups and high student achievement.

Indeed, **although participation in full-day early childhood education programs is increasing overall, children from affluent homes comprise a greater share of these enrollments.** Data

⁶⁷ Barnett, W.S. et al. "The State of Preschool 2015: State Preschool Yearbook." National Institute for Early Education Research, 2016. p.5. <http://nieer.org/sites/nieer/files/2015%20Yearbook.pdf>

⁶⁸ Ibid., p.6.

⁶⁹ Adapted from: Ibid.

⁷⁰ Ibid., p.161.

indicate that approximately half of all children aged 3 and 4 who are enrolled in pre-primary programs attend full-day classes. Of these participants, children from wealthier families are consistently more likely to attend early childhood programs than their less affluent peers. Between 1995 and 2011, full-day preprimary enrollment increased among higher-income children but did not change for their lower-income counterparts.⁷¹ This indicates that school districts should consider accessibility and resource needs when designing schools for young children. This includes properly configuring the pre-primary grade levels (i.e., Pre-K and Kindergarten) to maximize performance, continuity, and accessibility.

OVERVIEW OF RESEARCH

The research is clear that **participation in early childhood education programs increases student achievement and bolsters non-academic outcomes for all students**. For example, in a study of over 60,000 preschool-aged children in Virginia, researchers concluded that participation in the state-funded early childhood education program yielded later benefits. Students were less likely to be retained in Kindergarten compared to their peers who did not enroll; African-American boys who did not attend preschool had a 9.3 percent probability of being held back in Kindergarten compared to 3.6 percent among their peers who did attend such a program.⁷² Further studies suggest that pre-kindergarten programs positively impact literacy, numeracy, and mathematics abilities, as well as children’s executive functioning and emotional recognition, across all student subgroups.⁷³

Despite the evidence that supports participation in Pre-K and Kindergarten, **there is limited research that addresses grade span models at these levels**. In most cases, Kindergarten is incorporated into a longer grade span that covers elementary schools through Grades 4, 5, or 6, and little information is available for standalone schools. Figure 2.2 outlines two studies that assess student performance in pre-primary schools, here defined as a standalone building that houses Pre-K, Kindergarten, or both.

⁷¹ Burgess, K. et al. “Trends in the Use of Early Care and Education, 1995-2011.” U.S. Department of Health and Human Services, March 2014. p.5. https://aspe.hhs.gov/sites/default/files/pdf/76831/rb_ece.pdf

⁷² Huang, F.L., M.A. Invernizzi, and E.A. Drake. “The Differential Effects of Preschool: Evidence from Virginia.” *Early Childhood Research Quarterly*, 27:1, March 2012. pp.39–40. http://www.smartbeginnings.org/Portals/5/PDFs/Differential_Effects_of_Preschool.pdf

⁷³ Weiland, C. and H. Yoshikawa. “Impacts of a Prekindergarten Program on Children’s Mathematics, Language, Literacy, Executive Function, and Emotional Skills.” *Child Development*, 84:6, November 2013. p.2112. http://www.viriya.net/jabref/impacts_of_a_prekindergarten_program_on_childrens_mathematics_language_lite_racy_executive_function_and_emotional_skills.pdf

Figure 2.2: Evidence of the Effects of Enrollment in Pre-primary Schools

| AUTHOR(S) | YEAR | STUDY SETTING | STUDY DESCRIPTION | OUTCOMES |
|--|------|--|--|---|
| Burkam, Michaels, and Lee ⁷⁴ | 2007 | <ul style="list-style-type: none"> ▪ 12,384 Kindergarten students in 743 schools ▪ Data collected from the Early Childhood Longitudinal Study-Kindergarten Cohort (ECLS-K) | <ul style="list-style-type: none"> ▪ Researchers compared different grade spans that incorporate Kindergarten, including: Pre-primary (K only); Primary (K-2 or K-3); Elementary (K-5); and Combined (K-8). ▪ Enrollment in Pre-primary schools was the lowest, despite the prevalence of the model in the United States (over 12%) – this is due to smaller classes in Pre-primary schools. | <ul style="list-style-type: none"> ▪ Kindergarten students who attended Pre-primary schools were disadvantaged in terms of their learning. ▪ End-of-year assessments revealed comparable achievement across schools; however, Pre-primary students exhibited less growth and learning over the year. ▪ Teachers in Pre-primary schools typically reported fewer minutes of weekly reading and math instruction than teachers in other school settings. |
| Berlinkski, Galiani, and Gertler ⁷⁵ | 2006 | <ul style="list-style-type: none"> ▪ Pre-primary schools constructed in Argentina to accommodate 175,000 children ▪ The gradual expansion of these programs allows researchers to track progress both before and after a school added pre-primary classes. | <ul style="list-style-type: none"> ▪ Pre-primary programs were expanded in Argentina to increase the enrollment of children aged 3 to 5. ▪ In Argentina, all Pre-primary schools are attached to traditional Primary settings. | <ul style="list-style-type: none"> ▪ One year of Preprimary school attendance increased Grade 3 performance by 8% of the mean. ▪ Measures of classroom attention, effort, discipline, and participation were also positively affected. |

BENEFITS

According to the research on standalone pre-primary configurations, **it appears as though students do not benefit from isolated early childhood education programming.** Although Berlinkski, Galiani, and Gertler found that one year of pre-primary school attendance increased student achievement in Grade 3 by roughly 8 percent, the pre-primary campuses were incorporated into traditional elementary-level buildings. The authors conclude that “expanding pre-primary education is an effective instrument to improve long-term academic performance.”⁷⁶ The context of this expansion, however, suggests that these improvements are only observed in new schools that fuse pre-primary and elementary configurations.

⁷⁴ Burkam, D.T., D.L. Michaels, and V.E. Lee. “School Grade Span and Kindergarten Learning.” *The Elementary School Journal*, 107:3, January 2007. Accessed via EBSCOHost.

⁷⁵ Berlinkski, S., S. Galiani, and P. Gertler. “The Effect of Pre-Primary on Primary School Performance.” Institute for Fiscal Studies, February 2006. <http://discovery.ucl.ac.uk/2695/1/2695.pdf>

⁷⁶ Ibid., p.22.

Although the research addressing outcomes in standalone pre-primary schools is very limited, anecdotal evidence suggests that educators believe that these standalone centers may be valuable for addressing younger students' learning needs and easing overcrowding.

A school district in Illinois, for example, recently announced plans to build a new Kindergarten center in order to temporarily address overcrowding in the district; the 18 new Kindergarten classrooms will help to free up space at the district's existing elementary schools.⁷⁷ In addition, Mukilteo School District in Washington plans to open a Kindergarten center in the 2017-18 school year to address the district's growing enrollment and to comply with a new state mandate requiring full-day kindergarten. The district hopes that the Kindergarten center will enable teachers to provide improved and more personalized school readiness services to its students, especially the low-income and English Learner students who may have lower preparedness for school.⁷⁸

Similarly, Bellevue Union School District in California is planning to open an "early learning center" for preschool-age children to address the achievement gap in the district. The new early learning center will improve access to preschool for the district's Latino children, who make up 80 percent of the student population but who are much less likely to enroll in preschool than children of other ethnicities. The new early learning center will also provide in-house special education preschool services, which had previously been provided in a different location outside of the district.⁷⁹

POTENTIAL DRAWBACKS AND LIMITATIONS

The evidence does not support standalone pre-primary grade configurations as viable models of early childhood learning for all student groups. Researchers note that these models are often used in the private sector and thus are subject to selection bias regarding family affluence and child preparedness; indeed, "these mostly nonpublic schools tend to have smaller kindergarten enrollments, and they attract a more affluent and more academically prepared clientele than do the public primary and elementary schools."⁸⁰

Given the general level of higher preparedness among most students who self-select into standalone pre-primary programs, **students in pre-primary schools do not grow or learn as fast as their peers in more traditional elementary settings.** According to Burkam, Michaels, and Lee, Kindergarten students in traditional elementary schools who underperformed at the start of the year were able to make more significant gains than higher-achieving students in pre-primary schools. The researchers posit that "although the disadvantages are not large in conventional terms, they translate to a learning deficit of between one and two months in

⁷⁷ Zawislak, M. "\$11.8 Million Kindergarten Center Moving Ahead in District 73." Daily Herald, June 2, 2017. <http://www.dailyherald.com/news/20170602/118-million-kindergarten-center-moving-ahead-in-district-73>

⁷⁸ Bendici, R. "Kindergartners Get School of Their Own." District Administration Magazine, February 24, 2017. <https://www.districtadministration.com/article/kindergartners-get-home-their-own>

⁷⁹ Gonzalez, E.R. "Bellevue School District Opens Early Learning Center." The Press Democrat, June 20, 2017. <http://www.pressdemocrat.com/news/7099794-181/bellevue-school-district-opens-early?artslide=0>

⁸⁰ Burkam, Michaels, and Lee, Op. cit., p.300.

the two subjects.”⁸¹ Figure 2.3 shows that students in elementary school (Grades K through 5) gained more in math and literacy than students in standalone programs.

Figure 2.3: Math and Literacy Gains of Kindergarten Students by Grade Span

| GRADE CONFIGURATION | SAMPLE SIZE | MATH GAINS | LITERACY GAINS |
|---------------------|---------------|------------|----------------|
| Pre-primary | 656 | 7.3 | 9.0 |
| Primary | 893 | 8.4 | 10.2 |
| Elementary | 7,802 | 8.2 | 10.0 |
| Combined | 3,033 | 8.4 | 10.2 |
| Overall | 12,384 | 8.2 | 10.0 |

Source: Burkam, Michaels, and Lee, “School Grade Span and Kindergarten Learning”⁸²

The researchers hypothesized that these learning differentials could be attributed to generally lower levels of teacher preparation in pre-primary schools, as well as less instructional time (i.e., “fewer minutes of weekly instruction in both reading and mathematics”).⁸³ **It is unclear whether grade configuration itself ultimately affects outcomes for early grades students**—it is possible that standalone pre-primary and Kindergarten centers which employ qualified teachers who implement quality instruction would have a positive impact on student outcomes. Burkahm and colleagues state that further research is needed to determine whether Kindergarten students’ achievement is influenced primarily by grade span configuration or by other factors such as instructional practices, Kindergarten curriculum alignment with the Grade 1 curriculum, and Kindergarten students’ opportunities to interact with older children.⁸⁴

PRE-KINDERGARTEN/KINDERGARTEN WITH HIGHER GRADES

Although high-quality Pre-K and Kindergarten programs are found to benefit young children, particularly children from low-income households, these positive effects can diminish over time. This is explained by the “fade out effect,” or “the tendency of the positive effects to fade out by the time the children who had successful preschool experiences reach the third grade.”⁸⁵ **In order to reduce these fade out effects and ensure continued student achievement, research suggests that districts develop comprehensive and articulated pathways from Pre-K to Grade 3.** In this PreK-3 framework, teachers and administrators work together to align curricula, pedagogy, and learning assessments in order to transfer high-impact methods from early childhood education into elementary school.⁸⁶

⁸¹ Ibid., p.301.

⁸² Adapted from: Ibid., p.297.

⁸³ Ibid., p.301.

⁸⁴ Ibid., p.301.

⁸⁵ “PreK-3rd Annual Report: Year One: 2011-2012.” San Francisco Unified School District, December 2012. p.6. http://www.sfusd.edu/en/assets/sfusd-staff/programs/files/Early%20Education/PreK-3rd%20Report%20Year%20One_7-18-13.pdf

⁸⁶ Ibid.

Not only does dedicated PreK-3 alignment help to reduce the fade out effects that are common among young children, but an articulated framework can promote more successful transitions. Indeed, these programs and elements “are designed to encourage more stable and predictable learning environments, both of which are key elements in optimal scholastic and social functioning.”⁸⁷ Overall, PreK-3 aims to ensure children’s access to quality and long-term early educational experiences. Although the literature does not specify that these grade spans must cohabitate one learning environment (e.g., a full Pre-K through Grade 3 school), it is important for administrators to provide a PreK-3 configuration that is well-aligned – this points to the benefits of including early grade levels (starting in either Pre-K or Kindergarten) in broader elementary school settings. Key principles of the PreK-3 framework are outlined below (Figure 2.4).

Figure 2.4: Key Principles of PreK-3 Frameworks



Source: Foundation for Child Development⁸⁸

⁸⁷ Reynolds, A., K. Magnuson, and S. Ou. “PK-3 Education: Programs and Practices that Work in Children’s First Decade.” Foundation for Child Development, January 2006. p. 5. <https://fcd-us.org/sites/default/files/ProgramsandPractices.pdf>

⁸⁸ Adapted from: Ibid., p.7.

Having a dedicated PreK-3 framework ensures that school districts commit equal resources to early childhood education (i.e., Pre-K and Kindergarten) and early elementary education (i.e., Grades 1 through 3). According to some experts, in fact, “creating an intentionally aligned educational system for children 3 to 8 years old based on their developmental characteristics and abilities could be a major factor in sustaining public investments in education.”⁸⁹

OVERVIEW OF RESEARCH

Research regularly highlights the need for investments and curricula in Pre-K and Kindergarten to be sustained as children enter early elementary grade levels in an effort to avoid the aforementioned fade out effect. For example, the Abecedarian Project provided children with continued support for their academic development from birth through Pre-K, and then additional academic guidance in Kindergarten through Grade 2. The Project targeted multiple levels of child performance, and encouraged parents to actively participate in their children’s learning. Children who participate in the Abecedarian Project regularly report high levels of intellectual curiosity and reading achievement, for instance.⁹⁰ Experts find that the dedicated alignment between early childhood and early elementary education facilitates longer-term learning and performance gains.

Despite the evidence that promotes alignment within this grade span, there is little research that discusses how best to configure these classrooms. **In most cases, the literature assumes that schools maintain a traditional elementary grade sequence of Kindergarten through Grade 5, with Pre-K classes operated separately** (Figure 2.5). However, some states such as California report a limited number of K-3 schools, which could allow administrators to more closely underline and oversee the importance of these early grades.⁹¹ The empirical studies address the importance of PreK-3 alignment in facilitating the transfer into formal schooling in Kindergarten and helping to reduce the negative transition effects.

⁸⁹ Bogard, K. and R. Takanishi. “PK-3: An Aligned and Coordinated Approach to Education for Children 3 to 8 Years Old.” *Social Policy Report*, 19:3, 2005. p.5. <http://files.eric.ed.gov/fulltext/ED521747.pdf>

⁹⁰ Reynolds, Magnuson, and Ou, Op. cit., p.8.

⁹¹ “Enrollment/Number of Schools by Grade Span and Type,” California Department of Education, Op. cit.

Figure 2.5: Evidence of Effect and Importance of PreK-3 Alignment

| AUTHOR(S) | YEAR | STUDY SETTING | STUDY DESCRIPTION | OUTCOMES |
|--|------|---|---|---|
| Valentino and Stipek ⁹² | 2016 | <ul style="list-style-type: none"> ▪ Interviews with 12 early education policymakers in California | <ul style="list-style-type: none"> ▪ Qualitative study with respondents from the state, district, and county levels, as well as one from a community foundation ▪ Questions addressed six topics: definition; value; practices; best practices, barriers, and need for change; transitional Kindergarten; and local control | <ul style="list-style-type: none"> ▪ Strong leadership is critical for ensuring alignment through Grade 3, and professional development needs to be aligned across sectors and grade levels. ▪ It is important for districts to use data and continuous assessment to monitor the effectiveness of alignment. |
| Hernandez ⁹³ | 2011 | <ul style="list-style-type: none"> ▪ Data gathered from the National Longitudinal Survey of Youth (NLSY) ▪ 3,975 children from 1986 to 2008 | <ul style="list-style-type: none"> ▪ Researchers gathered data from a nationally representative sample of children. ▪ Disaggregated results by poverty status and race/ethnicity ▪ NLSY data used the Peabody Individual Achievement Test (PIAT) to determine reading levels in Grade 3. | <ul style="list-style-type: none"> ▪ One-in-six children who are not reading proficiently by Grade 3 do not graduate from high school. ▪ Rate was highest for poor Black and Hispanic students (31% and 33%, respectively) |
| Schulting, Malone, and Dodge ⁹⁴ | 2005 | <ul style="list-style-type: none"> ▪ 17,212 children from 992 schools ▪ 20% of children below poverty line ▪ Data gathered from ECLS-K | <ul style="list-style-type: none"> ▪ Researchers isolated variables for Kindergarten transition policies and practices. ▪ Cognitive battery tests showed children’s achievement at the start and end of the year: reading, math, and general knowledge. ▪ Parent involvement was also considered. | <ul style="list-style-type: none"> ▪ Kindergarten transition policies had a modest effect on students’ academic achievement. ▪ These policies affect parent-initiated school involvement. ▪ These results disproportionately benefit students from low- or medium-income families. |

BENEFITS

Data indicate that reading achievement levels by Grade 3 can be highly predictive of later student outcomes including future reading achievement and high school completion. About 17 percent of children who do not meet grade-level standards in reading and literacy by Grade 3 do not graduate from high school on time, for example; this proportion is roughly four times

⁹² Valentino, R. and D.J. Stipek. “PreK-3 Alignment in California’s Education System: Obstacles and Opportunities.” Policy Analysis for California Education, May 2016. <https://edpolicyinca.org/sites/default/files/May%202016%20Valentino%20Stipek.pdf>

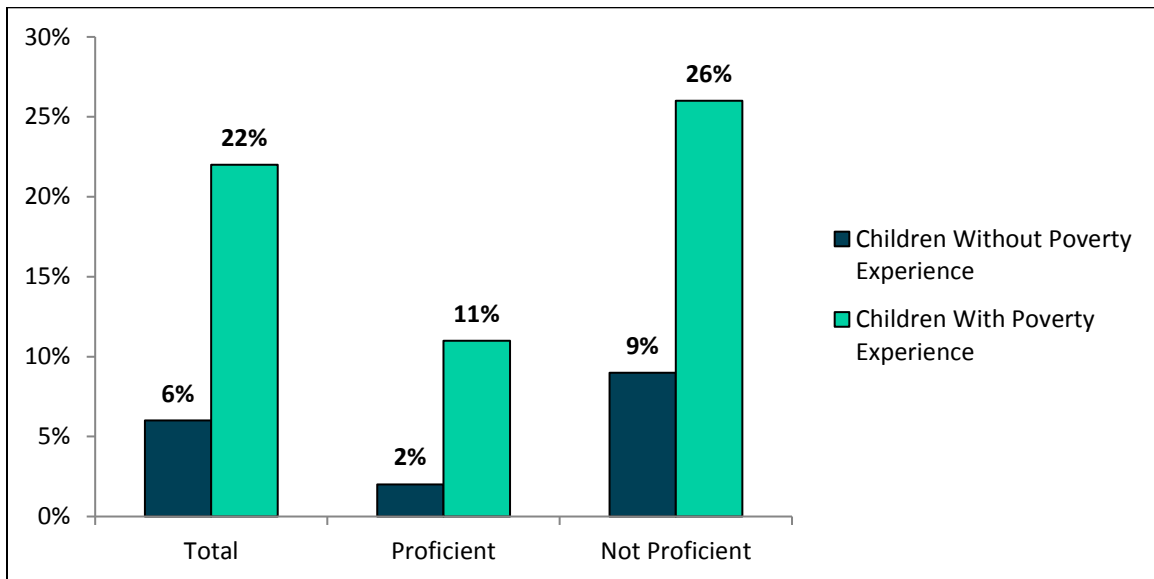
⁹³ Hernandez, D.J. “Double Jeopardy: How Third-Grade Reading Skills and Poverty Influence High School Graduation.” The Annie E. Casey Foundation, April 2011. <http://files.eric.ed.gov/fulltext/ED518818.pdf>

⁹⁴ Schulting, A.B., P.S. Malone, and K.A. Dodge. “The Effect of School-Based Kindergarten Transition Policies and Practices on Child Academic Outcomes.” *Developmental Psychology*, 41:6, 2005. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2757260/>

higher than among their peers who are reading proficiently.⁹⁵ These outcomes are even starker for students who come from less-affluent backgrounds (Figure 2.6).

This benchmark represents the key transition period for young students, who are “learning to read” until Grade 3 and “reading to learn” by Grade 4. Indeed, “up to half of the printed fourth-grade curriculum is incomprehensible to students who read below that grade level.”⁹⁶ These figures highlight the long term benefits of encouraging a well-aligned PreK-3 configuration that ensures children are reading proficiently by late elementary school.

Figure 2.6: Children Not Graduating from High School by Age 19, by Poverty Status and Grade 3 Reading Proficiency



Source: The Annie E. Casey Foundation⁹⁷

Schulting, Malone, and Dodge further find that dedicated transition policies in Kindergarten “are related to improved academic achievement and increased parent-initiated school involvement [...] and that the impact of these practices is greatest for low-income children who are least likely to receive them.”⁹⁸ Given that PreK-3 frameworks have been found to facilitate these transitions, these results suggest that young students in schools where this early grade span sequence is promoted may enter Kindergarten at an advantage. Moreover, data reveal that **Grade 3 achievement and quality transition policies are disproportionately beneficial for disadvantaged students.** This implies that districts can bolster early childhood achievement for *all* students through careful PreK-3 articulation and grade sequencing.

⁹⁵ Hernandez, Op. cit., p.5.

⁹⁶ Fiester, L. and R. Smith. “Early Warning! Why Reading by the End of Third Grade Matters.” The Annie E. Casey Foundation, 2010. p.9. http://www.aecf.org/m/resourcedoc/AECF-Early_Warning_Full_Report-2010.pdf

⁹⁷ Adapted from: Hernandez, Op. cit., p.8.

⁹⁸ Schulting, Malone, and Dodge, Op. cit.

POTENTIAL DRAWBACKS AND LIMITATIONS

Despite the benefits associated with PreK-3 alignment, there can be several challenges to implementing a new framework. In most cases, ensuring both horizontal and vertical alignment throughout a district can be both time-consuming and cost-intensive. Through several interviews with teachers and administrators in PreK-3 districts, Valentino and Stipek found, for example, that PreK-3 alignment often requires:

- Communication between teachers across and within grades;
- Professional development and training that brings teachers at different grade levels together;
- Strong leadership committed to PreK-3 alignment;
- Funding and teacher credentialing parity between preschool and elementary school;
- Uniform and continuous assessments and data systems; and
- Alignment of curriculum and standards.⁹⁹

Many of these considerations require high levels of administrative oversight and strong leadership. District leaders must actively promote realignment efforts and schedule time for dedicated training, encourage teacher collaboration across grade levels and schools, and allocate funds to support the initiative.¹⁰⁰ At the school level, elementary school principals can demonstrate strong leadership by identifying at-risk children in Pre-K settings to monitor once they enter Kindergarten or Grade 1; this can include supporting students from low-income households or English learners, and developing relationships with their parents early in the schooling process. Most importantly, this will help schools build a shared vision among all stakeholders and further boost perceptions of alignment efforts.¹⁰¹

The Education Commission of the States (ECS) recently highlighted 12 policies that are “emerging drivers” in steering public education. These policies promote P-20 education (from early childhood education to postsecondary institutions) and address some of the greatest challenges facing schools.¹⁰² The first emerging policy proposal espoused by ECS is to expand the focus on PreK-3 education in order to create smoother transitions into elementary school and increase the likelihood that students reach grade-level benchmarks by Grade 3. However, ECS identifies several challenges that schools implementing a dedicated PreK-3 alignment sequence should consider (Figure 2.7).

⁹⁹ Bullet points taken almost verbatim from: Valentino and Stipek, Op. cit., p.5.

¹⁰⁰ Ibid., pp.5–6.

¹⁰¹ “Policy Brief: The Importance of Aligning Pre-K through 3rd Grade.” The Pre-K Coalition. p.4.
<http://www.centerforpubliceducation.org/Main-Menu/Pre-kindergarten/Pre-K-Coalition/Policy-Documents/Issue-brief-Dec-2011.pdf>

¹⁰² “12 for 2012: Issues to Move Education Forward in 2012.” Education Commission of the States, January 2012. p.3.
<http://www.ecs.org/clearinghouse/01/00/28/10028.pdf>

Figure 2.7: Challenges in Expanding the Focus to PreK-3 Sequencing

| CHALLENGE | DESCRIPTION |
|---|---|
| Changing Mindsets | The most dramatic brain development occurs before children enter formal schooling at age 5 or 6. It took decades for Kindergarten to be accepted as the start of formal education. Now another paradigm shift must occur for us to get used to saying that Pre-Kindergarten is the first year (or the first two years) of school. It is still a perception among some policy leaders and parents that Pre-K programs are “taking people’s children away,” and some have strongly held beliefs that Pre-K is the responsibility of the family. Yet early education is critical if children are to succeed in school. |
| Funding | Over the last years, states have struggled in a very difficult fiscal environment. Often the response is to reduce spending in the earliest years because it is seen as less essential than K-12. |
| Assuring Quality | Simply having a Pre-K classroom available will not guarantee the gains necessary to ensure school readiness and success in subsequent grades. This remains true for P-3, particularly if children are to be proficient readers by the end of Grade 3. |
| Instructional Leadership | Optimal learning will occur when principals and early childhood directors are cognizant of the P-3 continuum, and ensure it is high quality and well-aligned. |
| Ensure Proficiency without Negative Approaches | State initiatives to retain students not reading at grade level by the end of Grade 3 may inadvertently punish students who have not received the same quality instruction and curriculum as more-advantaged peers. Research indicates that students who are over-age for their grade (including those retained) are more likely to drop out of high school than their peers. |

Source: Education Commission of the States¹⁰³

IMPLEMENTATION CONSIDERATIONS AND EXAMPLES

Education experts, administrators, and practitioners identify common practices that districts and schools employ when transitioning to a more aligned PreK-3 system. To promote PreK-3, most school leaders underscore the importance of: (1) professional development; (2) teacher and principal visits to other classrooms; and (3) data collection – both child assessment and classroom quality data.¹⁰⁴ Perhaps the most important element of this transition is the dedicated alignment of policies and practices between Pre-K sites and K-3 grade levels. Indeed, “most districts endeavoring to promote PreK-3 alignment offered joint [professional development] sessions for Pre-K and elementary teachers and more informal opportunities (e.g., workshops) for communication among teachers and parents.”¹⁰⁵

Based on their interviews with district and school leaders, as well as a review of effective PreK-3 systems in California, Valentino and Stipek identified six key practices that successful schools implement when adopting an articulated early childhood and elementary grade span (Figure 2.8).

¹⁰³ Adapted from: Ibid., p.4.

¹⁰⁴ Valentino and Stipek, Op. cit., p.9.

¹⁰⁵ Ibid.

Figure 2.8: Key Practices for Implementing a PreK-3 Grade Sequence

- **Parent Involvement:** Connect parents with teachers before children enter school so parents have a vision for Pre-K or Kindergarten. Providing information to parents on what children will experience in the next grade integrates parents into the alignment process. It gives them the opportunity to engage in practices at home that are more aligned with the goals and experiences to come when children enter school.
- **Professional Development and Communication:** Coordinate meetings and professional development sessions between Pre-K, Head Start, childcare, and K-3 teachers to create a common set of child development goals for children in the district, and to increase teachers' understanding of what precedes and follows their own grade level.
- **Leadership:** Ensure principal buy-in and provide training to principals.
- **Funding:** Invest local control dollars in Pre-K to reduce the disparity in funding between Pre-K and K-3 and to increase access to Pre-K.
- **Longitudinal Data Systems:** Although no district has yet created linked data systems that use common assessment across grades to track student progress, a few districts are working with this objective in mind.
- **Quality Evaluation:** Well-aligned programs implement best practices within grades. Most districts aspire to use high-quality evaluation measures, administered by qualified external observers, to monitor classroom quality and provide feedback for quality improvement.

Source: Policy Analysis for California Education¹⁰⁶

The National Association of Elementary School Principals (NAESP) recently assembled a Task Force to define components of a high-quality PreK-3 grade sequence. Like Valentino and Stipek's findings, many of NAESP's recommendations highlight the importance of teacher training and strong leadership to ensure that curricula and experiences are aligned across grade levels, as well as the use of data to monitor program effectiveness.¹⁰⁷ San Francisco Unified School District (SFUSD) implemented a PreK-3 system in 2011 that has experienced success over the five years since its inception. While planning for the change, leaders in SFUSD promoted a city-wide focus on five indicators for success across stakeholder groups:¹⁰⁸

- Aligned educational strategies and resources within and across grades;
- Aligned standards, sequenced curriculum, instruction, and assessments;
- Joint planning and shared professional development;
- Strong administrative leadership; and
- Aligned support services.

¹⁰⁶ Adapted from: Ibid., p.16.

¹⁰⁷ "Building & Supporting an Aligned System: A Vision for Transforming Education Across the Pre-K-Grade Three Years." The NAESP Foundation. p.3. http://www.naesp.org/resources/1/NAESP_Prek-3_C_pages.pdf

¹⁰⁸ Bullet points taken verbatim from: "PreK-3rd Annual Report: Year One: 2011-2012," Op. cit., p.9.

These goals again align with practices derived from both qualitative research and benchmarking efforts. This highlights the importance of instituting these policies for ensuring high-quality early childhood and early elementary articulation. Given that most elementary schools operate from Kindergarten through at least Grade 3, the primary focus of alignment efforts will most likely be aimed at the Pre-K-to-Kindergarten transition. According to researchers, “the transition to Kindergarten can be challenging as it represents a shift on many fronts. Children are moving from a preschool, daycare center, or their own home, where different rates of development had been acceptable, to an elementary school requiring mastery of specific academic skills.”¹⁰⁹

To facilitate this transition, Schulting, Malone, and Dodge identified several common transition supports that have been empirically linked with increased student performance and parental involvement. These include:

- Information about the Kindergarten program is phoned or sent home to parents;
- Preschoolers spend time in the Kindergarten classroom;
- School days are shortened at the beginning of the school year;
- Parents and children visit Kindergarten prior to the start of the school year;
- Teachers visit students’ homes at the beginning of the school year; and/or
- Parents attend an orientation session prior to the school year.¹¹⁰

ENDING ELEMENTARY SCHOOL IN GRADE 5 VERSUS GRADE 6

There is typically a large difference in the educational environments between elementary and middle schools, and the decision to place certain grades in certain school levels can impact how students perform. One grade level that is particularly affected by these differences is Grade 6, which is commonly placed in both elementary school (Grades K through 6) and middle school (Grades 6 through 8) settings. This placement decision impacts a student’s educational paradigm, as education practitioners posit,

[...] a sixth grader in an elementary school will typically be assigned to one teacher and spend much the day in that teacher’s classroom with the same group of students. A sixth grader in middle school will typically be assigned to a team of teachers and move from classroom to classroom over the course of the school day, with somewhat different groups of students in each.¹¹¹

Indeed, this discrete transition for middle-level-aged students is characterized by significant changes in school structure, curriculum, and pedagogy, and **district leaders need to consider the most appropriate time to incorporate this movement in grade sequencing** (Figure 2.9).

¹⁰⁹ Schulting, Malone, and Dodge, Op. cit.

¹¹⁰ Bullet points adapted from: Ibid.

¹¹¹ Cook, P.J. et al. “The Negative Impacts of Starting Middle School in Sixth Grade.” *Journal of Policy Analysis and Management*, 27:1, December 1, 2008. p. 106. <http://dx.doi.org/10.1002/pam.20309>

Regardless of specific grade level transition, research suggests that these students perform better if many of these factors remain fluid between school levels, such that school districts could minimize abrupt school-to-school changes and, instead, gradually introduce new instructional practices.¹¹²

Figure 2.9: Major Changes between Elementary and Secondary Schools

| ELEMENTARY SCHOOL | MIDDLE-LEVEL SCHOOL |
|---|--|
| ENVIRONMENTAL CHANGES | |
| Small schools | Large school |
| Oldest in the school | Youngest in the school |
| One or two teachers, close relationships | Many teachers, distant relationships |
| Same classroom with same classmates | Changing classrooms from one period to another |
| CHANGES IN TEACHING PRACTICE | |
| Smaller classes with opportunities for decision-making | Greater emphasis on teacher control and discipline; fewer decision-making opportunities for students |
| Small group and individual instruction | Whole-class instruction |
| Mix of abilities in each class | Increased between-class ability grouping |
| Learning opportunities that demand higher-order cognitive processes | Less cognitively demanding tasks (for example, drill), yet stricter evaluation criteria |

Source: RAND Education¹¹³

These inherent differences can cause district administrators to debate whether to end elementary school in Grade 5 or 6. Much of the concern stems from a Grade 6 students’ position relative to other students; that is, they will either be the oldest children in a school or the youngest. Because these students are still developing (aged between 10 and 14 years typically) and experiencing many common changes associated with adolescence, the effect of peer groups is doubly important in terms of social, academic, and developmental changes.¹¹⁴

OVERVIEW OF RESEARCH

A number of empirical studies discuss the impact of Grade 6 placement on student outcomes (Figure 2.10). These studies largely compare student achievement and behavior between those who attend K-5/6-8 sequences with their counterparts in K-6 schools. By comparing students who are learning the same core material, yet who are placed in different school settings, researchers can begin to pinpoint the effects of grade sequencing for late elementary students and how environmental factors may influence outcomes.

¹¹² Juvonen et al., Op. cit., p. 19.

¹¹³ Adapted from Ibid., p. 15.

¹¹⁴ Cook et al., Op. cit., p. 106.

Figure 2.10: Evidence of the Effects of Grade 6 Placement in Grade Sequences

| AUTHOR(S) | YEAR | STUDY SETTING | STUDY DESCRIPTION | OUTCOMES |
|--|------|---|--|--|
| Dove, Pearson, and Hooper ¹¹⁵ | 2010 | <ul style="list-style-type: none"> ▪ 281 schools in Arkansas that contained Grade 6 ▪ All schools must have retained their grade span for three years | <ul style="list-style-type: none"> ▪ Researchers observed 20 different grade span configurations with Grade 6. ▪ Math and literacy scores were tracked over three years. ▪ Grade spans were classified either as no transition (K-6, 1-6), first year of transition (6-7, 6-8), or second year of transition (5-6, 5-7, 5-8). | <ul style="list-style-type: none"> ▪ Data did not reveal a statistically significant relationship between grade span and academic outcomes for Grade 6 students. ▪ Researchers concluded that other factors impact achievement in the middle years (e.g., projected enrollment, transportation costs, etc.). |
| Cook et al. ¹¹⁶ | 2008 | <ul style="list-style-type: none"> ▪ 99 school districts in North Carolina that contained Grade 6 | <ul style="list-style-type: none"> ▪ Researchers examined both academic and behavioral outcomes. ▪ Grade spans were classified depending on the placement of Grade 6: in elementary school, in middle school, or divided between the two. ▪ Student performance was measured using data from end-of-year tests in math and reading. | <ul style="list-style-type: none"> ▪ Grade 6 students attending middle schools had lower academic performance than those attending elementary schools. ▪ Grade 6 students attending middle schools were also more likely to be cited for discipline problems. ▪ This effect was consistent even after controlling for SES and demographic characteristics. |
| Rickles and White ¹¹⁷ | 2005 | <ul style="list-style-type: none"> ▪ Schools in Los Angeles Unified School District | <ul style="list-style-type: none"> ▪ Researchers compared student performance between Grade 6 students in elementary school (K-6) and their peers in middle school (6-8). ▪ Student performance was measured using California STAR assessments in English Language Arts (ELA) and math. | <ul style="list-style-type: none"> ▪ Grade 6 students in elementary school outperformed their peers and had higher gains in English and math over the course of the school year. ▪ Achievement gains experienced by Grade 6 students in elementary school diminished after their transition, but persisted to a lesser degree through Grade 7. ▪ Overall, students achieved higher gains between Grades 5 and 7 in K-6 schools. |

¹¹⁵ Dove, M.J. and L.C. Pearson. "Relationship Between Grade Span Configuration and Academic Achievement." <http://files.eric.ed.gov/fulltext/EJ880581.pdf>

¹¹⁶ Cook et al., Op. cit.

¹¹⁷ Rickles, J.H. and J.A. White. "Implications of Attending a K-6 Elementary School on Sixth and Seventh Grade Achievement." Los Angeles Unified School District Program Evaluation and Research Branch, March 2005. http://notebook.lausd.net/pls/ptl/docs/PAGE/CA_LAUSD/FLDR_ORGANIZATIONS/FLDR_PLCY_RES_DEV/PAR_DIVISION_MAIN/RESEARCH_UNIT/PUBLICATIONS/POLICY_REPORTS/K6VSMS_REPORT_FINAL_PERBPUB246.PDF

BENEFITS

Overall, the data indicate that Grade 6 students generally have higher academic outcomes and better behavior in elementary school settings. In two separate studies, researchers found that Grade 6 students who attended K-6 schools outperformed their peers in Grades 6-8 schools in English language arts and math on end-of-year assessments. Rickles and White examined the academic progress of Grade 6 students in the Los Angeles Unified School District (LAUSD), given that the district operates both K-6 and 6-8 schools. They discovered that Grade 6 students in elementary school gained more over the course of the year than their counterparts in middle school settings (Figure 2.11).¹¹⁸ Cook and colleagues found similar results in North Carolina, concluding that “the middle school configuration that brings seventh and eighth graders into regular contact with sixth graders is problematic.”¹¹⁹

Figure 2.11: Grade 6 End-of-Year Scale Scores by School Type, LAUSD

| SCHOOL SETTING | ENGLISH LANGUAGE ARTS | | | | MATH | | | |
|----------------|-----------------------|-------|-------|-----------------|--------|-------|-------|-----------------|
| | Sample | 2003 | 2004 | Adjusted Change | Sample | 2003 | 2004 | Adjusted Change |
| K-6 | 1,043 | 326.4 | 337.8 | 15.7 | 1,041 | 333.1 | 344.3 | 20.6 |
| 6-8 | 6,568 | 346.1 | 344.4 | 4.4 | 6,588 | 359.2 | 348.2 | 8.0 |

Source: Rickles and White; “Implications of Attending a K-6 Elementary School on Sixth and Seventh Grade Achievement”¹²⁰

Moreover, when comparing infraction rates for Grade 6 students between the two school settings, researchers revealed that these students, when attending a middle school, acquired more infractions than their peers in elementary schools. While the majority of these increases were for minor infractions or rowdy behavior, the rate of violence also increased significantly (Figure 2.12). Overall, Cook and colleagues found that “both the incidence and prevalence rate for every type of infraction were considerably higher for sixth graders in middle school than for elementary school students. The overall incidence was three times as high [...] and the prevalence rate twice as high.”¹²¹ This suggests that Grade 6 students may benefit from being the oldest, which should help reduce the number of adverse and antisocial behaviors that they demonstrate.

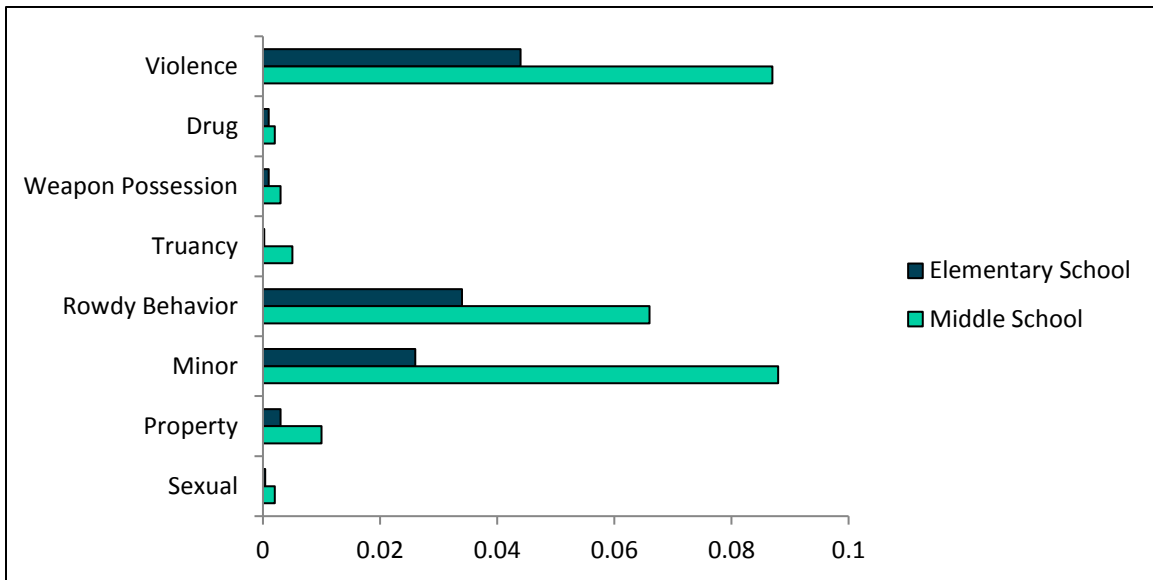
¹¹⁸ Rickles and White, Op. cit., p.3.

¹¹⁹ Cook et al., Op. cit., p. 118.

¹²⁰ Adapted from: Rickles and White, Op. cit., p.3.

¹²¹ Cook et al., Op. cit., p. 112. Emphasis added.

Figure 2.12: Prevalence of Infractions for Grade 6 Students by School Type



Source: Cook et al.; “The Negative Impacts of Starting Middle School in Sixth Grade”¹²²

POTENTIAL DRAWBACKS AND LIMITATIONS

Despite the benefits described above, it should be noted that the placement of Grade 6 students in elementary school is not agreed-on by all researchers. For example, Dove, Pearson, and Hooper studied Grade 6 sequences in Arkansas across over 250 different schools and 20 different grade configurations. Students were subdivided into three main categories, depending on what type of school the student attended in Grade 6: no transition (mostly K-6 schools), first year of transition (mostly 6-7 school), and second year of transition (mostly 5-6 and 5-8 schools).¹²³ Based on end-of-year assessments, data suggest that grade configuration differences in both math and literacy scores were marginal. In fact, across the three years of the study, the researchers found no statistically significant differences in mean scores between the three models.¹²⁴ These findings suggest that grade configuration alone may not account for all the differences in performance between Grade 6 students placed in different school settings.

Another potential concern noted in the literature is that the lower middle school Grade 6 performance is the result of negative transition effects, and that schools may expect Grade 7 students who move to middle schools to experience comparable performance differentials. Rickles and White posited that “gains might be due to an artificial (or one-time) decrease in scores for sixth grade middle school students. More specifically, the transition from elementary school to middle school may be the primary cause of lower test scores for sixth graders in middle school.”¹²⁵ However, based on data from LAUSD, they ultimately concluded that **“the magnitude of achievement gains for sixth graders at K-6 schools outweighs the**

¹²² Ibid.

¹²³ Dove and Pearson, Op. cit., pp. 282–283.

¹²⁴ Ibid., p. 290.

¹²⁵ Rickles and White, Op. cit., p.4.

decrease in test scores experienced when they matriculate to middle school.”¹²⁶ This implies that Grade 6 students in elementary school gain relative to their peers in middle school at a significant enough level to withstand the expected declines associated with school transitions.

IMPLEMENTATION CONSIDERATIONS AND EXAMPLES

The main issue that districts will need to address if they consider placing Grade 6 in elementary school settings is accommodating student capacity. Of course, with an additional grade level in each elementary school, it will be necessary to consider how schools will meet the challenge of additional student enrollment. Recently, for example, the Wentzville School District in Missouri voted to expand elementary education through Grade 6 by the 2017-2018 school year. To address their anticipated capacity issues, the district proposed the following:

This plan is only made possible with the construction of two new elementary buildings and redistricting the boundaries for all elementary schools. Each building will be addressed and boundaries altered so there is not only room for sixth graders now, but room for growth over the next three to five years as well.¹²⁷

Thus, Wentzville School District plans to build new campuses and redistrict some students to accommodate the increased elementary student enrollment. The district also notes that typical construction costs are substantially lower for new elementary school buildings than for middle schools, thus making the reconfiguration more feasible.¹²⁸ Like ACPS, Wentzville is projected to experience increasing student numbers, and has restructured their grade sequences to respond to these projections.

Other considerations for moving Grade 6 to elementary school include: class structure, teacher transfers and possible professional development, school boundaries, a changed culture in both elementary and middle schools, and planning for the transition across departments.¹²⁹

INTERMEDIATE SCHOOL (GRADES 5 AND 6)

Finally, one unique elementary school grade configuration is the intermediate campus, which typically serves Grades 5 and 6 only. These campuses aim to isolate late elementary and early middle school students, who experts argue typically require additional supports. Indeed, experts assert that students in this age-band are in a “developmental period in which prevention and intervention efforts can be particularly effective in deterring negative

¹²⁶ Ibid., p.5. Emphasis added.

¹²⁷ “K-6 Frequently Asked Questions (FAQ).” Wentzville School District. p.2.

http://wentzville.k12.mo.us/pluginfile.php/41516/mod_page/content/15/K-6%20FAQ%20FINAL.pdf

¹²⁸ Ibid., p.3.

¹²⁹ Beaver, T. “Pasco Sixth-Graders to Stay in Elementary School Next Year.” *Tri-City Herald*, September 2014.

<http://www.tri-cityherald.com/news/local/article32197689.html>

trajectories or outcomes.”¹³⁰ Intermediate schools, in theory, can allow teachers to become subject-area experts and provide resources dedicated to the unique social and emotional needs of students in these grades.¹³¹

OVERVIEW OF RESEARCH

The research that addresses intermediate schools typically compares student achievement in 5-6 schools with their peers in K-5 or K-6 schools (Figure 2.13). This suggests that intermediate models are more often associated with elementary school settings than with middle school settings, implying that these campuses are considered more structurally similar to elementary schools, and offer districts an alternative to elementary grade spans (rather than as a replacement for middle school models).

Figure 2.13: Evidence of the Effects of Intermediate Schools on Student Performance

| AUTHOR(S) | YEAR | STUDY SETTING | STUDY DESCRIPTION | OUTCOMES |
|-------------------------------------|------|--|---|---|
| Fiaschetti and Slate ¹³² | 2014 | <ul style="list-style-type: none"> ▪ 2,986 schools in Texas ▪ Researchers isolated results for only economically disadvantaged students | <ul style="list-style-type: none"> ▪ Researchers compared students between two groups: PreK-5 or PreK-6 schools; and single- or double-grade enrollees (4-5, 5, or 5-6). ▪ Texas reading assessment was used to measure student achievement (TAKS). | <ul style="list-style-type: none"> ▪ Students who were economically disadvantaged and who were enrolled in schools with a larger grade span outperformed their peers in single/dual grade schools. |
| Johnson et al. ¹³³ | 2012 | <ul style="list-style-type: none"> ▪ 3,388 Grade 5 students enrolled across three elementary schools and six intermediate schools ▪ Majority Hispanic (49%) and Black (35%) population | <ul style="list-style-type: none"> ▪ Researchers used TAKS science assessment to compare Grade 5 achievement between students in elementary (K-5) and intermediate (5-6) schools. ▪ Data collected over a three-year period | <ul style="list-style-type: none"> ▪ Elementary campuses had higher passing rates than intermediate campuses (18% differential). ▪ Elementary configurations yielded higher results for each of the three test administrations. |

¹³⁰ Coyl, D.D. “Kids Really Are Different These Days.” *Phi Delta Kappan*, February 2009. p.407. http://www.pdkmembers.org/members_online/publications/Archive/pdf/k0902coy.pdf

¹³¹ Combs, J.P. et al. “Academic Achievement for Fifth-Grade Students in Elementary and Intermediate School Settings: Grade Span Configurations.” *Current Issues in Education*, 14:1, March 2011. p.6. Accessed via EBSCOHost.

¹³² Fiaschette, C.F. and J.R. Slate. “Differences in Student Achievement by Grade Span Configuration for Students Who Were Economically Disadvantaged.” *Journal of Education Research*, 8:4, October 2014. Accessed via EBSCOHost.

¹³³ Johnson, D. et al. “The Relationship Between Grade Configuration and Standardized Science Test Scores of Fifth-Grade Students: What School Administrators Should Know.” *Journal of At-Risk Issues*, 17:2, July 2012. Accessed via EBSCOHost.

| AUTHOR(S) | YEAR | STUDY SETTING | STUDY DESCRIPTION | OUTCOMES |
|-----------------------------|------|--|---|---|
| Combs et al. ¹³⁴ | 2011 | <ul style="list-style-type: none"> ▪ 1,356 schools in Texas ▪ 678 elementary schools (K-5) and 678 intermediate schools (5 or 5-6) ▪ About half of students identified as low SES | <ul style="list-style-type: none"> ▪ Data collected over a five-year period ▪ Researchers studied the impacts of whether Grade 5 students were the oldest or the youngest students in school. ▪ Student achievement was monitored using Texas state tests (TAKS) for reading and math. | <ul style="list-style-type: none"> ▪ Grade 5 students in elementary schools had significantly higher math and reading scores than their peers in intermediate schools (effect sizes of 0.47 and 0.37, respectively). ▪ These results persisted across all five years. |

BENEFITS

Across three empirical studies, data suggest that intermediate schools are not beneficial for Grade 5 and 6 students. These results are consistent across content areas, including reading, math, and science.

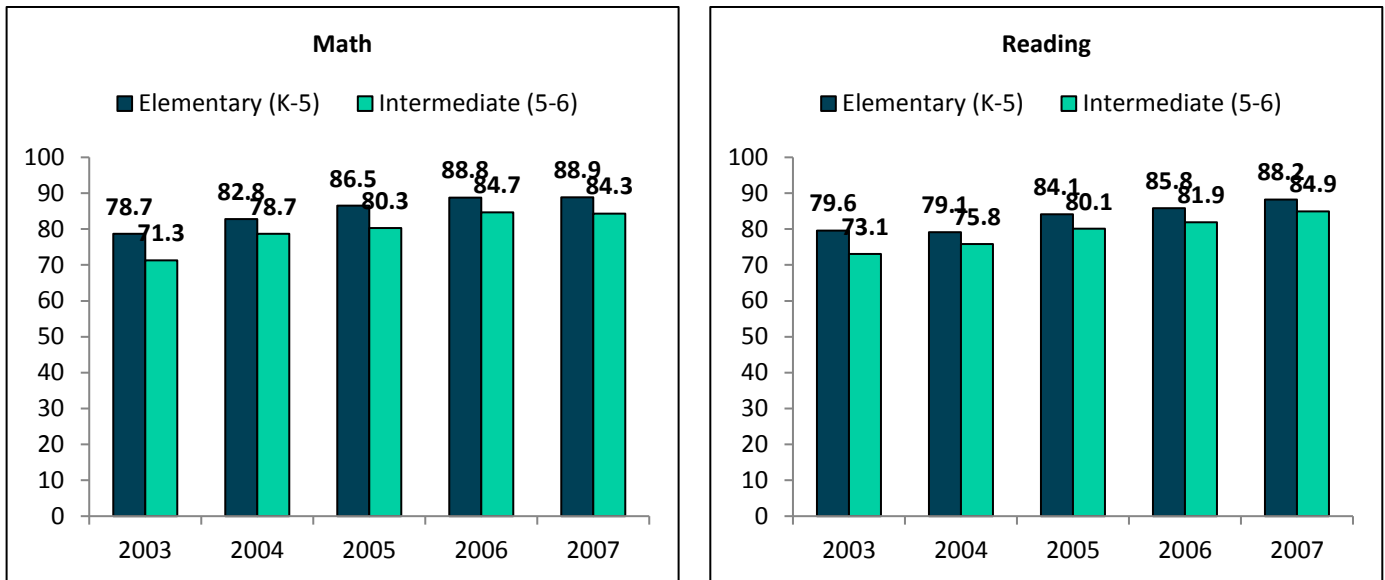
POTENTIAL DRAWBACKS AND LIMITATIONS

The evidence does not support the efficacy of intermediate school settings. Data indicate that Grade 5 and 6 students perform better in elementary grade configurations than in intermediate ones. For example, Combs and colleagues discovered that Grade 5 students in elementary schools scored significantly higher in math and reading than their peers in intermediate schools across all five years in which data were collected (Figure 2.14). Researchers attribute much of the achievement differentials to the transition that intermediate students experience prior to the start of Grade 5, again highlighting the detriments of including too many school transfers in grade sequences.¹³⁵

¹³⁴ Combs et al., Op. cit.

¹³⁵ Combs et al., Op. cit., pp.32–33.

Figure 2.14: Grade 5 Students’ Math and Reading Scores by School Type



Source: Combs et al.; “Academic Achievement for Fifth-Grade Students in Elementary and Intermediate Settings”¹³⁶

Fiaschetti and Slate found similar results isolating the effect of intermediate schools on the performance of economically disadvantaged students. The researchers concluded that “students who were economically disadvantaged *and* who were enrolled in schools with a **larger grade span** outperformed students who were economically disadvantaged and who were enrolled in schools with single/dual grade levels.”¹³⁷ These results suggest that intermediate models are not beneficial for a variety of student subgroups, and that students generally perform better in more standard elementary school settings (either K-5 or K-6).

¹³⁶ Adapted from: Ibid., pp.29–30.

¹³⁷ Fiaschetti and Slate, Op. cit., p.227. Emphasis added.

SECTION III: MODELS OF SECONDARY GRADE CONFIGURATION

In this section, Hanover Research discusses the effectiveness of four common grade span configurations at the secondary level: K-8 schools, junior high and middle schools (Grades 6 through 8, 7 through 8, or 7 through 9), ninth grade academies, and Grade 7 through 12 high schools.

KEY SECTION FINDINGS

- **Although K-8 schools have become much more popular in recent years, research regarding ideal grade span configurations for middle grades students is inconclusive.** Several studies have found that K-8 schools have more positive environments and are associated with better attendance, decreased behavioral problems, and improved academic achievement compared to middle and junior high schools. The transition to middle school can be difficult for many and is often associated with negative academic and social outcomes. Many view K-8 schools as beneficial because they reduce the number of school transitions students experience. However, the long-term benefits of K-8 schools have not been established; several studies have found no difference between K-8 schools and middle schools or have found that the differences are too small or unsustainable to be of importance.
- **Because neither K-8 nor middle schools have consistently demonstrated improvements in academic achievement, some experts argue that schools should focus on improving the quality of instruction and the overall school environment.** Middle grades experts assert that schools must design the curriculum and school environment to meet the needs of middle grades students, regardless of whether they are in a K-8 or middle school setting. Use of interdisciplinary teaching teams, an approach commonly recommended for middle schools, has the potential to help students and teachers form positive relationships and improve academic outcomes. Further, comprehensive transition programs can help to mitigate the negative effects of changing schools.
- **Ninth grade academies are often difficult for schools to fully implement, and research on their effects is inconclusive.** Ninth grade academies have distinct administrative structures and programmatic characteristics, which can be difficult for schools to achieve without substantial district support and resources. Academies are usually housed in a dedicated wing or hallway within a school and have their own administrator or interdisciplinary teaching teams. Additional staff typically provide other academic and social supports, such as tutoring, mentoring, counseling, and social services. While some studies have found that students who attended ninth grade academies have higher academic achievement levels and lower non-promotion rates than typical high schools, other studies have found no difference in students who attended academies and those in traditional schools.

- **Alternative secondary configurations, such as 7-12 schools, are not generally supported by the literature.** Proponents of the 7-12 model argue that it is effective because it minimizes school transitions and allows middle grades students to access high school facilities and advanced coursework. However, research and anecdotal accounts of the model’s outcomes have been mixed. Adopters of the 7-12 configuration model have acknowledged that middle school students have different needs than high school students, and typically use school-within-school models to serve 7-8 and 9-12 students separately within the same campus. Hanover did not identify any studies of other high school models, such as 9-10 and 11-12 schools. In general, school transitions are associated with decreases in student achievement. However, it is unclear whether a school transition during high school would have negative effects.

KINDERGARTEN THROUGH GRADE 8

K-8 schools were popular in the 19th century, but began to fall out of favor in the early 20th century as a movement began toward creating separate schools for middle grades students.¹³⁸ Junior high schools (usually Grades 7 through 8 or Grades 7 through 9) were first established in 1909, and became increasingly popular until the late 1960s.¹³⁹ From the 1960s to 1970s, middle schools (typically Grades 6 through 8) started to replace junior high schools.¹⁴⁰ Currently, middle schools greatly outnumber junior high schools in the United States – over 12,000 middle schools were in operation in 2014 compared to roughly 2,700 junior high schools.¹⁴¹

While junior high typically imitated the structure of high school, middle schools were meant to provide instruction and activities that were developmentally and academically appropriate for middle grades students’ unique needs.¹⁴² However, poor test scores and high rates of behavioral problems for middle school students have led many educators and researchers to conclude that placing middle grades students in K-8 schools, rather than separate middle

¹³⁸ [1] McEwin, C.K. and M.W. Greene. “The Status of Programs and Practices in America’s Middle Schools: Results From Two National Studies.” Association for Middle Level Education, 2011. p. 5. http://www.amle.org/portals/0/pdf/articles/status_programs_practices_amle.pdf [2] Byrnes, V. and A. Ruby. “Comparing Achievement between K-8 and Middle Schools: A Large-Scale Empirical Study.” *American Journal of Education*, 114, November 2007. pp. 102–103. http://web.jhu.edu/CSOS/images/TDMG/ComparingAchievement_btwK_8.pdf

¹³⁹ McEwin and Greene, Op. cit., p. 5.

¹⁴⁰ [1] Paglin, C. and J. Fager. “Grade Configuration: Who Goes Where?” Northwest Regional Educational Laboratory, July 1997. p. 2. <http://www.cityofportsmouth.com/school/centraloffice/eefc/4g.pdf> [2] McEwin and Greene, Op. cit., p. 5.

¹⁴¹ [1] “Table 216.80: Public Secondary Schools, by Grade Span, Average School Enrollment, and State or Jurisdiction: 2013-14.” National Center for Education Statistics, 2015. https://nces.ed.gov/programs/digest/d15/tables/dt15_216.80.asp?current=yes [2] “Table 216.75: Public Elementary Schools, by Grade Span, Average School Enrollment, and State or Jurisdiction: 2013-14.” National Center for Education Statistics, 2015. https://nces.ed.gov/programs/digest/d15/tables/dt15_216.75.asp?current=yes

¹⁴² [1] Paglin and Fager, Op. cit., p. 2. [2] Wormeli, R. “Misleading in the Middle: A Rebuttal to Cheri Pierson Yecke.” *Educational Leadership*, 63, Summer 2006. <http://www.ascd.org/publications/educational-leadership/summer06/vol63/num09/Misleading-in-the-Middle@-A-Rebuttal-to-Cheri-Pierson-Yecke.aspx>

schools, will lead to better outcomes.¹⁴³ Recently, many school districts across the country began transitioning from middle school or junior high schools to more comprehensive K-8 schools.¹⁴⁴ As of 2014, there were over 6,500 K-8 schools in the United States, a large increase from around just 2,500 K-8 schools 20 years earlier.¹⁴⁵

OVERVIEW OF RESEARCH

Most of the literature on grade span configurations has focused on comparing K-8 schools to middle schools. However, despite the wealth of literature and recent school district trends favoring K-8 schools, **research regarding ideal grade span configurations for middle grades students is inconclusive.** Studies comparing student outcomes at K-8 schools and middle schools have found conflicting results. Several studies have found improved academic and behavior outcomes for K-8 students compared to middle school students, such as better attendance,¹⁴⁶ decreased suspensions and other disciplinary infractions,¹⁴⁷ and improved academic achievement (e.g., improved math and reading scores).¹⁴⁸ However, many of these studies' findings are weakened by a number of methodological issues, such as study designs that limit ability to determine causality, or lack of statistical control for potential confounding variables such as class size, student demographics, or school/district policies.¹⁴⁹

-
- ¹⁴³ [1] Jacob and Rockoff, Op. cit. [2] Yecke, C.P. "Mayhem in the Middle: Why We Should Shift to K-8." *Educational Leadership*, 63:7, April 2006. <http://www.ascd.org/publications/educational-leadership/apr06/vol63/num07/Mayhem-in-the-Middle@-Why-We-Should-Shift-to-K%E2%80%938.aspx> [3] Pardini, P. "American Association of School Administrators." School Superintendents Association, 2002. <http://www.aasa.org/SchoolAdministratorArticle.aspx?id=10396> [4] Sparks, S.D. "Study Links Academic Setbacks to Middle School Transition." *Education Week*, November 28, 2011. <http://www.edweek.org/ew/articles/2011/11/28/13structure.h31.html>
- ¹⁴⁴ [1] Pardini, "American Association of School Administrators," Op. cit. [2] Yecke, Op. cit. [3] Sparks, S.D. "Learning Declines Linked to Moving to Middle School." *Education Week*, 31:13, December 7, 2011. <http://search.ebscohost.com/login.aspx?direct=true&db=eue&AN=527648112&site=ehost-live>
- ¹⁴⁵ [1] "Table 216.80: Public secondary schools, by grade span, average school enrollment, and state or jurisdiction: 2013-14," Op. cit., p. 26. [2] "Table 216.10. Public Elementary and Secondary Schools, by Level of School: Selected Years, 1967-68 through 2011-12." National Center for Education Statistics, 2013. p. 216. http://nces.ed.gov/programs/digest/d13/tables/dt13_216.10.asp
- ¹⁴⁶ Abella, R. "The Effects of Small K-8 Centers Compared to Large 6-8 Schools on Student Performance." *Middle School Journal*, 37:1, September 2005. Accessed via Web of Science
- ¹⁴⁷ [1] Ibid. [2] Cook, P.J. et al. "The Negative Impacts of Starting Middle School in Sixth Grade." *Journal of Policy Analysis and Management*, 27:1, December 1, 2008. <http://dx.doi.org/10.1002/pam.20309> [3] Arcia, E. "A Comparison of Elementary/K-8 and Middle Schools' Suspension Rates." *Urban Education*, 42:5, September 2007. Accessed via Web of Science
- ¹⁴⁸ [1] Cook et al., Op. cit. [2] Alspaugh, J.W. "Achievement Loss Associated with the Transition to Middle School and High School." *Journal of Educational Research*, 92:1, October 1998. Accessed via EBSCOhost [3] Schwerdt, G. and M.R. West. "The Impact of Alternative Grade Configurations on Student Outcomes through Middle and High School." July 15, 2011. Accessed via Web of Science [4] Rockoff, J. and B. Lockwood. "Stuck in the Middle: Impacts of Grade Configuration in Public Schools." *Journal of Public Economics*, 94:11/12, December 2010. Accessed via EBSCOhost [5] Clark, D.M. et al. "Math and Reading Differences Between 6-8 and K-8 Grade Span Configurations: A Multiyear, Statewide Analysis." *Current Issues in Education*, 16:2, August 15, 2013. <http://researchnetwork.pearson.com/wp-content/uploads/Clark-D-2013-Current-Issues-in-Education-2.pdf> [6] Byrnes and Ruby, Op. cit. [7] Schwartz, A.E. et al. "The Path Not Taken: How Does School Organization Affect Eighth-Grade Achievement?" *Educational Evaluation and Policy Analysis*, 33:3, September 2011. Accessed via Web of Science
- ¹⁴⁹ [1] "What the Research Says (or Doesn't Say) About K-8 Versus Middle School Grade Configurations." *Education Northwest*, August 18, 2011. <http://educationnorthwest.org/news/what-research-says-or-doesnt-say-about-k-8-versus-middle-school-grade-configurations> [2] "WWC Quick Review of the Article 'The Negative Impacts of

Other studies, meanwhile, have found no difference in outcomes between K-8 and middle school students. After controlling for variables such as school size and type, class size, transition rates, and school policies, large studies in Philadelphia¹⁵⁰ and California,¹⁵¹ have found no difference in academic achievement outcomes for students who have attended K-8 and middle schools, while a large study in Texas found no difference in outcomes for African-American students, but found that Hispanic students actually performed better in middle schools than in K-8 schools.¹⁵² In addition, three recent national studies found that **classroom quality and school attachment, rather than grade span configuration, are more significant predictors of academic achievement outcomes** for students in Grades 5 and 6.¹⁵³ Figure 3.1, on the following pages, displays key studies that assess the effectiveness of the K-8 model on students' academic and behavioral outcomes.

Starting Middle School in Sixth Grade.” Institute of Education Sciences What Works Clearinghouse, June 2008. http://ies.ed.gov/ncee/wwc/pdf/quick_reviews/sixthgrademiddle_060308.pdf [3] Jacob and Rockoff, Op. cit.

¹⁵⁰ [1] Weiss, C.C. and L. Kipnes. “Reexamining Middle School Effects: A Comparison of Middle Grades Students in Middle Schools and K-8 Schools.” *American Journal of Education*, 112:2, February 2006. Accessed via EBSCOhost [2] Byrnes and Ruby, Op. cit. [3] Weiss, C.C. and E.C. Baker-Smith. “Eighth-Grade School Form and Resilience in the Transition to High School: A Comparison of Middle Schools and K-8 Schools.” *Journal of Research on Adolescence*, 20:4, 2010. Accessed via EBSCOhost

¹⁵¹ Williams, T. et al. “Gaining Ground in the Middle Grades: Why Some Schools Do Better - A Large-Scale Study of Middle Grades Practices and Student Outcomes.” EdSource, February 2010. <http://files.eric.ed.gov/fulltext/ED508674.pdf>

¹⁵² Wilson, R. and J.R. Slate. “Grade Span Configuration and Differences in African American and Hispanic Student Mathematics Achievement.” *Journal of Education Research*, 8:4, 2014. Accessed via EBSCOhost

¹⁵³ [1] Holas, I. and A. Huston. “Are Middle Schools Harmful? The Role of Transition Timing, Classroom Quality and School Characteristics.” *Journal of Youth & Adolescence*, 41:3, March 2012. Accessed via EBSCOhost [2] Carolan, B.V., C.C. Weiss, and J. Matthews. “Which Middle School Model Works Best? Evidence From the Early Childhood Longitudinal Study.” *Youth & Society*, 47:5, 2015. Accessed via EBSCOhost [3] Carolan, B.V. and N.Z. Chesky. “The Relationship among Grade Configuration, School Attachment, and Achievement.” *Middle School Journal*, March 2012. <https://sites.newpaltz.edu/ncate/wp-content/uploads/sites/21/2014/06/Example-Chesky.pdf>

Figure 3.1: Evidence of the Effects of K-8 Schools on Student Performance

| AUTHOR(S) | YEAR | STUDY SETTING | STUDY DESCRIPTION | OUTCOMES |
|---|------|--|--|---|
| Wilson and Slate ¹⁵⁴ | 2014 | <ul style="list-style-type: none"> ▪ Statewide analysis of Hispanic and African-American students enrolled in 1,602 Texas public schools from 2010-2011 (number of students not specified) | <ul style="list-style-type: none"> ▪ The study compared students enrolled in 6-8 middle schools to students enrolled in K-8 schools. | <ul style="list-style-type: none"> ▪ Hispanic students in middle schools had significantly higher mathematics scores than Hispanic students in K-8 schools. ▪ There was no statistically significant difference in mathematics scores for African-American students enrolled in middle schools and K-8 schools. |
| Carolan, Weiss, and Matthews ¹⁵⁵ | 2013 | <ul style="list-style-type: none"> ▪ Grade 5 and Grade 8 students included in the Early Childhood Longitudinal Study, Kindergarten Class 1998-1999 ▪ 2,729 children in 977 schools | <ul style="list-style-type: none"> ▪ The study examined predictors of Grade 8 math achievement (math test scores) for students in five types of schools: K-8 schools; 6-8 middle schools; 7-8 junior highs; 7-12 junior/ senior highs; and K-12 schools. ▪ The study also examined measures of math classroom quality, such as whether the class was above algebra level and whether the teacher rated the class as behaving well. | <ul style="list-style-type: none"> ▪ Grade span configurations did not predict Grade 8 math achievement. ▪ However, classroom quality did predict math achievement, leading the authors to argue that grade span configurations are less important than instruction and classroom quality in terms of improving academic achievement. |

¹⁵⁴ Wilson and Slate, Op. cit.

¹⁵⁵ Carolan, Weiss, and Matthews, Op. cit.

| AUTHOR(S) | YEAR | STUDY SETTING | STUDY DESCRIPTION | OUTCOMES |
|-----------------------------------|------|---|--|--|
| Clark et al. ¹⁵⁶ | 2013 | <ul style="list-style-type: none"> ▪ Grade 6-8 students enrolled in 314 middle schools and 314 K-8 schools in Texas from 2006 to 2011 (encompassing around 1 million students in each grade level) | <ul style="list-style-type: none"> ▪ The study examined reading and math achievement (as measured by state test scores) among students enrolled in middle and K-8 schools. ▪ Middle schools were defined as Grades 6-8. | <ul style="list-style-type: none"> ▪ Students in K-8 schools had higher average pass rates in both reading and math than students in middle school. ▪ The effect sizes for math achievement were smaller than reading. |
| Carolan and Chesky ¹⁵⁷ | 2012 | <ul style="list-style-type: none"> ▪ Approximately 6,290 Grade 8 students included in the Early Childhood Longitudinal Study, Kindergarten Class 1998-1999 | <ul style="list-style-type: none"> ▪ This study examined the relationship between school attachment, grade span configuration, and academic achievement among K-8 and middle school (6-8 or 7-8) students. ▪ School attachment was measured by how much students enjoyed their school, felt they fit in at their school, and felt close to classmates. | <ul style="list-style-type: none"> ▪ There was no significant relationship between attendance at a K-8 school and reading or math achievement. ▪ School attachment was a significant predictor of academic achievement. The authors argue that increasing students' attachment with school could be a more cost effective way to increase achievement than reconfiguring grades. |
| Schwartz et al. ¹⁵⁸ | 2011 | <ul style="list-style-type: none"> ▪ Study of 81,372 students in New York City from 1997 to 2002 | <ul style="list-style-type: none"> ▪ The study compared academic achievement outcomes for Grade 8 students in various grade span paths: K-4 to 5-8; K-5 to 6-8; K-6 to 7-8; and K-8. | <ul style="list-style-type: none"> ▪ K-8 and 5-8 students outperformed those in middle and junior high schools. ▪ The authors found that peer stability, or the presence of more stable peer cohort groups in K-8 and 5-8 schools, contributed to higher academic performance for these students. |

¹⁵⁶ Clark et al., "Math and Reading Differences Between 6-8 and K-8 Grade Span Configurations: A Multiyear, Statewide Analysis," Op. cit.

¹⁵⁷ Carolan and Chesky, Op. cit.

¹⁵⁸ Schwartz et al., Op. cit.

| AUTHOR(S) | YEAR | STUDY SETTING | STUDY DESCRIPTION | OUTCOMES |
|-------------------------------------|------|--|---|--|
| Schwerdt and West ¹⁵⁹ | 2011 | <ul style="list-style-type: none"> ▪ Study of 609,493 students in Florida who were enrolled in public schools from 2000 to 2009 | <ul style="list-style-type: none"> ▪ The study compared outcomes for students who attended 6-8 or 7-8 middle schools with those enrolled in K-8 schools. | <ul style="list-style-type: none"> ▪ Students who transitioned to middle school in Grades 6 or 7 suffered sharp drops in academic achievement, which persisted through Grade 10. ▪ Transitions to middle school were also associated with increased absences and higher dropout rates in Grade 10. ▪ Transitions to high school were associated with a small, one-time drop in achievement. |
| Rockoff and Lockwood ¹⁶⁰ | 2010 | <ul style="list-style-type: none"> ▪ Study of 193,071 students enrolled in Grades 3 through 8 in New York City from 1998 through 2008 | <ul style="list-style-type: none"> ▪ The study compared outcomes for students in K-8 schools with those in 6-8 or 7-8 middle schools. | <ul style="list-style-type: none"> ▪ The study found that moving students to middle school in Grades 6 or 7 resulted in significant drops in academic achievement in both math and English. ▪ These effects persisted through Grade 8, and the drop in academic achievement was greater for students who changed schools in Grade 6 than in Grade 7. |

¹⁵⁹ Schwerdt and West, Op. cit.

¹⁶⁰ Rockoff and Lockwood, "Stuck in the Middle: Impacts of Grade Configuration in Public Schools.," Op. cit.

| AUTHOR(S) | YEAR | STUDY SETTING | STUDY DESCRIPTION | OUTCOMES |
|--------------------------------------|------|--|---|---|
| Weiss and Baker-Smith ¹⁶¹ | 2010 | <ul style="list-style-type: none"> ▪ Analysis of 1,026 Grade 9 students included in the Philadelphia Education Longitudinal Study | <ul style="list-style-type: none"> ▪ The study compared academic achievement and social outcomes for students who had attended middle schools and K-8 schools. | <ul style="list-style-type: none"> ▪ Grade 9 students who had attended middle schools had worse grades than those who attended K-8 schools. However, this is largely explained by differences in magnet school attendance at the high school level. |
| Williams et al. ¹⁶² | 2010 | <ul style="list-style-type: none"> ▪ Study of 303 middle grade schools in California from 2009-2010, which included 204,000 students enrolled in Grades 6-8 | <ul style="list-style-type: none"> ▪ The study examined scores on state reading and math tests by type of school attended (6-8, K-8, or 7-8) and also examined the relationship between school practices and student outcomes. | <ul style="list-style-type: none"> ▪ There was no consistent or strong association between test scores and grade configurations ▪ Differences in instructional and administrative practices, including an “intense schoolwide focus on improving academic outcomes,” distinguished high-performing schools from low-performing schools. |
| Arcia ¹⁶³ | 2007 | <ul style="list-style-type: none"> ▪ Study of 26,137 students enrolled in a large urban school district from 2001 to 2003 | <ul style="list-style-type: none"> ▪ The study compared suspension rates between Grade 7 students in K-8 schools and those who entered middle school either in Grade 6 or 7. | <ul style="list-style-type: none"> ▪ Students in middle school were suspended at substantially higher rates than students in K-8 schools. |

¹⁶¹ Weiss and Baker-Smith, Op. cit.

¹⁶² Williams et al., Op. cit.

¹⁶³ Arcia, Op. cit.

| AUTHOR(S) | YEAR | STUDY SETTING | STUDY DESCRIPTION | OUTCOMES |
|---------------------------------|------|--|---|---|
| Byrnes and Ruby ¹⁶⁴ | 2007 | <ul style="list-style-type: none"> ▪ Study of 40,883 students across five cohorts enrolled in the Philadelphia City School District from 1999 to 2004 | <ul style="list-style-type: none"> ▪ This study compared scores on state tests for Grade 8 students enrolled in longstanding K-8 schools, newly created K-8 schools, and traditional middle schools (6-8 or 7-8) | <ul style="list-style-type: none"> ▪ Academic achievement was higher for students in older K-8 schools than in middle schools. However, after controlling for population demographics, the advantage of K-8 schools decreased. ▪ Newer K-8 schools did not experience the same increase in achievement, largely due to the fact that they served more disadvantaged students who already had lower levels of achievement. |
| Weiss and Kipnes ¹⁶⁵ | 2006 | <ul style="list-style-type: none"> ▪ Data from 14,026 Grade 8 students included in the Philadelphia Education Longitudinal Study from 1995-1996 | <ul style="list-style-type: none"> ▪ The study compared academic achievement, feelings about school, and self-esteem for students who had attended middle schools and K-8 schools. | <ul style="list-style-type: none"> ▪ There were few differences in student outcomes by school type. Only self-esteem and perception of threat in the school environment differed by school type. ▪ Students in middle schools had larger perceptions of threat and lower levels of self-esteem than K-8 students. |

¹⁶⁴ Byrnes and Ruby, Op. cit.

¹⁶⁵ Weiss and Kipnes, Op. cit.

| AUTHOR(S) | YEAR | STUDY SETTING | STUDY DESCRIPTION | OUTCOMES |
|-----------------------|------|---|--|---|
| Abella ¹⁶⁶ | 2005 | <ul style="list-style-type: none"> ▪ Study of 4,114 Grade 9 students enrolled in Miami-Dade County Public Schools from 2002-2003 | <ul style="list-style-type: none"> ▪ The study compared students' academic performance in five small K-8 centers to large 6-8 middle schools. | <ul style="list-style-type: none"> ▪ K-8 students outperformed middle school students in reading and math during middle school. By Grade 9, however, the K-8 and middle school students had nearly identical reading and math scores. ▪ K-8 students had better attendance than middle school students by the time they reached high school (9.9 average days missed compared to 9 days). ▪ The middle school group had a higher suspension rate in Grade 9 (7.7 incidents per 100 students) compared to K-8 students (6.1 incidents per 100). |

¹⁶⁶ Abella, Op. cit.

BENEFITS

Proponents of the K-8 model argue that **K-8 schools provide more nurturing environments and foster better relationships between students and teachers, while also delaying transition to a new school** until students are more mature.¹⁶⁷ Middle and junior high schools often have larger overall student populations or larger class sizes than K-8 schools, possibly making it more difficult for students and teachers to get to know one another and potentially causing students to feel less engaged in school.¹⁶⁸ K-8 schools, on the other hand, may offer more opportunities for students to build lasting relationships with other teachers and peers, and provide students in older grades with additional opportunities to act as role models or serve in leadership roles.¹⁶⁹ A 2014 national study found that K-8 schools had more positive social environments (such as student conduct problems and teacher quality) than middle and junior high schools.¹⁷⁰

Further, many middle and junior high schools encompass large catchment areas of students who may be very different from students' elementary school peers. This shift to a very different social environment occurs during a developmental period when students are vulnerable to issues such as low self-esteem, decreased engagement in school, and limited ability to judge risks and consequences.¹⁷¹ Authors of a 2011 Brookings Institute report arguing for middle school reform summarized the problem as follows:

In other words, students undergo a difficult transition at precisely the time when they may need increased attention to social and academic needs. This in turn puts teachers and administrators in a difficult position, dealing with large numbers of students with whose backgrounds and learning styles they are unfamiliar.¹⁷²

Delaying the transition to high school, as well as reducing the overall number of transitions that students experience, are key benefits of the K-8 model.¹⁷³ Indeed, a large Florida study found that, although the transition to high school was also associated with a drop in academic achievement, this drop was not as large or sustained as the achievement drops associated with middle school transitions.¹⁷⁴

¹⁶⁷ [1] Byrnes and Ruby, Op. cit. [2] Yecke, Op. cit.

¹⁶⁸ [1] Byrnes and Ruby, Op. cit., p. 106. [2] Rockoff, J.E. and B.B. Lockwood. "Stuck in the Middle - How and Why Middle Schools Harm Student Achievement." *Education Next*, Fall 2010. <http://educationnext.org/stuck-in-the-middle/>

¹⁶⁹ Herman, B.E. "The Revival of K-8 Schools." *Phi Delta Kappa Fastbacks*, :519, 2004. Accessed via EBSCOhost

¹⁷⁰ Kim, H.Y. et al. "Navigating Middle Grades: Role of School Context in Students' Social Adaptation and Experiences." Society for Research on Educational Effectiveness, 2014. <http://files.eric.ed.gov/fulltext/ED562784.pdf>

¹⁷¹ Jacob and Rockoff, Op. cit., p. 13.

¹⁷² Ibid.

¹⁷³ [1] "The K-8 Solution: The Retreat from Middle Schools." Center for Education Reform, September 2008. https://www.edreform.com/wp-content/uploads/2013/03/CER_2008_K-8_Policy_Alert.pdf [2] West, M.R. and G. Schwerdt. "The Middle School Plunge." <http://educationnext.org/the-middle-school-plunge/> [3] Sparks, "Study Links Academic Setbacks to Middle School Transition," Op. cit. [4] Tamer, M. "Do Middle Schools Make Sense?" *Harvard Ed. Magazine*, September 5, 2012. <https://www.gse.harvard.edu/news/ed/12/09/do-middle-schools-make-sense>

¹⁷⁴ Schwerdt and West, Op. cit., p. 324.

Additional benefits of the K-8 model are primarily related to **school logistics and administration**.¹⁷⁵ It can sometimes be easier to hire and retain staff at K-8 schools than at middle schools. Transportation to and from school may be more convenient for many families, with K-8 students able to travel to school together at the same time. Finally, the typical smaller size of K-8 schools, for some districts, can make them easier and more cost-effective to manage than larger middle schools.

POTENTIAL DRAWBACKS AND LIMITATIONS

Overall, the **potential benefits of the K-8 model have not been adequately demonstrated**. First, the positive outcomes associated with K-8 configurations, although statistically significant in several studies, may not be significant in terms of practical implications. Positive outcomes may not last in the long-term; a 2005 study in Miami-Dade County found that improvements in academic achievement for K-8 students did not carry over into high school.¹⁷⁶ Further, the differences in academic achievement between K-8 and middle school students may be too small to warrant a reconfiguration of existing grades. A 2001 study in Philadelphia found that K-8 students' grades were only one tenth of a letter grade higher than middle school students.¹⁷⁷ Similarly, a 2013 study in Texas found only small differences in math scores for K-8 students compared to middle school students, and these differences were inconsistent from year to year.¹⁷⁸

In addition, research studies have not explored the impact of the high school transition on K-8 students, and it is unclear whether students in K-8 schools have a more difficult time adjusting to high school than middle school than junior high students. K-8 students may potentially experience higher achievement drops than middle school students upon entering high school because they would be transitioning from a more sheltered environment and would not have previously dealt with a school change.¹⁷⁹ K-8 schools also tend to be less socioeconomically and racially diverse than middle schools, and stakeholders in K-8 districts have expressed concerns that K-8 schools could increase segregation.¹⁸⁰

An additional criticism of the recent shift toward the K-8 model focuses on school quality. **Because several studies have shown that classroom quality and school environment are stronger predictors of achievement than grade configuration, some argue that K-8 schools are not inherently more effective than middle schools.**¹⁸¹ The different school environments often associated with K-8 schools, rather than the K-8 configuration itself, may be responsible

¹⁷⁵ Herman, Op. cit.

¹⁷⁶ Abella, Op. cit.

¹⁷⁷ Offenber, R.M. "The Efficacy of Philadelphia's K-to-8 Schools Compared to Middle Grades Schools." *Middle School Journal*, 32:4, March 2001. Accessed via EBSCOhost

¹⁷⁸ Clark et al., "Math and Reading Differences Between 6-8 and K-8 Grade Span Configurations: A Multiyear, Statewide Analysis," Op. cit.

¹⁷⁹ Rockoff and Lockwood, "Stuck in the Middle - How and Why Middle Schools Harm Student Achievement," Op. cit.

¹⁸⁰ [1] Gewertz, C. "City Districts Embracing K-8 Schools." *Education Week*, May 19, 2004.

<http://www.edweek.org/ew/articles/2004/05/19/37k-8.h23.html> [2] Jacob and Rockoff, Op. cit., p. 15.

¹⁸¹ [1] Holas and Huston, Op. cit. [2] Carolan, Weiss, and Matthews, Op. cit. [3] Carolan and Chesky, Op. cit. [4] Williams et al., Op. cit.

for the improved academic outcomes seen in some K-8 schools.¹⁸² If districts seek to improve the instructional practices and social environments of middle schools, it is possible these schools could experience achievement gains similar to K-8 schools. Many existing middle and junior schools, according to some experts, have not adequately implemented the “middle school concept” and have not effectively supported students’ transitions to their new environments.¹⁸³ The middle school concept—which emphasizes small learning communities, collaboration among teachers, and quality instruction—has been difficult for many districts to fully realize, especially in large schools.¹⁸⁴

Therefore, some experts recommend that **districts prioritize efforts to improve school quality rather than relying on grade reconfiguration itself as a solution to improving student outcomes.** Researchers Byrnes and Ruby state that a “K-8 conversion policy alone does not represent a ‘silver bullet’ reform for closing the achievement gap and improving student achievement.”¹⁸⁵ Districts need to examine whether schools are truly implementing middle school “best practices” such as small learning communities, cooperative learning, and collaborative professional development for teachers. Recommendations for improving middle school quality are discussed below, as well as in the following sub-section discussing junior high and middle school configurations.

IMPLEMENTATION CONSIDERATIONS

Because the shift toward K-8 schools is relatively recent, **few studies have focused on the specific characteristics that make a K-8 school successful.** Districts that have recently implemented the K-8 model have generally focused on **applying the middle school concept to the K-8 setting.**¹⁸⁶ Districts have developed interdisciplinary teams of teachers who teach shared groups of students and coordinate instruction with one another. These teams typically have common planning periods that allow them to meet frequently to discuss successful instructional strategies and strategize ways to address difficulties that arise in the classroom.¹⁸⁷ In terms of classroom instruction, these teams utilize more project-based learning and problem solving than used for elementary students.¹⁸⁸

¹⁸² Clark, D.M. et al. “A Conceptual Analysis of Grade Span Configurations for 6-8 and K-8 Public Schools.” *Online Journal of New Horizons in Education*, 4:1, January 2014. p. 16. Accessed via EBSCOhost

¹⁸³ [1] Erb, T.O. “Middle School Models Are Working in Many Grade Configurations to Boost Student Performance.” *American Secondary Education*, 34:3, 2006. Accessed via EBSCOhost [2] Mertens, S. and V. Anfara. “Grade Configurations in Middle Grade Schools.” National Association of Secondary School Principals, February 2008. <http://www.nassp.org/Content.aspx?topic=57004> [3] Beane, J. and R. Lipka. “Guess Again: Will Changing the Grades Save Middle Level Education?” *Educational Leadership*, 63:7, April 2006. Accessed via EBSCOhost [4] “Problems and Promise of the American Middle School.” RAND Corporation, 2004. p. 114. http://www.rand.org/content/dam/rand/pubs/research_briefs/RB8025/RB8025.pdf [5] Clark et al., “A Conceptual Analysis of Grade Span Configurations for 6-8 and K-8 Public Schools,” Op. cit., pp. 16–18.

¹⁸⁴ Erb, Op. cit.

¹⁸⁵ Byrnes and Ruby, Op. cit., pp. 131–132.

¹⁸⁶ Pardini, P. “Revival of the K-8 School.” School Superintendents Association. <http://www.aasa.org/SchoolAdministratorArticle.aspx?id=10396>

¹⁸⁷ [1] Blair, L. “Back to the Future: The Shift to K-8 Schools.” Southwest Educational Development Laboratory, April 2008. http://www.sedl.org/pubs/sedl-letter/v20n01/k-8_schools.html [2] Juvonen et al., Op. cit., pp. 20–27.

¹⁸⁸ Pardini, “Revival of the K-8 School,” Op. cit.

Meeting middle grades students' needs in K-8 schools may require significant changes to existing facilities and programs. Lack of access to extracurricular activities and advanced classes can be a concern for parents of middle grades students attending K-8 schools. School may need to add science labs, algebra and foreign language classes, career exploration programs, and middle school extracurricular programs (such as band, drama, or newspaper) to their existing elementary schools.¹⁸⁹ Facilities may also have to be modified and expanded, such as expanding existing schools to add additional classrooms, modifying bathrooms and athletic facilities, and purchasing additional desks or chairs that can accommodate older students.¹⁹⁰ Teachers may require additional training for working with the school's new student population; elementary teachers, for example, may need additional training in dealing with behavioral problems that may arise for older students.¹⁹¹

JUNIOR HIGH AND MIDDLE SCHOOL (GRADES 6-8, 7-8, OR 7-9)

As junior high schools have become less popular, middle schools have become the dominant form for educating young adolescents. In the 2013 to 2014 school year, there were over 12,300 middle schools (Grades 4/5/6-6/7/8) throughout the country, compared to approximately 2,700 junior high schools (Grade 7-8 or 7-9).¹⁹² The number of junior high schools has been decreasing steadily since the 1970s.¹⁹³

OVERVIEW OF RESEARCH

Relatively few studies have compared junior high and middle school grade configurations to each other or to other secondary configurations. Nonetheless, a small number of recent analyses have compared student outcomes in middle schools and junior highs, as shown in Figure 3.2 on the following page. One study (discussed in Section II) found that Grade 6 students in elementary schools (i.e., those who would later enter a 7-8 junior high school) had higher test scores and were less likely to have disciplinary infractions than their peers in middle schools, leading the authors to conclude that K-8 schools or the K-6/7-8 feeder pattern are superior to the middle school model.¹⁹⁴ Other studies, however, have found grade span itself is not associated with negative academic or behavioral outcomes.¹⁹⁵ **Rather, classroom quality or the social environment may be better predictors of student outcomes.**

¹⁸⁹ [1] Ibid. [2] "K-8 Schools May Help School Districts Improve Student Performance." Office of Program Policy Analysis and Government Accountability, Florida Legislature, January 2005. p. 5.
<http://www.oppaga.state.fl.us/reports/pdf/0502rpt.pdf>

¹⁹⁰ [1] Pardini, "Revival of the K-8 School," Op. cit. [2] Gewertz, Op. cit. [3] "K-8 Schools May Help School Districts Improve Student Performance," Op. cit., p. 6.

¹⁹¹ "K-8 Schools May Help School Districts Improve Student Performance," Op. cit., p. 6.

¹⁹² "Table 216.80: Public secondary schools, by grade span, average school enrollment, and state or jurisdiction: 2013-14," Op. cit.

¹⁹³ "Table 216.10. Public elementary and secondary schools, by level of school: Selected years, 1967-68 through 2011-12," Op. cit., p. 10.

¹⁹⁴ Cook et al., Op. cit.

¹⁹⁵ [1] Dove, M.J. and L.C. Pearson. "Relationship Between Grade Span Configuration and Academic Achievement." <http://files.eric.ed.gov/fulltext/EJ880581.pdf> [2] Holas and Huston, Op. cit. [3] Kim et al., Op. cit. [4] Weiss, C.C. and P.S. Bearman. "Fresh Starts: Reinvestigating the Effects of the Transition on High School on Student Outcomes." *American Journal of Education*, May 2007.
<http://steinhardt.nyu.edu/scmsAdmin/uploads/002/636/Weiss%20and%20Bearman%202007.pdf>

Figure 3.2: Evidence Comparing the Middle School and Junior High School Models

| AUTHOR(S) | YEAR | STUDY SETTING | STUDY DESCRIPTION | OUTCOMES |
|----------------------------------|------|--|--|--|
| Kim et al. ¹⁹⁶ | 2014 | <ul style="list-style-type: none"> ▪ Analysis of 5,754 students enrolled in Grade 8 from 2006-2007 who participated in the Early Childhood Longitudinal Study, Kindergarten Class 1998-1999 | <ul style="list-style-type: none"> ▪ The study compared school characteristics and social and behavioral outcomes for students enrolled in 6-8 middle schools, and 7-9 junior high schools, and K-8 schools. | <ul style="list-style-type: none"> ▪ Grade span itself was not associated with social and behavioral outcomes. Negative school social context (defined as administrator reports of school chaos, conduct problems, staff professional climate, teacher agency, and teacher burden) was associated with lower levels of school attachment, peer support, and peer academic values. ▪ There was no difference in social context between middle and junior high schools. However, K-8 schools had a more positive social context compared to middle and high schools after controlling for demographic differences. |
| Holas and Huston ¹⁹⁷ | 2012 | <ul style="list-style-type: none"> ▪ Study of 855 Grade 5 and 6 students in the national Study of Early Child Care and Youth Development | <ul style="list-style-type: none"> ▪ The study compared academic achievement and school engagement for students enrolled in “early-transition” middle schools (Grades 5-6), “standard-transition” middle schools (Grades 6-8), and “late-transition” schools (Grades 7-8 or 7-9). | <ul style="list-style-type: none"> ▪ No difference was found between the early group and other groups. ▪ Grade 6 students in the standard group were less engaged in school than the late-transition group. ▪ Classroom quality was a significant predictor of academic achievement; the standard middle schools had lower classroom quality than the late-transition schools. |
| Weiss and Bearman ¹⁹⁸ | 2007 | <ul style="list-style-type: none"> ▪ Analysis of outcomes for 1,680 Grade 8 students interviewed for the National Longitudinal Study of Adolescent Health in 1996 | <ul style="list-style-type: none"> ▪ The study compared behavioral and academic outcomes for students who changed schools between Grades 8 and 9 (i.e., attended K-8, 5-8, 6-8, and 7-8 schools) and those who did not change schools (e.g., 7-9). | <ul style="list-style-type: none"> ▪ There was no difference in academic and behavioral outcomes in Grade 9 for students who changed schools between Grades 8 and 9 and those who did not. ▪ Changes in outcomes occurred between Grades 8 and 9; however, these changes were similar for students who changed schools and students who stayed in the same school. |

BENEFITS

Much of the debate regarding the potential advantages and disadvantages of middle school is related to the question of whether middle and junior high schools can meet the unique

¹⁹⁶ Kim et al., Op. cit.

¹⁹⁷ Holas and Huston, Op. cit.

¹⁹⁸ Weiss and Bearman, Op. cit.

needs of middle grade students. **The ability of middle and junior high schools to implement practices associated with the middle school concept is generally thought to lead to positive outcomes**, as discussed previously. Interdisciplinary team teaching, a frequently mentioned component of the middle school concept, has generally been found to be associated with higher levels of academic achievement. Some studies have found that interdisciplinary team teaching is correlated with higher scores on state reading and math tests¹⁹⁹ and higher levels of connection with one’s peers, teachers, and school.²⁰⁰

POTENTIAL DRAWBACKS AND LIMITATIONS

School transitions during young adolescence are of concern to many educators, especially due to the number of studies that have found associations between middle school transitions and decreased academic achievement. Some studies suggest that the presence of a transition in Grade 6 (i.e., a transition to middle school) may be more detrimental than a transition in Grade 7,²⁰¹ while other studies suggest that a transition at either age may lead to achievement drops.²⁰²

However, it is unclear whether eliminating middle/junior high school transitions is indeed the best solution for addressing these achievement drops.²⁰³ As mentioned in the previous subsection, some educators and researchers argue that focusing on providing quality academic and social supports should come before efforts to reconfigure grades. Researchers Beane and Lipka state, for example, that “no matter which grade configuration school districts choose, the most important decision is what kind of education they will offer young adolescents.”²⁰⁴

IMPLEMENTATION CONSIDERATIONS

The Association for Middle Level Education (AMLE—formerly the National Middle School Association) has identified four essential attributes and characteristics of effective middle schools. The four attributes—developmentally responsive, challenging, empowering, and equitable—are described in Figure 3.3.

¹⁹⁹ Juvonen et al., Op. cit., pp. 20–27.

²⁰⁰ Wallace, J.J. “Effects of Interdisciplinary Teaching Team Configuration upon the Social Bonding of Middle School Students.” *Research in Middle Level Education*, 30:5, 2007.
https://www.amle.org/portals/0/pdf/rmle/rmle_vol30_no5.pdf

²⁰¹[1] Cook et al., Op. cit. [2] Rockoff and Lockwood, “Stuck in the Middle: Impacts of Grade Configuration in Public Schools,” Op. cit.

²⁰² [1] Seidman, E. and L. Allen. “The Impact of School Transitions in Early Adolescence on the Self-System and Perceived Social Context of Poor Urban Youth.” *Child Development*, 65:2, April 1994. Accessed via EBSCOhost [2] Schwartz et al., Op. cit.

²⁰³ Clark et al., “A Conceptual Analysis of Grade Span Configurations for 6-8 and K-8 Public Schools,” Op. cit., pp. 16–18.

²⁰⁴ Beane and Lipka, Op. cit.

Figure 3.3: AMLE Essential Attributes of Middle-Level Education

| Developmentally Responsive | Challenging | Empowering | Equitable |
|---|---|--|---|
| <ul style="list-style-type: none">•Using the distinctive nature of young adolescents as the foundation upon which all decisions about school organization, policies, curriculum, instruction, and assessment are made | <ul style="list-style-type: none">•Ensuring that every student learns and every member of the learning community is held to high expectations | <ul style="list-style-type: none">•Providing all students with the knowledge and skills they need to take responsibility for their lives, to address life's challenges, to function successfully at all levels of society, and to be creators of knowledge | <ul style="list-style-type: none">•Advocating for and ensuring every student's right to learn and providing appropriately challenging and relevant learning opportunities for every student |

Source: AMLE²⁰⁵

High-performing middle schools set high expectations for students and ensure that teachers and staff are held accountable for improving student outcomes.²⁰⁶ The 16 essential characteristics, as identified by AMLE, focus on providing challenging and high-quality learning experiences, creating a shared vision for supporting students, and creating a culture that meets students' needs (Figure 3.4).

²⁰⁵ "This We Believe - Keys to Education Young Adolescents." Association for Middle Level Education, 2010. p. 13. <http://8461cuttingedgetechteam.wikispaces.com/file/view/22605279-This-We-Believe-Keys-to-Educating-Young-Adolescents.pdf>

²⁰⁶ Williams et al., Op. cit., pp. 6–8.

Figure 3.4: AMLE Essential Characteristics of Middle-Level Education



Source: AMLE²⁰⁷

Finally, implementing middle school concepts such as interdisciplinary team teaching requires strong teacher and school commitment to interdisciplinary collaboration. This may require a shift in attitudes among teachers, who may prefer working autonomously or who may not have experience working collaboratively with other teachers. Schools must schedule common planning periods to ensure that collaboration can occur, and may need to provide additional training so that teachers are able to collaborate effectively.²⁰⁸

NINTH GRADE ACADEMIES

Like the transition to middle school, Grade 9 can also be a critical transition point. As students adapt to the new social context and academic challenges of high school, their self-esteem may wane, they may lose interest in school, and their grades may suffer.²⁰⁹ Poor academic

²⁰⁷ "This We Believe - Keys to Education Young Adolescents," Op. cit., p. 14.

²⁰⁸ Juvonen et al., Op. cit., pp. 26–27.

²⁰⁹ [1] Abbott, S.E. and P.D. Fisher. "Ninth Grade Counts - Strengthening the Transition into High School." Great Schools Partnership, Summer 2012. p. 1.

<https://www2.ed.gov/programs/slcp/ninthgradecounts/ninthgradecountsguide.pdf> [2] Bottoms, G. "Redesigning

performance in Grade 9 is frequently associated with higher dropout rates – students who fail courses or have a large number of absences in Grade 9 are three times less likely to complete high school than those without academic or behavioral problems.²¹⁰

To address this issue, dedicated academies for Grade 9 students emerged in the early 2000's to ease students' transition to high school and improve academic achievement.²¹¹ Ninth grade academies are typically defined as self-contained learning communities designed to meet the specific needs of those students. A ninth grade academy can be housed as a separate space (e.g., hallway or wing) within a school or can be housed in its own building.²¹² Researchers have identified several key administrative and programmatic aspects of ninth grade academies. In addition to being housed in a separate space, these academies are characterized by:

- **A school administrator** or administrative team dedicated to the ninth grade academy;
- **Faculty** dedicated to the academy; and
- **Interdisciplinary teams** of Grade 9 teachers.²¹³

Further, successful academies typically rely on the following instructional practices:

- **Authentic learning experiences:** Authentic learning experiences refer to opportunities for students to apply their learning to “real-life” settings outside of the school environment, such as research projects, community outreach, and internships.
- **Personalization:** Personalization refers to adapting instruction to students' unique learning needs and identifying students not on track for graduation.
- **Rigorous and relevant instruction:** Ninth grade academies should provide a relevant, challenging curriculum that prepares all students to succeed in high school.

the Ninth-Grade Experience - Reduce Failure, Improve Achievement and Increase High School Graduation Rates.” Southern Regional Education Board, 2008. p. 1. http://publications.sreb.org/2008/08v06_9th-grade_redesign.pdf [3] Warren, C. et al. “Final Report on the Study of Promising Ninth Grade Transition Strategies: A Study of Six High Schools.” U.S. Department of Education, March 2011. p. 3.

<https://www2.ed.gov/programs/slcp/ninthgradecounts/ninthgradestudy2011.pdf> [4] Neild, R.C. “Falling Off Track during the Transition to High School: What We Know and What Can Be Done.” The Future of Children, Spring 2009. p. 54. http://www.futureofchildren.org/publications/docs/19_01_04.pdf [5] Kemple et al., Op. cit., p. 3.

²¹⁰ [1] Bottoms, Op. cit., p. 1. [2] Warren et al., Op. cit., p. 3.

²¹¹ [1] Adams, C. “Ninth Grade Academies Explored in New Report.” Education Week, July 1, 2013.

http://blogs.edweek.org/edweek/college_bound/2013/07/ninth_grade_academies_explored_in_new_report.html [2] Warren et al., Op. cit., p. 4.

²¹² Legters, N. et al. “Implementing Ninth Grade Academies in Broward County, Florida.” MDRC, June 2013. p. ES-2. <http://files.eric.ed.gov/fulltext/ED545472.pdf>

²¹³ Bullet points adapted from: Ibid.

- **Professional learning and teacher collaboration:** Teachers should have the opportunity to collaborate with and learn from each other, including opportunities to jointly develop and refine Grade 9 lesson plans and instructional strategies.²¹⁴

Ninth grade academies may also provide additional academic and social supports, such as tutoring, mentoring, counseling, and social services.²¹⁵

OVERVIEW OF RESEARCH

Although many researchers and educators point to the potential benefits of these academies, **few large research studies have compared ninth grade academies to traditional high schools.** Further, these academies often operate as schools-within-schools and often provide additional programs or supports for students. Therefore, most of the research on these academies has sought to investigate whether the *combination* of smaller learning communities and additional student supports can increase outcomes for Grade 9 students, rather than examining the effects of grade span configuration itself.

Figure 3.5, on the following pages, describes the results of several recent research studies of ninth grade academies. Some studies have found positive outcomes such as decreased dropout rates²¹⁶ and improved academic achievement for participants,²¹⁷ while other studies have found no difference in academic or behavioral outcomes for academy students compared to those in traditional high schools.²¹⁸

²¹⁴ Bullet points adapted from: Cook, C., H. Fowler, and T. Harris. "Ninth Grade Academies Easing the Transition to High School." Public Schools of North Carolina, October 2008. p. 2. <http://www.dpi.state.nc.us/docs/intern-research/reports/9thgradeacademies.pdf>

²¹⁵ [1] Legters et al., Op. cit., p. 4. [2] Kemple et al., Op. cit., p. 9.

²¹⁶ [1] Cook, Fowler, and Harris, Op. cit. [2] Osler, J.E. and C. Waden. "Using Innovative Technical Solutions as an Intervention for At Risk Students: A Meta-Cognitive Statistical Analysis to Determine the Impact of Ninth Grade Freshman Academies, Centers, and Center Models Upon Minority Student Retention and Achievement." *Journal on School Educational Technology*, 8:2, November 2012. Accessed via EBSCOhost

²¹⁷ Styron, R.A. and E.J. Peasant. "Improving Student Achievement: Can 9th Grade Academies Make a Difference." *International Journal of Education Policy & Leadership*, 5:3, May 7, 2010. <http://journals.sfu.ca/ijepl/index.php/ijepl/article/viewFile/179/88>

²¹⁸ [1] Cook, Fowler, and Harris, Op. cit. [2] Somers, M.-A., I. Garcia, and J. Quint. "Helping Students Make the Transition Into High School - The Effect of Ninth Grade Academies on Students' Academic and Behavioral Outcomes." MDRC, June 2016. http://www.mdrc.org/sites/default/files/Helping_Students_Make_the_Transition_into_High_School_FR.pdf

Figure 3.5: Evidence of the Effectiveness of Ninth Grade Academies on Student Performance

| AUTHOR(S) | YEAR | STUDY SETTING | STUDY DESCRIPTION | OUTCOMES |
|--|------|--|---|--|
| Somers, Garcia, and Quint ²¹⁹ | 2016 | <ul style="list-style-type: none"> Study of ninth grade academies created at 27 high schools in several Florida school districts between 2011 and 2007 (number of students not specified) | <ul style="list-style-type: none"> This study compared the academies at 27 high schools with 16 high schools that did not have academies, examining school-level data such as overall attendance rates, pass rates on state tests, credits earned toward graduation, and suspension rates. The study defined ninth grade academies as having four distinct structural components: 1) designated separate space in the high school; 2) a Grade 9 administrator who oversees the academy; 3) faculty assigned to teach only Grade 9 students; and 4) teachers organized into interdisciplinary teams with a common planning period. | <ul style="list-style-type: none"> These academies did not improve students’ academic or behavioral outcomes (i.e., academic credits earned, state test scores, attendance, and suspensions and expulsions). Only half of the academies had fully implemented the model, indicating that schools may need “expert assistance” to implement it with fidelity. |
| Osler and Waden | 2012 | <ul style="list-style-type: none"> Minority students enrolled in ninth grade academies at 17 schools in North Carolina (number of students not specified) | <ul style="list-style-type: none"> The study sought to examine the impact of these academies on at-risk minority students. It examined “ninth grade academies, centers, and center models” but did not define these terms. | <ul style="list-style-type: none"> Almost all academic administrators (94.7%) rated their programs as successful. Dropouts among minority students decreased at the schools with ninth grade academies compared to the state average. |

²¹⁹ Somers, Garcia, and Quint, Op. cit.

| AUTHOR(S) | YEAR | STUDY SETTING | STUDY DESCRIPTION | OUTCOMES |
|---|------|--|--|---|
| Styron and Peasant ²²⁰ | 2010 | <ul style="list-style-type: none"> ▪ 100 students enrolled in six schools in the southern United States from 2005 to 2006; half were enrolled in ninth grade academies and half in traditional high schools ▪ Each school had a population of 60% or more who qualified for free or reduced lunch. | <ul style="list-style-type: none"> ▪ The study compared ninth grade academies to traditional high schools. ▪ Academies were defined as institutions where Grade 9 students were housed in a separate facility and students attended only elective courses with students in Grades 10-12. ▪ Each school used block scheduling. | <ul style="list-style-type: none"> ▪ Academy students had higher mean scores on Algebra I and Biology I Subject Area Tests than those in traditional high schools. ▪ Black students in ninth grade academies had mean biology scores approximately 60 points higher than black students in traditional schools, while white students' biology scores in the academies were approximately 29 points higher than white students in traditional schools. |
| Cook, Fowler, and Harris ²²¹ | 2008 | <ul style="list-style-type: none"> ▪ Data from students enrolled in 82 ninth grade academies throughout North Carolina from 2001 to 2007 (number of students not specified) | <ul style="list-style-type: none"> ▪ Study of ninth grade academies, defined as year-long, uniquely designed school programs that “provide ninth graders with the resources and support they need.” | <ul style="list-style-type: none"> ▪ Non-promotion rates (not being promoted to the next grade) and dropout rates decreased for schools with academies compared to the state average. ▪ There was no significant difference in academic achievement between ninth grade academies and the state average, as measured by state reading test scores. |

²²⁰ Styron and Peasant, Op. cit.

²²¹ Cook, Fowler, and Harris, Op. cit.

| AUTHOR(S) | YEAR | STUDY SETTING | STUDY DESCRIPTION | OUTCOMES |
|---|------|---|---|---|
| Kemple, Herlihy, and Smith ²²² | 2005 | <ul style="list-style-type: none"> ▪ Study of 20 cohorts of Grade 9 students at five high schools in Philadelphia (number of students not specified) | <ul style="list-style-type: none"> ▪ This study compared the Talent Development High School Model, a school reform initiative which includes Grade 9 success academies, to six non-Talent Development high schools. ▪ This initiative emphasized accelerated instruction in reading and mathematics, high expectations for students, providing opportunities for struggling students to catch up, improving school capacity to implement reforms, and developing stronger school-family-community partnerships. | <ul style="list-style-type: none"> ▪ Talent Development High Schools had higher overall attendance rates, course credits earned, and promotion rates during the first year of high school. ▪ These gains were sustained throughout high school. ▪ Large proportions of students were not making adequate progress toward graduation. |

²²² Kemple, J.J., C.M. Herlihy, and T.J. Smith. "Making Progress Toward Graduation - Evidence from the Talent Development High School Model." MDRC, May 2005. http://www.mdrc.org/sites/default/files/full_432.pdf

BENEFITS

Ninth grade academies are intended to address a number of challenges associated with entering high school, described below:

- **School size and bureaucracy:** The sense of community between teachers and students can be undermined by the large size and bureaucratic structure of many high schools, especially because many high schools are much larger than elementary and middle schools. There may be fewer opportunities for students and teachers to get to know each other well, leading students to feel less engaged or motivated. Ninth grade academies address this concern by hiring a smaller group of dedicated faculty and administrators to work with these students and fostering a positive environment.
- **Competitive and performance-oriented environment:** High schools often focus more on content learning and strict grading standards than elementary and middle schools, creating a more competitive environment. This can cause some students to feel isolated or alienated, especially those who are not doing well academically. The smaller, more supportive environment of the academy can help to reduce these feelings of isolation.
- **Lack of preparation for high school:** Many elementary and middle school students receive inadequate preparation for high school. The personalized academic and social supports that students receive in ninth grade academies can address the skills gaps and lack of prior preparation that some students may have experienced.²²³

Overall, administrators of these academies throughout the country believe that the community environment and the more personalized attention that students receive is crucial for improving achievement and preventing dropouts.²²⁴

POTENTIAL DRAWBACKS AND LIMITATIONS

Successful implementation of the ninth grade academy model is often a challenge for schools. Three implementation studies of ninth grade academies found that half or fewer schools achieved “full implementation” of the model.²²⁵ In Broward County, Florida, for example, schools were able to create separate spaces and administrative structures for ninth grade academies, but had more difficulty developing interdisciplinary teaching teams and implementing curricular and personalized instruction strategies to meet the needs of Grade 9 students.²²⁶ Schools also struggled with developing individualized strategies for providing academic and social support to students, especially because schools received very little district support in determining how interdisciplinary teams should support students.²²⁷

²²³ Kemple et al., *Op. cit.*, pp. 1–13.

²²⁴ Reents, J. “Isolating 9th Graders.” School Superintendents Association.
<http://aasa.org/SchoolAdministratorArticle.aspx?id=10402>

²²⁵ [1] Legters et al., *Op. cit.* [2] Somers, Garcia, and Quint, *Op. cit.* [3] Warren et al., *Op. cit.*

²²⁶ Legters et al., *Op. cit.*, p. ES-4.

²²⁷ *Ibid.*, p. ES-4-ES-5.

Indeed, program evaluators attributed many of the implementation issues experienced by schools to a shift in district priorities and subsequent decrease in support for the model.²²⁸

In addition, districts interested in adopting these academies should be aware that the model often requires a significant resource investment. Many districts that have implemented academies have received large grants through the U.S. Department of Education’s *Smaller Learning Communities Program*. Funds from these grants are typically used to hire additional administrators, teachers, and/or staff to operate the academies and to develop and implement programs to improve achievement. These programs have included family advocate systems, mentoring programs, reading and math interventions, enhanced guidance and advising, tutoring, and college and career readiness programs.²²⁹ Beyond a financial investment, schools must also invest time and resources in providing additional training and professional development for teachers and staff and providing adequate common planning time for Grade 9 teachers.²³⁰

IMPLEMENTATION CONSIDERATIONS

In addition to providing adequate district-level and administrative support for ninth grade academies, districts should be aware of several other pitfalls that can occur in implementing these models:

- **Location:** Ninth grade academies should be located as close as possible to the main high school, or located within the high school itself. This ensures that students have access to extracurricular activities and facilities offered by the main campus.
- **Parent buy-in:** Parents may be concerned that the academies can be too isolating for students or that students will not have access to the extracurricular activities in which they want to participate. Administrators of existing academies recommend that districts be prepared to address these concerns and hold orientation programs at middle schools to prepare students and their families for the new school.
- **Staff:** Districts should hire staff and teachers who are interested in teaching only Grade 9 students and who have experience working with this age group, which can be a challenge.²³¹

Finally, to ensure that these academies truly address Grade 9 students’ academic and social needs, researchers recommend that schools develop a **proactive approach to facilitating students’ transitions to Grade 9**. Successful academies have developed clear visions of what students need to achieve before graduating and have worked to ensure that all staff are committed to student success. The commitment to student success can be seen in preventive programs and supports to stop students from “falling off track,” as well as timely systems of supports that address academic or behavioral problems as they occur. In addition, these

²²⁸ *Ibid.*, pp. 25–26.

²²⁹ [1] Warren et al., *Op. cit.*, pp. 1, 4. [2] Legters et al., *Op. cit.*, pp. 19, 34, 75.

²³⁰ Warren et al., *Op. cit.*, p. 2.

²³¹ Reents, *Op. cit.*

schools systematically review student and teacher data to track students’ progress and improve instructional practices. Finally, they actively value and encourage collaboration among teachers by scheduling common planning periods and providing professional development.²³²

GRADES 7-12 SECONDARY SCHOOLS

Although 9-12 schools are by far the most prevalent type of secondary school configuration, the Grade 7-12 model is the second most common sequence (3,002 schools in the 2013-2014 school year) after the Grade 9-12 model (16,361 schools).²³³

OVERVIEW OF RESEARCH

The research literature on alternative secondary school configurations is very limited and recent studies are scarce.²³⁴ Hanover Research identified just two research studies comparing 7-12 configurations to other middle and high school configurations (Figure 3.6). These studies, although they measured different student outcomes, found somewhat contradictory results. The first study, conducted in 1992, found that Grade 8 students in junior/senior high configurations in Maine (such as 6-12, 7-12, or 8-12 schools) had lower academic achievement (in terms of test scores) than students in middle, junior high, or K-8 schools. However, the second study, which was published in 2000 and compared the 7-12 configuration to 9-12 and 10-12 configurations in Missouri, found that high school dropout rates were lowest for 7-12 schools.²³⁵

Figure 3.6: Evidence of the Effectiveness of Alternative High School Models

| AUTHOR(S) | YEAR | STUDY SETTING | STUDY DESCRIPTION | OUTCOMES |
|-------------------------|------|---|--|--|
| Alspaugh ²³⁶ | 2000 | <ul style="list-style-type: none"> Sample of 15 schools in Missouri from 1993 through 1997 (number of students not provided) | <ul style="list-style-type: none"> The study compared high school dropout rates in schools with the following grade spans: 7-12, 9-12, and 10-12. | <ul style="list-style-type: none"> Boys had higher dropout rates than girls in all three school types. The highest dropout rates were in 10-12 schools (6.68%), while the lowest dropout rates were in 7-12 schools (4.37%). |

²³² Warren et al., Op. cit., pp. 2, 16, 29, 33–39.

²³³ “Table 216.80: Public secondary schools, by grade span, average school enrollment, and state or jurisdiction: 2013-14,” Op. cit.

²³⁴ McVey, M.K. “School Grade Configuration 7-12 Review of Research.” Network for Educational Leaders, October 14, 2012. p. 2. <http://www.nearnorthschools.ca/meetings-and-agendas/board/Documents/10-22-2013/17%20School%20Grade%20Configuration%207-12%20Review%20of%20Research.pdf>

²³⁵ Alspaugh, J.W. “The Effect of Transition Grade to High School, Gender, and Grade Level Upon Dropout Rates.” *American Secondary Education*, 29:1, Fall 2000. <http://wantagschools.org/cms/lib05/NY01001016/Centricity/Domain/5/Alspaugh2.pdf>

²³⁶ Ibid.

| AUTHOR(S) | YEAR | STUDY SETTING | STUDY DESCRIPTION | OUTCOMES |
|---|------|---|---|--|
| Wihry, Coladarci, and Meadow ²³⁷ | 1992 | <ul style="list-style-type: none"> Study of academic achievement of Grade 8 students at 163 schools in Maine (number of students not provided) | <ul style="list-style-type: none"> The study used multivariate regression to compare outcomes for Grade 8 students in four types of grade configurations: elementary (K-8, K-9, 3-8); middle (4-8, 5-8, 6-8); junior high (7-8, 7-9); and junior/senior high (6-12, 7-12, 8-12). | <ul style="list-style-type: none"> Students in elementary configurations had the highest academic achievement. Junior high and middle grade span configurations were more effective than the junior/senior configuration, but less effective than the elementary configurations. Students in the junior/senior grade span had the lowest scores overall and in reading. |

BENEFITS

Proponents of the 7-12 model argue that it is effective because it **minimizes school transitions**. Because transitions between schools are often associated with a drop in academic achievement, the 7-12 model may minimize this effect by reducing the number of transitions students experience and allowing them more time to adjust to the high school environment.²³⁸

Second, districts with 7-12 schools argue that these schools benefit Grade 7 and 8 students because the model **allows them to access high school facilities and advanced coursework**.²³⁹ A school district in Canada that recently adopted the 7-12 model has stated that the broader grade span allows Grade 7 and 8 students to attend “schools with specialized facilities to better meet their curricular needs through innovative learning environments.”²⁴⁰ Cincinnati Public Schools, which adopted the 7-12 model in the 2013-2014 school year, cited early access to a more rigorous curriculum as the primary benefit of the 7-12 model:

The 7-12 high school model allows students to gain stronger progression and earlier proficiency in higher order skills in demanding subjects such as math and science. This positions students for earlier attainment for high school credits and success in the new standards and assessments.²⁴¹

Contact with the high school setting at an earlier age may expose students to the college preparation track and help them focus on high school graduation and college and career

²³⁷ Wihry, D.F., T. Coladarci, and C. Meadow. “Grade Span and Eighth-Grade Academic Achievement: Evidence From a Predominantly Rural State.” *Journal of Research in Rural Education*, 8:2. <https://umaine.edu/edhd/wp-content/uploads/sites/54/2010/05/Wihry-et-al.1.pdf>

²³⁸ [1] Alspaugh, “The Effect of Transition Grade to High School, Gender, and Grade Level Upon Dropout Rates,” Op. cit., pp. 7–9. [2] “Research Supporting a 7-12 School Configuration.” Tulsa Public Schools, June 28, 2012. <http://www.sgdsb.on.ca/upload/documents/june-28-12-post-arc-research-7-12-school.pdf> [3] McVey, Op. cit., p. 7. [4] “Grades K-7 and 7-12 FAQs.” Upper Canada District School Board. <http://www.ucdsb.on.ca/teams/b2020/communications/faq/Pages/allgradesfaqs.aspx>

²³⁹ McVey, Op. cit., p. 7.

²⁴⁰ “Grades K-7 and 7-12 FAQs,” Op. cit.

²⁴¹ “College and Career Ready - Cincinnati Public Schools’ 7-12 High School Model.” Cincinnati Public Schools, 2015. p. 1. <http://www.cps-k12.org/sites/www.cps-k12.org/files/pdfs/ReadyforHighSchool-2015-16.pdf>

readiness.²⁴² Further, students are able to access additional extracurricular activities and career planning services available at the high school-level.²⁴³ Teachers at the Coos Bay School District in New York, which adopted the 7-12 model in 2014, believe that access to additional electives, such as art, drama, and vocational classes, is beneficial for Grade 7 and 8 students because they can learn more about their interests and career goals.²⁴⁴

An additional potential benefit of 7-12 schools is improved peer relationships. In traditional elementary or middle school settings, students in Grades 7 and 8 are often prone to bullying younger students. In the 7-12 setting, however, these students may benefit from opportunities to learn from older role models, and the elementary school culture may also improve. Grade 6 students in K-6 schools may be able to take on more of a leadership role without being intimidated by older students.²⁴⁵

POTENTIAL DRAWBACKS AND LIMITATIONS

Although some believe that the 7-12 model is beneficial, there is limited empirical evidence to support the model, as discussed previously. Moreover, anecdotal data suggest that the model does not consistently lead to academic benefits for students. Two Canadian districts which implemented the 7-12 model have found that Grade 8 students in these schools tend to have higher test scores. However, another district found no difference in academic achievement.²⁴⁶ In the United States, results have similarly been mixed. Academic achievement in Baltimore 6-12 schools is behind that of 9-12 schools, while in Cincinnati, Grade 8 students in 7-12 students have outperformed those in K-8 schools.²⁴⁷

It is unclear why some students in 6/7-12 schools perform better and some perform worse than students in other grade configurations. While some parents and educators argue that the 7-12 setting fosters improved social environments for students, **others contend that it creates harmful or unsafe environments for the younger students in the school.** Combining “vulnerable adolescents with older teenagers” is a common concern for parents, who fear that students will experience bullying or be negatively influenced by older students.²⁴⁸ In 7-12 settings within the Indianapolis Public School district, the superintendent found that “middle grade students aren’t too fond of the high school students.”²⁴⁹ Middle grade

²⁴² McManus, T. “Other Systems Praise Grades 6-12 High Schools.” *Augusta Chronicle*, January 23, 2014. <http://chronicle.augusta.com/news/education/2014-01-23/other-systems-praise-grades-6-12-high-schools>

²⁴³ “College and Career Ready - Cincinnati Public Schools’ 7-12 High School Model,” Op. cit., p. 1.

²⁴⁴ Davis, C. “Coos Bay School Board Opts for preK-6, 7-12 Grade Configuration.” *The World*, December 1, 2014. http://theworldlink.com/news/local/education/coos-bay-school-board-opts-for-prek---/article_333c1876-f526-5043-ba01-ee6e523515a6.html

²⁴⁵ McVey, Op. cit., p. 5.

²⁴⁶ McVey, Op. cit.

²⁴⁷ McManus, Op. cit.

²⁴⁸ [1] McVey, Op. cit. [2] Richards, E. “Parents Fret about MPS Middle-High School Hybrids.” *Milwaukee-Wisconsin Journal Sentinel*, July 18, 2010. <http://archive.jsonline.com/news/education/98720389.html> [3] Davis, Op. cit.

²⁴⁹ Colombo, H. “IPS Board to Ferebee: Discontinue 7-12 High Schools.” *Chalkbeat*, June 5, 2015. <http://www.chalkbeat.org/posts/in/2015/06/05/ips-board-to-ferebee-discontinue-7-12-high-schools/#.WA4myvkrLIW>

students may benefit from being in a more “secure, familiar school setting,” such as a K-8 school.²⁵⁰

Finally, **young adolescents have different needs from older students**, and it is unclear whether 7-12 schools can meet the needs of both groups. The executive director of the National Forum to Accelerate Middle-Grades Reform emphasizes the importance of treating middle and high school grades students differently, even in the same school setting: “[...] if you teach (middle schoolers) as if they are in high school, that is a mismatch and not the way it’s supposed to be done.”²⁵¹ Further, secondary teachers may not have the training and experience necessary to work effectively with younger populations, or middle grade teachers may be inexperienced working with older students.²⁵² In practice, combining middle and high school grades can also present instructional challenges. Math teachers in 7-12 schools in Indianapolis, for example, are tasked with teaching both Calculus and Pre-Algebra. However, most teachers prefer to teach a more limited range of learning levels or age groups and often have “unique” skill sets that make them more effective at teaching one subject over the other.²⁵³

IMPLEMENTATION CONSIDERATIONS

Because Grade 7 and 8 students have different developmental needs than older students, several school districts with 7-12 schools have implemented school-within-school models for 7-8 and 9-12 students. These students share the same building and resources, but have separate classrooms, class schedules, and lunch periods, and sometimes different assistant principals or other administrators.²⁵⁴ However, different age groups may interact with one another occasionally, such as between classes and on school buses.²⁵⁵ Districts have also developed plans for fostering positive interactions between older and younger students. Cincinnati Public Schools, for instance, has created a program in which older high school students mentor and tutor those in younger grades.²⁵⁶

GRADES 9-10 AND 11-12 SECONDARY SCHOOLS

Hanover was unable to identify any existing research studies assessing the outcomes of students in Grades 9-10 and 11-12 secondary schools. Grades 9-10/11-12 schools appear to be uncommon; NCES does not report the prevalence of these configurations.²⁵⁷ This model

²⁵⁰ Wihry, Coladarci, and Meadow, *Op. cit.*, p. 68.

²⁵¹ Richards, *Op. cit.*

²⁵² McVey, *Op. cit.*

²⁵³ Colombo, *Op. cit.*

²⁵⁴ [1] “Literature Review on Grade Span or Grade Configuration in Schools.” Thames Valley District School Board, March 2004. <http://www.tvdsb.on.ca/areastudy/elemfrenchpdfs/freqquestions.pdf> [2] “Transformational Recommendations for the Concept of 7-12 Schools - Kanata ARC North and South Joint Meeting.” Ottawa-Carleton District School Board, May 26, 2011. p. 2. <http://www.usd417.net/vimages/shared/vnews/stories/546ba8a84aa69/20141118124227712.pdf>

²⁵⁵ McManus, *Op. cit.*

²⁵⁶ *Ibid.*

²⁵⁷ “Table 216.80: Public secondary schools, by grade span, average school enrollment, and state or jurisdiction: 2013-14,” *Op. cit.*

may be unpopular in part because it would increase the number of transitions students experience—as discussed in Section I, school transitions are typically associated with a decrease in student achievement. For example, 1987 study comparing K-8 and 9-12 grade spans to K-6, 7-9, and 10-12 grade spans found that a significant decrease in GPA was associated with school transitions, regardless of the grade configuration.²⁵⁸ However, a 2011 review of high school transition literature found that the research “suggests that the high school transition can be challenging, but not so for all adolescents,” especially when students receive adequate social support.²⁵⁹

Moreover, it is unclear whether a transition during high school would be as challenging as the transition from middle to high school. It is possible that a transition from a Grade 9-10 to 11-12 school would not be as difficult as the initial high school transition, especially if the Grade 11-12 setting is similar to the Grade 9-10 setting—typically, research has found that the middle to high school transition presents challenges due to differences in the social, academic, and behavioral expectations of students.²⁶⁰

²⁵⁸ Gordon, M.F. et al. “Review of Literature on Grade Configuration and School Transitions.” Center for Applied Research and Educational Improvement, University of Minnesota, March 2011. p. 7.
<http://conservancy.umn.edu/bitstream/handle/11299/138604/Impact%20of%20School%20Transitions%20and%20Different%20Grade%20Configurations.pdf?sequence=1>

²⁵⁹ Benner, Op. cit.

²⁶⁰ Ibid.

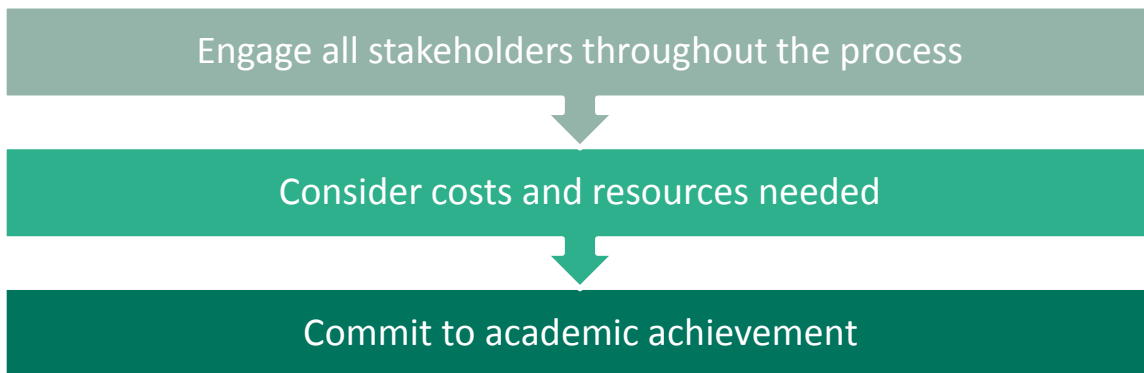
SECTION IV: BEST PRACTICES IN RE-CONFIGURING GRADES

Regardless of the grade configuration selected, implementing new configurations can initially be disruptive or frustrating for teachers, students, and parents as schools adjust to serving new student populations.²⁶¹ This section provides an overview of strategies that other districts have used to facilitate the implementation of new grade configurations and provides potential next steps for ACPS to take to reconfigure its existing grade spans.

KEY STRATEGIES

Districts typically engage stakeholders throughout the process, consider the costs and resources needed to change grade spans, and ensure a strong commitment to academic achievement (Figure 4.1).

Figure 4.1: Strategies for Implementing New Grade Configurations



ENGAGE STAKEHOLDERS

Districts typically review the grade configuration literature and solicit feedback from stakeholders when deciding whether to adopt new grade configurations. A 1997 report on grade configurations by the Northwest Regional Educational Laboratory (NREL) recommends that districts first review the literature on grade configurations and visit or speak with other districts with the same configuration to learn about the benefits and disadvantages of potential configurations.²⁶² Districts in Montana and Washington that recently reconfigured grades considered state and local trends when deciding on potential grade configurations.²⁶³

²⁶¹ [1] Gewertz, Op. cit. [2] Reeves, Op. cit.

²⁶² Paglin and Fager, Op. cit., p. 9.

²⁶³ [1] Reid, M. "SKSD Grade Reconfiguration Memo." South Kitsap School District, July 15, 2015. <http://www.skitsap.wednet.edu/cms/lib/WA01000495/Centricity/Domain/49/2015%20Grade%20Reconfiguration%20Memo%20final.pdf> [2] "Benefits/Challenges: Next Generation EPS Secondary Learning Experiences/Grade Configuration." Edina Public Schools. <http://www.edinaschools.org/cms/lib07/MN01909547/Centricity/Shared/PDFs/Grade%20Configuration%20-%20Benefits-Challenges.pdf>

After selecting potential configurations based on the research literature and regional trends, districts should assess stakeholders' views on these potential configurations. NREL recommends that districts "consider what configuration fits best with community geography and values."²⁶⁴ To ensure alignment with stakeholder values, a number of districts have conducted surveys and focus groups with students, parents, and other community members to determine which grade configuration to adopt.²⁶⁵ Districts have also created boundary review committees, consisting of parents, teachers, and staff, which have reviewed district plans for grade configuration and school boundary zones.²⁶⁶

CONSIDER COSTS AND RESOURCES

As discussed in Section I, districts must consider a range of issues related to grade configuration. Cost considerations are a key issue for districts to weigh when considering new grade spans. Transportation costs could increase or decrease depending on the details of the new configuration.²⁶⁷ Schools may also need to add classrooms, purchase additional furniture, or modify their facilities to meet the needs of older or younger students;²⁶⁸ Space is often a limiting factor for districts that wish to modify their grade configurations.²⁶⁹

Researchers at the Brookings Institution have found that **costs associated with grade re-configurations can vary widely**. In Denver Public Schools, for example, the district spent approximately \$20 per student to purchase new classroom furniture and to upgrade science labs, libraries, and art studios when converting nine K-5 schools to K-8. The district also spent approximately \$30 per student over a three-year period to fund additional buses and bus routes that resulted from the K-8 conversion. These costs may vary depending on location and existing district facilities. Denver had extra space in K-5 schools to house the Grade 6—8 students. However, New York City schools spent approximately \$150 per student to renovate its schools to accommodate middle grades students when it converted to the K-8 model. In addition, its per-student costs for furniture and other material upgrades were nearly twice that of Denver.²⁷⁰

²⁶⁴ Paglin and Fager, *Op. cit.*, p. 9.

²⁶⁵ [1] "Edina School Board Approves Future Direction for Middle School, High School Configurations." Edina Public Schools, June 20, 2014. <https://www.edinaschools.org/site/default.aspx?PageType=3&DomainID=30&ModuleInstanceID=3758&ViewID=6446EE88-D30C-497E-9316-3F8874B3E108&RenderLoc=0&FlexDataID=7533&PageID=109> [2] "FAQs - Middle School Grade Configurations." Jeffco Public Schools. http://www.jeffcopublicschools.org/fmp/sixth_grade_faq.pdf [2] Smith, C. "District-Wide Enrollment Balancing Recommendations." Portland Public Schools, March 19, 2016. p. 10. <http://www.pps.net/cms/lib8/OR01913224/Centricity/Domain/182/3-29-16-Super-Final-Recommendations-March-29-16.pdf>

²⁶⁶ [1] Reid, *Op. cit.* [2] "District-Wide Boundary Review Values and Policy Framework - Prepared by the District-Wide Boundary Review Advisory Committee." Portland Public Schools, July 22, 2015. http://www.pps.net/cms/lib8/OR01913224/Centricity/Domain/182/DBRAC_Values_and_Policy_Framework_V8_amended_FINAL_072215.pdf

²⁶⁷ Paglin and Fager, *Op. cit.*, p. 10.

²⁶⁸ [1] Pardini, "Revival of the K-8 School," *Op. cit.* [2] Gewertz, *Op. cit.* [3] "K-8 Schools May Help School Districts Improve Student Performance," *Op. cit.*, p. 6.

²⁶⁹ "District Examples of Grade-Level Configurations." School Superintendents Association. <https://www.aasa.org/SchoolAdministratorArticle.aspx?id=8718>

²⁷⁰ Jacob and Rockoff, *Op. cit.*, p. 16.

COMMIT TO ACADEMIC ACHIEVEMENT

Educators and researchers emphasize that a commitment to “sound educational practices”²⁷¹ should be the underlying goal of any grade reconfiguration.²⁷² Districts should be aware of the developmental issues facing students at different grade levels and ensure that the curriculum, class schedules, and behavioral expectations meet students’ needs. Further, districts should consider whether staff and teachers need additional training to serve new student populations.²⁷³ Finally, as discussed previously, districts should ensure articulation between K-12 curricula and “ensure that students move smoothly through the system, in terms of both academics and social and emotional adjustment.”²⁷⁴ Comprehensive transition programs, such as those discussed in Section I, can help students navigate transitions to new schools.

To assess the effects of a new grade configuration, districts can examine a range of student-, teacher-, and school-level measures, listed in Figure 4.2.

Figure 4.2: Indicators for Assessing the Effects of Grade Re-Configurations

| STUDENT ACADEMIC OUTCOMES | STUDENT PSYCHOLOGICAL AND SOCIAL OUTCOMES | STUDENT BEHAVIORAL OUTCOMES | TEACHER OUTCOMES | SCHOOL OUTCOMES |
|--|---|--|--|--|
| <ul style="list-style-type: none"> ▪ State test scores in reading and/or math ▪ Grade point average ▪ Number of failed subjects ▪ Promotion to the next grade ▪ Dropout rates | <ul style="list-style-type: none"> ▪ Student engagement and motivation ▪ Planning for the future ▪ Self-esteem ▪ Perceptions of safety ▪ Substance use ▪ Feelings of connection to peers, teachers, or the school in general ▪ Participation in extracurricular activities | <ul style="list-style-type: none"> ▪ Number of absences or attendance rates ▪ Number of suspensions or disciplinary infractions ▪ Incidents of violent behavior | <ul style="list-style-type: none"> ▪ Perceptions of student behavior, discipline, or violence ▪ Perceptions of other school or student factors ▪ Teacher-student interactions ▪ Teacher morale | <ul style="list-style-type: none"> ▪ School size and class size ▪ Teacher or classroom quality ▪ Financial resources and spending |

Source: Center for Public Education²⁷⁵ and University of Minnesota²⁷⁶

Figure 4.3 on the following page provides a profile of Edina Public schools, a suburban school district in Montana, which recently reconfigured its middle and high school grade span after an extensive research and planning process leveraging the strategies detailed in this section.

²⁷¹ Paglin and Fager, Op. cit., p. 9.

²⁷² [1] Byrnes and Ruby, Op. cit., pp. 131–132. [2] Beane and Lipka, Op. cit. [3] “Grade-Span Configurations.” *District Administration*, March 1, 2005. <https://www.districtadministration.com/article/grade-span-configurations>

²⁷³ Paglin and Fager, Op. cit., pp. 7–9.

²⁷⁴ *Ibid.*, p. 10.

²⁷⁵ “School Organization: Full Report.” Center for Public Education, September 4, 2008.

<http://www.centerforpubliceducation.org/Main-Menu/Organizing-a-school/School-organization-At-a-glance/School-organization-Full-report.html>

²⁷⁶ Gordon et al., Op. cit., pp. 2–4.

Figure 4.3: Grade Configuration Profile – Edina Public Schools

Edina Public Schools, a district in suburban Edina, Montana, elected in 2014 to reconfigure its middle school and high school, shifting from a Grade 6-9 and 10-12 grade span to a Grade 6-8 and 9-12 configuration. This district decided on this configuration based on:

- The district’s strategic plan, which identified the need to improve middle grades and Grade 9 learning experiences;
- Research on the potential benefits and challenges of various grade configurations, considering the potential effects on curriculum, costs, and facility and transportation use; and
- Solicitation of feedback from all stakeholders by conducting surveys and focus groups with parents, students, staff, and community members.

The district found that a majority of community members and parents supported a Grade 9-12 high school grade span—54 percent of community members and 65 percent of parents surveyed in fall 2013 rated a comprehensive Grade 9-12 experience as a top priority for the district. Stakeholders and district administrators also believed that the Grade 6-8 and 9-12 grade span supported the district’s goals of creating a “true middle school experience,” allowing the district to create smaller middle schools with more class options. The new grade span would also help the curriculum better align with Minnesota’s state academic standards.

The district plans to implement its new grade span in fall 2017, which will increase the size of the high school by around 700 students. To create a personalized learning environment in this larger school, the district plans to create small learning communities within the school. These learning communities, administrators hope, will help to ease school transitions and increase student engagement.

Source: Edina Public Schools²⁷⁷

²⁷⁷ “Strategic Plan: Next Generation Learning Experience - Grade Configurations.” Edina Public Schools. <http://www.edinaschools.org/GradeConfiguration> [2] “Benefits/Challenges: Next Generation EPS Secondary Learning Experiences/Grade Configuration,” Op. cit. [2] “Next Generation Learning Experience: Grade Configuration - Decision Process.” Edina Public Schools. <http://www.edinaschools.org/Page/3803> [2] “Edina School Board approves future direction for middle school, high school configurations,” Op. cit.

NEXT STEPS FOR ACPS

Hanover recommends that ACPS solicit feedback from a wide range of stakeholders to identify potential advantages and limitations of proposed grade configurations (Figure 4.4). Stakeholder surveys are useful for determining stakeholders’ broad opinions on grade configurations and whether they would support a particular configuration, while focus groups are useful for gaining more in-depth information, such as *why* respondents do or do not support a particular grade span.

Figure 4.4: Recommended Next Steps for ACPS

| Stakeholders to Engage | Action Items |
|---|---|
| <ul style="list-style-type: none"> • Parents and Families • Teachers and Staff • Students • Other Community Members (e.g. potential district enrollees and families, local employers, community colleges) | <ul style="list-style-type: none"> • Stakeholder Surveys - Assess general opinions on proposed configurations • Community Meetings or Focus Groups - Identify potential strengths and weaknesses of proposed configurations |

In addition to considering stakeholder feedback, **ACPS should also consider the impact of a new grade configuration on a variety of outcomes**, such as students’ learning, non-academic outcomes, teacher professional development needs, the school’s demographic composition, and the district’s budget and allocation of resources. Figure 4.5 on the following page provides questions which ACPS should take into account when making decisions regarding grade configurations.

Figure 4.5: Guiding Questions for Making Grade Configuration Decisions

STUDENT LEARNING

- How will the new grade configuration affect student access to elective or advanced courses?
- How many points of transition and articulation will occur, and how will the district and schools address these transition and articulation points?

NON-ACADEMIC OUTCOMES

- How will the new grade configuration affect student access to extracurricular opportunities?
- How will the new grade configuration affect parental involvement?
- How will the presence or absence of older students affect younger students in a particular school? What are the opportunities for interactions between students of different age groups?

TEACHER PROFESSIONAL DEVELOPMENT

- Do teachers have the skills necessary to teach students in the new grade configuration? Will they require additional training to meet students' needs?
- How will opportunities for teacher collaboration and mentoring be affected?

SCHOOL DEMOGRAPHIC COMPOSITION

- How will the new grade configuration school demographic composition? Will the new grade configuration increase or decrease racial, ethnic, or socioeconomic diversity within the school?

ALLOCATION OF RESOURCES

- Will existing school buildings and classrooms accommodate the new grade span?
- Will schools need new furniture or other supplies as a result of grade re-configuration?
- Will the new configuration affect transportation costs? How far will students have to travel?

Source: Barton and Klump,^[1] Derby Public Schools,^[2] Henry,^[3] Paglin and Fager^[4]

^[1] Barton, R. and J. Klump. "Figuring Out Grade Configurations." *Principal's Research Review*, 7:3, May 2012.

<http://educationnorthwest.org/sites/default/files/resources/PRR-Figuring-Out-Grade-Configurations.pdf>

^[2] "Proposal for Elementary School Grade Span Re-Configuration." Derby Public Schools.

https://www.derbyps.org/uploaded/Board_of_Education/documents/Proposal_for_Elementary_School_Configuration_Change.pdf

^[3] Henry, C. "Ninth-Graders Should Move to High School, SK Committee Says." *Kitsap Sun*, June 12, 2015.

<http://archive.kitsapsun.com/news/local/ninth-graders-should-move-to-high-school-sk-committee-says-ep-1072135437-354665171.html>

^[4] Paglin and Fager, Op. cit.

PROJECT EVALUATION FORM

Hanover Research is committed to providing a work product that meets or exceeds client expectations. In keeping with that goal, we would like to hear your opinions regarding our reports. Feedback is critically important and serves as the strongest mechanism by which we tailor our research to your organization. When you have had a chance to evaluate this report, please take a moment to fill out the following questionnaire.

<http://www.hanoverresearch.com/evaluation/index.php>

CAVEAT

The publisher and authors have used their best efforts in preparing this brief. The publisher and authors make no representations or warranties with respect to the accuracy or completeness of the contents of this brief and specifically disclaim any implied warranties of fitness for a particular purpose. There are no warranties that extend beyond the descriptions contained in this paragraph. No warranty may be created or extended by representatives of Hanover Research or its marketing materials. The accuracy and completeness of the information provided herein and the opinions stated herein are not guaranteed or warranted to produce any particular results, and the advice and strategies contained herein may not be suitable for every client. Neither the publisher nor the authors shall be liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages. Moreover, Hanover Research is not engaged in rendering legal, accounting, or other professional services. Clients requiring such services are advised to consult an appropriate professional.



4401 Wilson Boulevard, Suite 400
Arlington, VA 22203
P 202.559.0500 F 866.808.6585
www.hanoverresearch.com

ENVIRONMENTAL SCAN FOR GRADE-LEVEL FEASIBILITY

Prepared for Alexandria City Public Schools

August 2017



The following report consists of the third phase of Hanover Research's ongoing investigation of grade-level reconfiguration. This document explores demographic trends in Alexandria City, identifying the local neighborhoods that may experience increases in student enrollment in the near future. The report also explores practical considerations for grade-level reconfiguration should the division implement this strategy to address pressure to school capacity and overcrowding.

Finally, this updated report examines current division-level enrollments and the impact of existing and potential grade configurations on overall capacity and over-enrollments.

TABLE OF CONTENTS

| | |
|--|-----------|
| Executive Summary and Key Findings | 4 |
| INTRODUCTION | 4 |
| KEY FINDINGS | 5 |
| General Demographic Trends in Alexandria City | 5 |
| High-Growth Communities | 6 |
| Grade Configuration Scenarios | 7 |
| Section I: Population Trends Analysis | 8 |
| METHODOLOGY | 8 |
| American Community Survey (ACS) Data Description | 8 |
| Geographic Scope | 9 |
| Variables of Interest and Analytical Strategy | 10 |
| TRENDS IN FAMILY RESIDENCY AND FERTILITY | 11 |
| TRENDS IN STUDENT-AGED POPULATION GROWTH AND RACIAL COMPOSITION | 17 |
| TRENDS IN THE DISTRIBUTION OF INCOME | 21 |
| TRENDS IN MOBILITY PATTERNS | 26 |
| Section II: Implications Moving Forward | 28 |
| NOTABLE DEMOGRAPHIC TRENDS BY ZIP CODE | 28 |
| Area 22301 (Del Ray) | 28 |
| Area 22302 (Central Alexandria) | 29 |
| Area 22304 (Van Dorn) | 30 |
| Area 22305 (Potomac West) | 31 |
| Area 22311 (Alexandria West) | 32 |
| Area 22314 (Old Town) | 33 |
| PRACTICAL CONSIDERATIONS FOR GRADE-LEVEL RECONFIGURATION | 33 |
| Student Achievement, Wellbeing, and School Transitions | 33 |
| Resource Management and Alternative Strategies to Address Crowding | 35 |
| Stakeholder Feedback | 37 |
| Section III: Current Enrollment & Grade Configurations | 38 |
| METHODOLOGY | 38 |
| Data and Methods | 38 |
| Limitations | 40 |

| | |
|---|-----------|
| Dashboard Instructions..... | 41 |
| OVERVIEW OF CONFIGURATION SCENARIOS | 44 |
| Status Quo | 44 |
| Pre-K Center..... | 44 |
| Moderate Introduction of K-8 Schools | 45 |
| All K-8 Schools..... | 47 |
| Appendix: ACS Variable Description | 48 |

EXECUTIVE SUMMARY AND KEY FINDINGS

INTRODUCTION

Alexandria City Public Schools (ACPS) is currently facing overcrowding and space constraints among many of its schools due to student over-enrollment. In response to these challenges, administrators have considered reconfiguring grade levels across the Division's schools and/or building an additional facility. With these considerations in mind, ACPS aims to identify solutions to increasing student populations by establishing a long-term plan for grade-level feasibility and sustainability. ACPS has requested the assistance of Hanover Research (Hanover) to help determine best practices for grade-level reconfiguration and next steps to accommodate growth in enrollment.

To support ACPS's efforts, Hanover is conducting a series of projects made up of several methodological phases (Figure ES.1). The current study consists of the third phase of this ongoing research and examines data reported by the U.S. Census Bureau, among other sources, to identify recent trends in population growth in Alexandria City. This scan has been performed in an effort to help answer two of ACPS's key research questions: *what grade-level configuration would maximize the division's ability to accommodate increased student enrollment while maintaining academic excellence, and do current buildings have the capacity to accommodate different grade-level configurations?* Findings from this environmental scan are organized into two sections:

- **Section I: Population Trends Analysis** explores growth in family residence and fertility, student-aged populations, household income, and mobility over time based on demographic estimates released by the U.S. Census Bureau. Findings from this analysis as well as those from supplementary sources are used to gauge potential increases in the local population in the years to come.
- **Section II: Implications Moving Forward** identifies key areas within Alexandria City with large population growth based on results from the demographic analysis. Findings from previous phases of Hanover's ongoing study, including the literature review and the benchmarking analysis, are used to examine the implications of these high-growth areas for grade-level reconfiguration and feasibility across ACPS's schools.

The current iteration of the report adds an additional component to assist ACPS in examining how different grade configurations may impact enrollment and over-enrollment throughout the district: a simulation tool that offers different grade configuration scenarios for Grades PK through 8. This simulation tool draws information from ACPS's Long-Range Educational Facilities Plan and the National Center for Education Statistics, and is discussed in a final section:

- **Section III: Current Enrollment and Grade Configuration Scenarios** examines how new enrollment configurations for different combinations of elementary and middle schools impact over-enrollment at each school level. These scenarios include the

transition of existing elementary and middle school sites into a Pre-K Center and/or into PK or K-8 schools.

Figure ES.1: Summary of Proposed Work in Series

| TITLE | TYPE | DATE COMPLETED |
|--|--|----------------------|
| Analysis of Elementary and Secondary Grade Span Configurations | Literature Review | November 2016 |
| Benchmarking Study of Grade-Level Feasibility | Mixed Methods: In-Depth Interviews; Synthesis of Supplementary Articles | February 2017 |
| Environmental Scan of ACPS Service Area – First Iteration | Mixed Methods: Data Analysis; Synthesis of Supplementary Articles | February 2017 |
| Community Survey | Survey | Pending |
| Capstone Report | Synthesis | Pending |
| Update to Environmental Scan of ACPS Service Area | Updated Data Analysis simulates current enrollment data under different grade configuration scenarios | July 2017 |

KEY FINDINGS

GENERAL DEMOGRAPHIC TRENDS IN ALEXANDRIA CITY

- Alexandria City experienced growth in family residency as well as sizable increases in student-aged populations from 2011 to 2015; though, this growth was unevenly experienced across different geographies within the city.** Alexandria City’s six Zip Code Tabulation Areas (ZCTAs) grew by a total of over 3,000 families from 28,311 in 2011 to 31,375 in 2015. During the same period, the population ages 0 to 17 increased from a total of 22,128 to 25,557 persons, an increase of 15.5 percent. Area 22311 (Alexandria West) witnessed some of the largest percent increases in total families from 2011 to 2013 but experienced a sharp decline in families between 2013 and 2014 prior to experiencing positive growth again by 2015. Area 22305 in Potomac West experienced the most consistent and positive growth in family residency. At the same time, area 22304 in Van Dorn made large gains in those ages 0 to 4 and 12 to 17, with increases of 588 and 524 persons, respectively.
- The racial composition of Alexandria City’s ZCTAs among those ages 0 to 17 drastically differ and have grown even more segregated during the 2011 to 2015 period; such segregation is likely to increase the difficulty of maintaining racial balance and equity among ACPS’s schools.** In 2015, 42.3 percent of persons ages 0 to 17 residing within all six of Alexandria City ZCTAs identified as white, 25.5 percent as black, 22.6 percent as Hispanic, 4.6 percent as Asian, and 5.0 percent as another race. This same year, 72, 58, and 55 percent of area 22301 (Del Ray), 22302 (central Alexandria), and 22314’s (Old Town) population was majority white, respectively. Approximately 44 and 41 percent of area 22305 (Potomac West) and 22311’s (Alexandria West) population was majority Hispanic. Only area 22304 (Van Dorn) has continued to maintain racial balance. Beyond these recent trends, white residents are expected to continually make up a smaller portion of Alexandria City’s residents between 2020 and 2040 according to projection estimates released by the Virginia Employment Commission (VEC). Given these

projections and the current patterns in the racial composition of the student-aged population, ACPS is likely to witness increases in students of color yet may encounter racial segregation across schools as a reflection of neighborhood segregation.

- **Disparities in the median household income of Alexandria City's ZCTAs have grown wider over time, which may impact inequalities in student access to resources across neighborhoods and schools.** In 2011, ZCTA 22311 (Alexandria City West) had the lowest median household income at \$65,700 while ZCTA 22301 (Del Ray) had the highest at \$115,739. The gap in median household income spanning these areas widened through 2015. By this year, the median household income in area 22311 lowered to \$61,829 while the median income rose to \$125,347 in area 22301. Inequalities in household income are even more apparent at the neighborhood level, in which low-income census tracts saw reductions in median incomes while high-income tracts saw increases in median income.
- **Mobility among the student-aged population has remained high yet consistent from 2011 to 2015; Alexandria City may anticipate this mobility to persist when calculating projections in enrollment.** Between 2011 and 2015, approximately 79.7 and 80.1 percent of those ages 1 to 17 lived in the same household within the last year. The remainder of the population these ages indicated that they had moved to a community within Alexandria City from within the county, state, country, or abroad. According to the Long Range Educational Facilities Work Plan (LREFWP) made available by the City of Alexandria, this mobility makes it difficult to determine about how many students are expected to enroll in ACPS. Because rates of mobility have not changed significantly each year from 2011 to 2015, however, ACPS can reasonably expect similar rates of mobility among the student-aged population in the future.

HIGH-GROWTH COMMUNITIES

- **ZCTA 22304 in Van Dorn is a highly populated and largely growing area within Alexandria City.** Between 2011 and 2015, family residency grew by over 10 percent with an increase of 929 more families. The birth rate has also steadily increased during this period as has the population ages 0 to 4 and 12 to 17. Census tracts 200301 and 200302 in the eastern part of Van Dorn (which overlap with Francis C. Hammond Middle, James K. Polk Elementary, and Patrick Henry Elementary) both witnessed large increases in families of five or more persons. Meanwhile, census tracts 200404 (which overlaps with Samuel W. Tucker Elementary) and 200303 in the southwestern part of Van Dorn experienced considerable gains in the population ages 0 to 17. Should these high-growth trends persist in the years to come, schools in this area may face pressure to enrollment, particularly in those neighborhoods most proximate to ACPS elementary schools.
- **ZCTA 22305 in Potomac West, while smaller in size than ZCTA 22304, experienced large growth between 2011 and 2015.** Family residency grew by over 20 percent with an increase of 593 families. In addition to large family growth, the birth rate continued to rise. This community was also the only ZCTA out of all six to experience positive population increases in each of three student-aged subgroups (populations ages 0 to 4,

5 to 11, and 12 to 17). More specifically, tract 201203 (which overlaps with Cora Kelly Magnet Elementary) experienced the largest numeric increase in total families (at 401) while tract 201100 (located near Charles Barrett Elementary and George Mason Elementary) experienced the largest average annual birth rate (at 148.2 births per 1,000 women ages 15 to 50) out of all the neighborhoods in Alexandria City. Thus, despite the area's small population size compared to area 22304, 22305's robust growth in family residency and student-aged populations indicate that this community may likely face greater pressure to enrollment in the near future.

- **Aside from ZCTAs 22304 and 22305, ZCTA 22311 in Alexandria West consists of yet another area with persistent growth.** Overall, this area increased by about 400 families during the years spanning 2011 to 2015, with large increases in family residency in tracts 200107 and 200106 in the northern part of the community. Tract 200104, where a new school is planned for construction, as well as tracts 200102 (which overlaps with William Ramsay Elementary and John Adams Elementary), 200107, and 200103 have shown large year-to-year increases in families of five or more persons. At the same time, tracts 200102, 200103, and 200106 showed large average year-to-year increases in the population ages 0 to 17.

GRADE CONFIGURATION SCENARIOS

- **Overall, 2015 student enrollments in Grades PK through 8 exceed total 2020 capacity by more than 200 students.** Increasing school-age population growth in many Alexandria neighborhoods suggest that over-crowding will increase in the next several years, reinforcing the need for added capacity and/or re-organization at the elementary and middle school levels.
- **Creating a specialized Pre-K Center would allow the district to free some space in existing K-8 and K-5 schools to accommodate a larger number of older students.** For instance, this analysis examines the possibility of transitioning one small elementary school into a Pre-K Center—in this case Matthew Maury Elementary—to help alleviate over-enrollment at the upper elementary and middle school levels by creating additional space in some elementary and K-8 schools that previously housed Pre-K classes. In particular, adding the Pre-K Center offers additional space at existing and potential K-8 school sites for middle school students.
- **Furthermore, varying grade configurations for schools that serve students in grades PK-8 may allow the division to concentrate over-enrollments at either the elementary or middle school levels, depending on which level can best accommodate over-enrollments.** For instance, the simulations created for this report suggest that adding one to three additional PK- or K-8 schools—including one at the George Washington Middle School site—concentrates over-enrollment at the middle school level. In contrast, transforming six to eight elementary and middle school sites into PK- or K-8 schools concentrates over-enrollment at the elementary school level, when grade-level cohorts in K-8 schools are approximately equal in each grade.

SECTION I: POPULATION TRENDS ANALYSIS

In the following section, Hanover assesses demographic trends in family residence, student-aged populations, household income, and mobility over time in Alexandria City's communities. These trends are used to gain a broader understanding of the population growth occurring in the local region and what implications this growth may have for future enrollment at ACPS's schools. This environmental scan's methodology—including a description of the data, the geographic units of analysis, the demographic variables of interest, and the analytic strategy—is reviewed first prior to exploring these trends in detail.

METHODOLOGY

AMERICAN COMMUNITY SURVEY (ACS) DATA DESCRIPTION

All demographic data used to assess trends in population growth in Alexandria City are derived from the American Community Survey (ACS).¹ The ACS is a survey administered by the U.S. Census Bureau to a subpopulation of residents every month, containing a range of questions that focus on age, sex, race, education, income, occupation, and many other personal characteristics.² Once all responses to the ACS are collected by the Census Bureau, they are:³

- Assigned to specific geographic locations;
- Weighted according to how representative they are of the population residing in those locations; and
- Aggregated into distinct geographic entities representative of the population over a period of time.

In total, the Census Bureau produces ACS 1-Year and 5-Year data files made publicly available through the American Factfinder database.⁴ In Hanover's analysis, estimates are taken from ACS responses collected and reported in 5-Year data files. These population estimates are derived from responses collected over specified five-year periods. While the most recent 5-Year file (the 2015 ACS 5-Year dataset) may not be as current as the most recent 1-Year file (the 2015 ACS 1-Year dataset), 5-Year files have smaller margins of error. This is of particular importance when assessing demographic information for small geographic areas, such as counties, Zip Code Tabulation Areas (ZCTAs), census tracts, or even block groups. As such, ACS 5-Year data allow Hanover to report information about community demographics and population change with greater statistical confidence.

¹ "American Community Survey: Methodology." U.S. Census. <https://www.census.gov/programs-surveys/acs/methodology.html>

² "ACS Information Guide." U.S. Census Bureau. <https://www.census.gov/programs-surveys/acs/about/information-guide.html>

³ "Programs, Datasets and Tables." U.S. Census Bureau. http://factfinder.census.gov/help/en/programs_datasets_tables.htm

⁴ "American FactFinder." U.S. Census Bureau. <http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

In this study, Hanover evaluates population changes over five consecutive years using the following ACS datasets:

- **2011 ACS 5-Year estimates**, representing data from years 2007 to 2011
- **2012 ACS 5-Year estimates**, representing data from years 2008 to 2012
- **2013 ACS 5-Year estimates**, representing data from years 2009 to 2013
- **2014 ACS 5-Year estimates**, representing data from years 2010 to 2014
- **2015 ACS 5-Year estimates**, representing data from years 2011 to 2015

GEOGRAPHIC SCOPE

To provide ACPS with the most detailed analysis of regional population change, Hanover analyzes data that reflect two geographic levels: ZCTA and census tract estimates. ZCTAs are only produced in 5-Year ACS files and are closely related to the U.S. Postal Service’s ZIP Code service areas; however, because the Postal Service uses ZIP Codes to inform mail delivery routes—not to define population features—ZCTAs allow the Census Bureau to segment population and housing data into more clearly-demarcated geographic zones. The methodology for creating the ZCTAs is as follows:

The Census Bureau first examined all of the addresses within each census block to define the list of ZIP Codes by block. Next, the most frequently occurring ZIP Code within each block was assigned to the entire census block as a preliminary ZCTA code. After all of the census blocks with addresses were assigned a preliminary ZCTA code, blocks were aggregated by code to create larger areas [...]. **In most instances, the ZCTA code is the same as the ZIP Code for an area.**⁵

Unfortunately, the American FactFinder does not match a state’s ZCTAs to other geographic units, including Virginia’s counties or school divisions. To determine which ZCTAs correspond with ACPS’s geographic domain, Hanover consulted the Missouri Census Data Center’s (MCDC) Geographic Correspondence Engine, a database that allows users to match geocodes.⁶ The six ZCTAs that correspond with ACPS as reported by the MCDC are illustrated in a map provided in Panel A in Figure 1.1 on the next page. It should be noted that the boundaries of two ZCTAs, areas 22206 in Shirlington and 22312 in Lincolnia, overlap with ACPS but are excluded from this list. These areas are excluded because the proportion of their boundaries that lie within ACPS are relatively small.

Census tracts are “small, relatively permanent statistical subdivisions of a county or equivalent entity that [...] have a population size between 1,200 and 8,000 people.”⁷ Census tracts are typically embedded within ZCTAs and are often bordered by “visible or identifiable

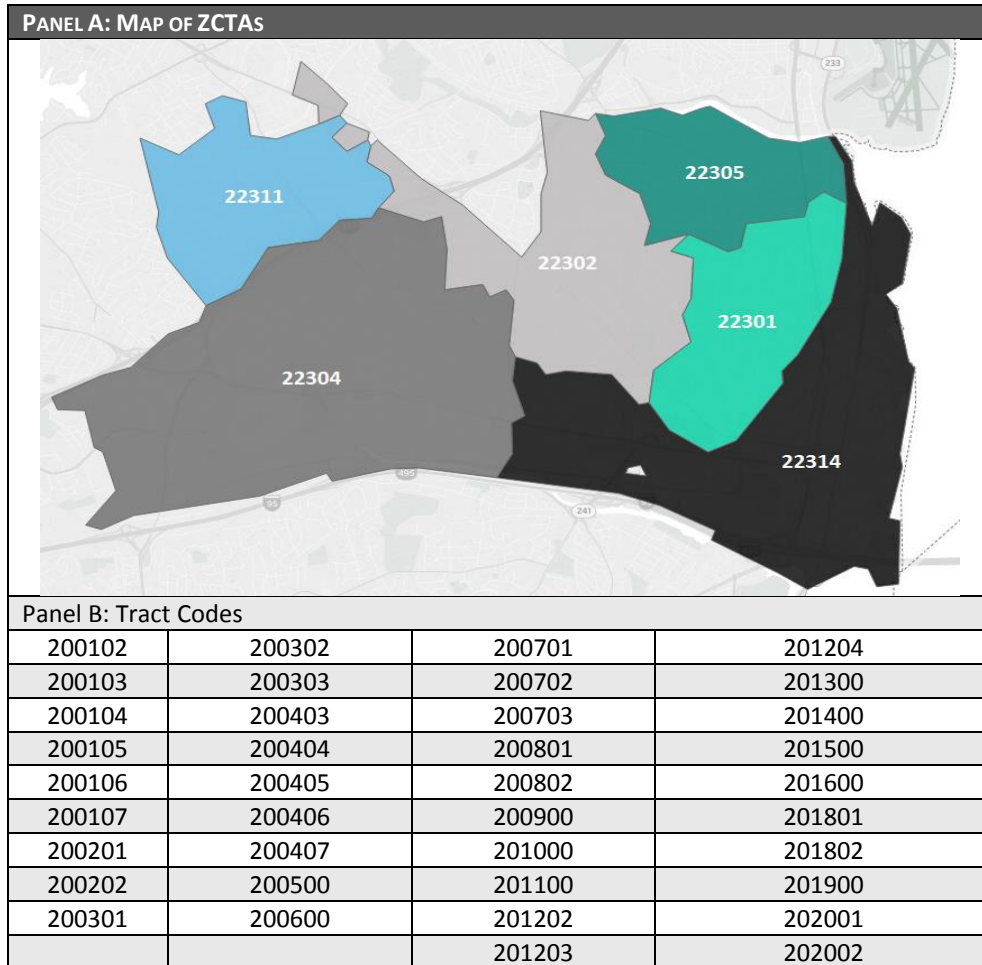
⁵ “ZIP Code Tabulation Areas (ZCTAs).” U.S. Census Bureau. <https://www.census.gov/geo/reference/zctas.html>

⁶ “Geographic Correspondence Engine.” Missouri Census Data Center. <http://mcdc.missouri.edu/websas/geocorr12.html>

⁷ “Geographic Terms and Concepts - Census Tract.” U.S. Census Bureau. https://www.census.gov/geo/reference/gtc/gtc_ct.html

features.”⁸ Census tracts are regularly understood as neighborhood-level communities that range in geospatial size depending on the density of their resident populations.⁹ Census tracts within Alexandria City enable Hanover to identify a subset of smaller communities within the division with the fastest and greatest growth in population size. In total, 38 census tracts, otherwise referred to as neighborhoods, lie within Alexandria City (Panel B in Figure 1.1). A map of these census tracts can be found [here](#).

Figure 1.1: ZCTAs and Census Tracts in Alexandria City Public Schools



Source: Missouri Census Data Center,¹⁰ map made using Tableau software.

VARIABLES OF INTEREST AND ANALYTICAL STRATEGY

Using the American Factfinder, Hanover collected multiple ACS data files that contain demographic measures relevant to ACPS’s interest in grade-level feasibility and potential reconfiguration. All references to these files are included in the Appendix. In total, the data reported in this document reflect five-year trends in family residency and fertility estimates,

⁸ Ibid.

⁹ Ibid.

¹⁰ Ibid.

student-aged population and race estimates, income estimates, and mobility estimates. These demographic variables are available in preset ACS data files, and consequently, cannot be cross-tabulated for further analysis.

For every ACS measure, Hanover discusses population change over time, citing how these rates of change, if held constant, can be used to understand population growth in the years to come. This discussion is formatted as “Key Takeaways” in an effort to highlight major trends. A series of graphs and charts plotting these trends are included as well to help illustrate population change over the five-year period across Alexandria City’s communities. For a more in-depth examination, Hanover identifies top areas (ZCTAs and census tracts, where appropriate) with large and fast growth. Aside from an analysis of this data, information obtained from secondary sources about population change and projected growth in the region are included in the discussion to help contextualize findings.

TRENDS IN FAMILY RESIDENCY AND FERTILITY

KEY TAKEAWAYS

- ***As illustrated in Panel A in Figure 1.2, each of the six ZCTAs in Alexandria City experienced disparate rates of growth in the residency of families from 2011 to 2015. Though, most ZCTAs experienced positive rates of change with slight decreases at certain points in time.*** Most notably, area 22311 (Alexandria West) witnessed large and positive increases in total families from 2011 to 2013 but experienced a sharp decline in families between 2013 and 2014 prior to experiencing positive growth again by 2015. Much less erratic, area 22305 (northern Potomac West) experienced the most consistent and positive growth in family residency. While families may consist of any combination of adults and children, from a broader perspective, these rates of change indicate that Alexandria City has largely experienced positive growth in the last several years.
 - ***Unlike trends in family residency, total population growth in Alexandria City has remained steady and positive.*** Since the 2010 Decennial Census, Alexandria City increased in its population size from 139,966 persons to 149,315 persons (based on 2015 ACS 5-Year data), or roughly 6.7 percent.¹¹ This rate of growth is even higher than the growth of the Washington-Arlington-Alexandria Metropolitan Statistical Area (MAS) at 6.2 percent (using census estimates taken from the same surveys).¹²
- ***In 2015, area 22304 (Van Dorn) boasted the largest number of families at 10,078 in total, comprising nearly one-third of Alexandria City’s total family residency*** (Figure 1.2, Panel B). This community experienced substantial growth as well from 2011 to 2012 and again from 2014 to 2015. At the neighborhood level, Panel C in Figure 1.2

¹¹ See estimates reported in Alexandria City’s Community Profile: “Alexandria City, Virginia.” U.S. Census Bureau. https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml

¹² See estimates reported in the Washington-Arlington-Alexandria Metropolitan Statistical Area Age & Sex tables: “Washington-Arlington-Alexandria Metropolitan Statistical Area.” U.S. Census Bureau. <https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t&keepList=t>

reveals that several census tracts in eastern and northern Van Dorn (tracts 200107 and 200301) and the upper region of Potomac West (tract 201203) saw substantial increases in total families. During the entire five-year period, these neighborhoods grew by 401, 348, and 274 families, respectively. These trends reveal that communities in the northeastern region of Potomac West and western Alexandria in Van Dorn are fairly consistent in their growth.

- ***In many cases, growth in these areas is due to redevelopment and residential expansion.*** According to online reports, Alexandria City “is one of Virginia’s cities where population growth has accelerated in recent years. Though Alexandria began growing again in the early 1990s, the redevelopment of underused lots in the city, such as Potomac Yard [...] has helped make Alexandria one of the fastest growing localities in Virginia.”¹³ In another example, the Alexandria Chamber of Commerce (ACC) announced a new initiative, entitled *Tomorrow’s Alexandria*, set to host panel discussions concerning the future of the area’s urban and economic growth. It is the central aim of the ACC’s initiative to adequately plan for growing diversity while supporting local businesses for a vibrant and robust economy. Initiatives such as *Tomorrow’s Alexandria* may help to attract and retain new families, contributing to sustained urban growth.
- ***Families that are small in size (three to four persons) make up the vast majority of all families in Alexandria City*** (Figure 1.3). In 2015, for instance, three- to four-person families outnumbered families of five or more by roughly 4:1, or 12,680 to 3,215 in total (Figure 1.3, Panel B). While each of the six ZCTAs in Alexandria City experienced some declines in the total number of families made up of three to four persons, as is illustrated in Panel A in this figure, families of this size overwhelming grew during the years spanning 2011 to 2015. The greatest growth in three- to four-person families occurred in area 22304 (Van Dorn) between 2014 and 2015 with an increase of 338. Families of five or more, while fewer than three- to four-person families, also increased in residency over the years. This is particularly the case in ZCTA 22304. ZCTA 22314 (near Old Town), however, experienced a decline in these larger families each year, from 475 in 2011 to 275 in 2015.
- ***While growth in families of five or more persons is smaller than that of families made up of three or more, some neighborhoods stand apart in their increases of this family size*** (Figure 1.3, Panel C). Census tracts 200103 (near Lincolnia), 201203 (in northern Potomac West), and 200104 (in lower Alexandria West) increased in families of five or more by 71.3, 57.5, and 30.3 each year on average. Nonetheless, given the overall patterns in family size, increases over the years in the number of smaller families with ostensibly fewer children are more likely to be driving growth in enrollment at ACPS than growth in larger families.
- ***At large, births among women of childbearing age have remained fairly stable in the last five years. In fact, the number of births to women ages 15 to 50 slightly***

¹³ Lombard, H. “Population Growth in Virginia Is Reversing Decades-Old Trend, Estimates Show.” Stat Chat, Weldon Cooper Center for Public Service, University of Virginia, Demographics Research Group, January 27, 2016. <http://statchatva.org/2016/01/27/population-growth-in-virginia-is-reversing-decades-old-trend-estimates-show/>

increased each consecutive year in Alexandria City, from 2,198 total births in 2011 to 2,759 births in 2015 (Figure 1.4, Panels A and B). The number of births increased most notably in all of Alexandria City's ZCTAs between the years 2013 and 2014 (Figure 1.4, Panel A). Birth rates (births per 1,000 women ages 15 to 50), on the other hand, have increased and decreased at various points in time across Alexandria's ZCTAs (Figure 1.4, Panel B). When simply observing these estimates during the five-year period, it appears that, for the most part, Alexandria City's ZCTAs have increased in their rates of births. ZCTA 22302 near Rosemont, however, remains the exception. This area decreased by 20 births per 1,000 women from 2011 to 2015.

- **When rates of fertility, mortality, and mobility are taken into consideration, the Virginia Employment Commission (VEC) projects an estimated population increase of 3.68 percent between 2010 and 2020.**¹⁴ The population counts used to make these projections, however, are markedly more conservative than estimates released by the U.S. Census Bureau.¹⁵ For instance, the VEC projects an estimated 147,706 residents by 2030 (1.78 percent growth), and by 2040, 149,195 residents (1.01 percent growth) in Alexandria City. With these conservative estimates, the VEC predicts that Alexandria City's total population will grow at smaller rates with each decade.¹⁶

¹⁴ "Virginia Community Profile: Alexandria City." Virginia Employment Commission, December 30, 2016. p. 8. http://virinialmi.com/report_center/community_profiles/5104000510.pdf

¹⁵ For further discussion on the difference between U.S. Census Bureau estimates and estimates released by Alexandria City's Department of Planning and Zoning, see *Population and Housing Estimates* in: "Population Characteristics." City of Alexandria, Virginia. <https://www.alexandriava.gov/planning/statistics/default.aspx?id=76738>

¹⁶ "Virginia Community Profile: Alexandria City," Op. cit., p. 8.

Figure 1.2: Five-Year Trends in the Total Number of Families in Alexandria City

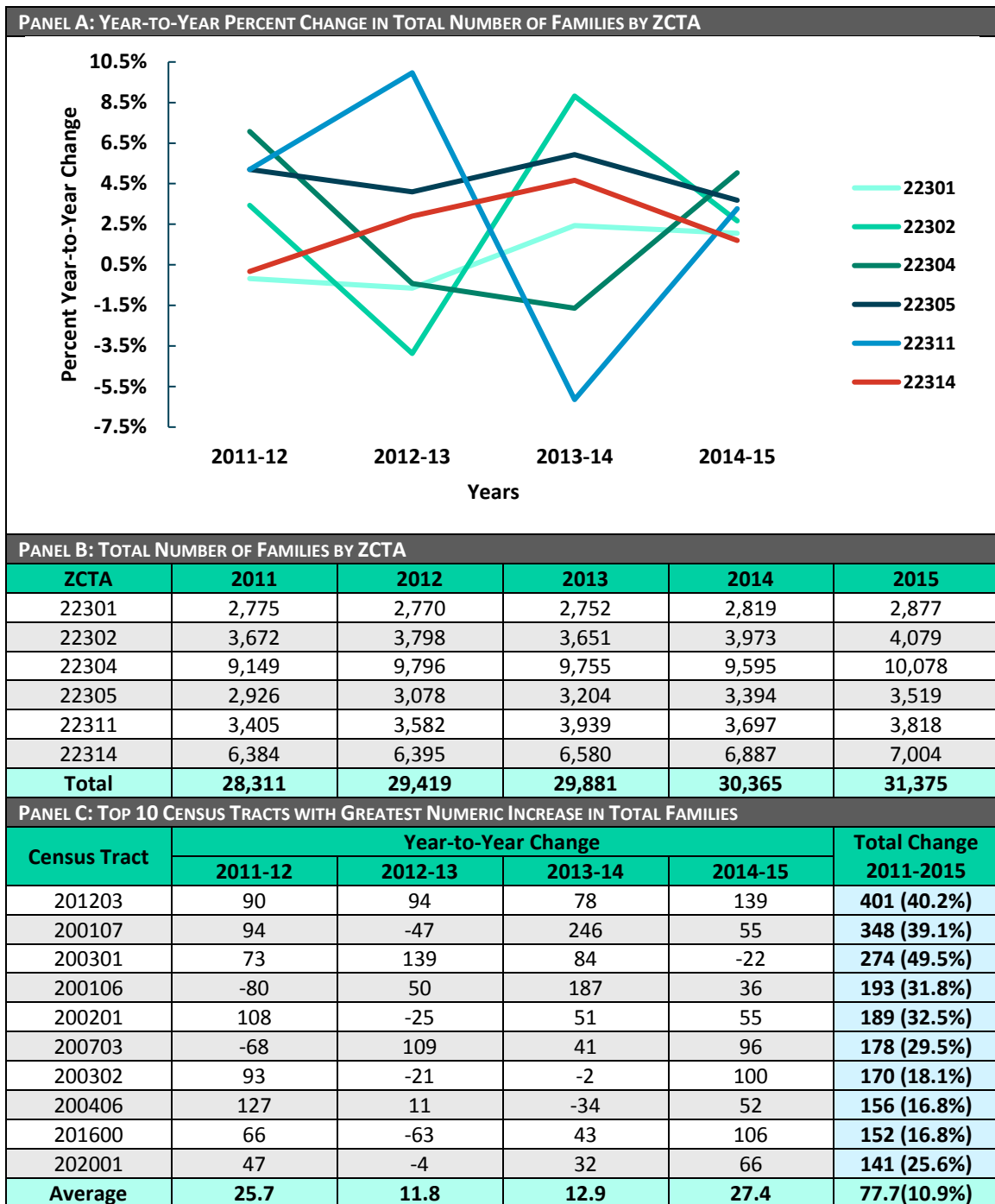


Figure 1.3: Five-Year Trends in the Number of Families by Family Size in Alexandria City

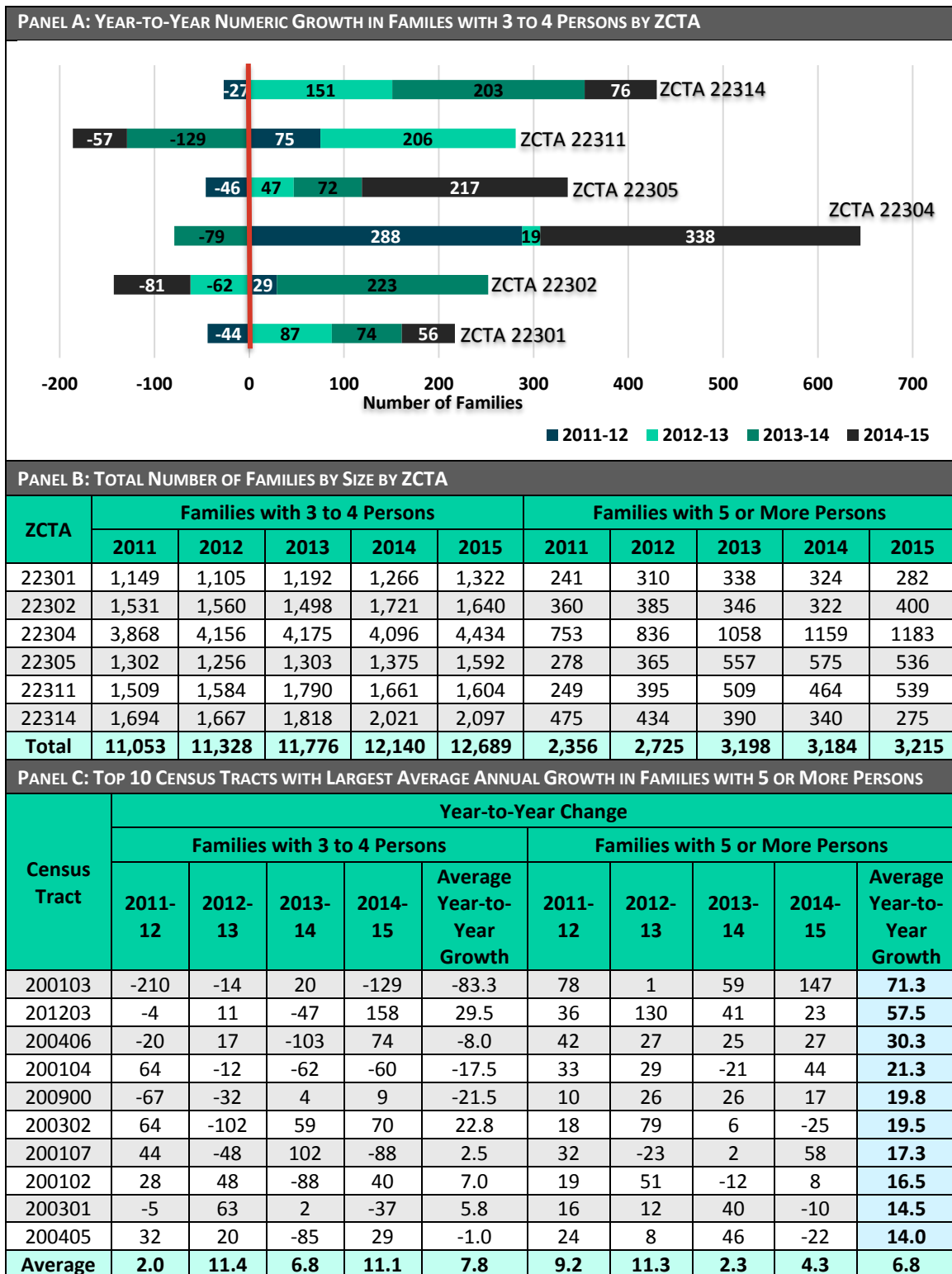
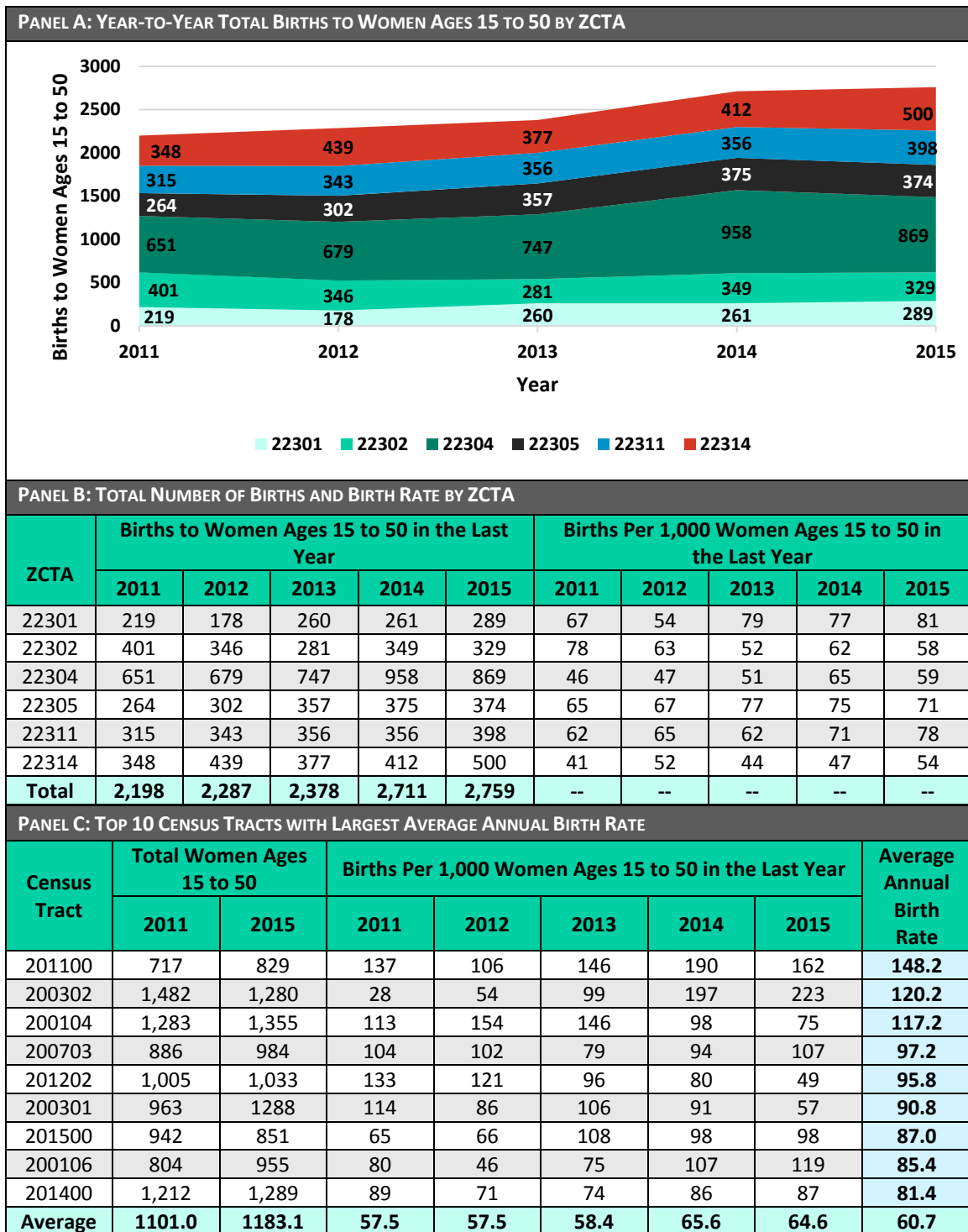


Figure 1.4: Five-Year Trends in the Number of Births and Birth Rates in Alexandria City



TRENDS IN STUDENT-AGED POPULATION GROWTH AND RACIAL COMPOSITION

KEY TAKEAWAYS

- **The population ages 0 to 17 in Alexandria City has steadily increased between the years 2011 and 2015, with the largest increases occurring among those ages 0 to 4** (Figure 1.5). Among all six ZCTAs combined, those ages 0 to 17 increased from a total of 22,128 to 25,557 persons from 2011 to 2015, or an increase of 15.5 percent (Figure 1.5, Panel A). As illustrated in Panel A in this figure, the youngest of this age group—those ages 0 to 4—make up the largest proportion of the student-aged population and has grown the most over the years. In total, those ages 0 to 4 increased from 9,228 persons in 2011 to 10,910 in 2015, a growth rate of 18.2 percent. Should an equal proportion of Alexandria City’s youngest student-aged cohorts enroll in ACPS in the years to come as the current proportion of the youngest-aged students, and should rates of attrition hold constant, ACPS is likely to experience an increase in student attendance in the near future.
 - **According to enrollment trends and forecasting data released in the Long Range Educational Facilities Work Plan (LREFWP) by the City of Alexandria, historically, trends in enrollment at ACPS have not matched trends in Alexandria’s population growth.**¹⁷ However, recent estimates show a converging of these trends, with steady increases in both enrollment and population growth. Should patterns in enrollment continue to resemble patterns in population growth, ACPS may likely experience a moderate increase in enrollment, at least in the short term.
 - **In the long term, the VEC predicts small and positive increases in the number of males and females between the ages of 0 and 19 in the years spanning 2020 through 2040.**¹⁸ The exception to these positive projections are those aged 10 to 19 between the years 2020 and 2030, in which the VED predicts slight decreases in total count.¹⁹ Should population trends match these projections, ACPS may face marginally reduced enrollment during this decade.
- **Some of the largest gains in student-aged populations from 2011 to 2015 in Alexandria City occurred among residents ages 5 to 11; these gains were offset by declines in this population in specific ZCTAs, however** (Figure 1.5, Panel B). Three ZCTAs—areas 22301 (near Del Ray in Potomac West), 22305 (northern Potomac West), and 22311 (Alexandria West)—witnessed the largest increases in student-aged populations within the 5- to 11-age range, with increases of 325, 439, and 493 persons during the five-year period. This growth, however, is offset by declines in this age group in ZCTAs 22304 (Van Dorn) and 22314 (near Old Town). Thus, growth in

¹⁷ “Chapter 2: Enrollment Trends and Forecasting.” In *Long Range Educational Facilities Work Plan*, City of Alexandria, 2015. p. 2.2.

https://www.alexandriava.gov/uploadedFiles/planning/info/LREFP/LREFP%20Chapter%202_Enrollment_04%2021%202015.pdf

¹⁸ “Virginia Community Profile: Alexandria City,” Op. cit., p. 9.

¹⁹ Ibid.

student-aged populations is uneven across geographies within Alexandria City, adding to the complexity of planning for grade-level feasibility. Only ZCTA 22305 experienced positive growth in every student age group (ranging from ages 0 to 17) between 2011 and 2015.

- ***Neighborhoods within Alexandria City drastically differ in their year-to-year change in student-aged populations*** (Figure 1.5, Panel C). In some instances, census tracts with large average year-to-year change declined in those ages 0 to 17 between 2011 and 2012 but increased in these populations from 2014 to 2015 (as is the case in tract 200103 near Lincolnia, for example). In other cases, census tracts with large average year-to-year change made large gains early on before experiencing declines in those aged 0 to 17, such as tract 200301 in northern Van Dorn. Census tract 201203 (in northern Potomac West), however, witnessed large and consistent growth in persons ages 0 to 17 from 718 persons in 2011 to 1,696 in 2015 for an average year-to-year increase of 244.5 persons. While other neighborhoods have larger student-aged populations than 201203, this neighborhood’s consistent growth should be considered when planning for grade-level feasibility.
- ***The racial composition of Alexandria City’s ZCTAs significantly differ, and several have grown more racially homogenous in their student-aged populations between 2011 and 2015; ensuring educational equity when planning for grade-level feasibility may be more complex due to these changes*** (Figure 1.6, Panel A). Based on the population estimates provided in Panel B in Figure 1.6, in 2011, the racial composition of the population ages 0 to 17 across all six ZCTAs was as follows: 42.3 percent white, 25.5 percent black, 22.6 percent Hispanic, 4.6 percent Asian, and 5.0 percent other race. Notably, the illustrations for each ZCTA provided in Panel A in this figure do not proportionally reflect the racial composition of Alexandria City’s overall population in 2011. In fact, several large or majority racial groups in ZCTAs 22301 (near Del Ray), 22305 (in northern Potomac West), 22311 (Alexandria West), and 22314 (near Old Town) grew proportionally between the years 2011 and 2015. For example, in area 22301, white persons grew from 62 percent of the population ages 0 to 17 in 2011 to 72 percent in 2015. The racial composition of the student-aged population in ZCTA 22304 (Van Dorn), however, has remained the most diverse and representative of Alexandria City’s population these ages.
 - ***Based on projection estimates released by the VEC, white residents are expected to continually make up a smaller portion of Alexandria City’s residents between 2020 and 2040.***²⁰ By 2040, for instance, white residents (including those that identify ethnically as Hispanic) are expected to comprise 47.9 percent of the city’s total population, while the remaining residents identify with another racial group.²¹ Given these projections and the current patterns in the racial composition of the student-aged population highlighted in Figure 1.6, ACPS is likely to witness increases in students of color yet may encounter racial segregation across schools as a reflection of neighborhood segregation.

²⁰ Ibid.

²¹ Ibid.

Figure 1.5: Five-Year Trends in Population Growth by Age in Alexandria City

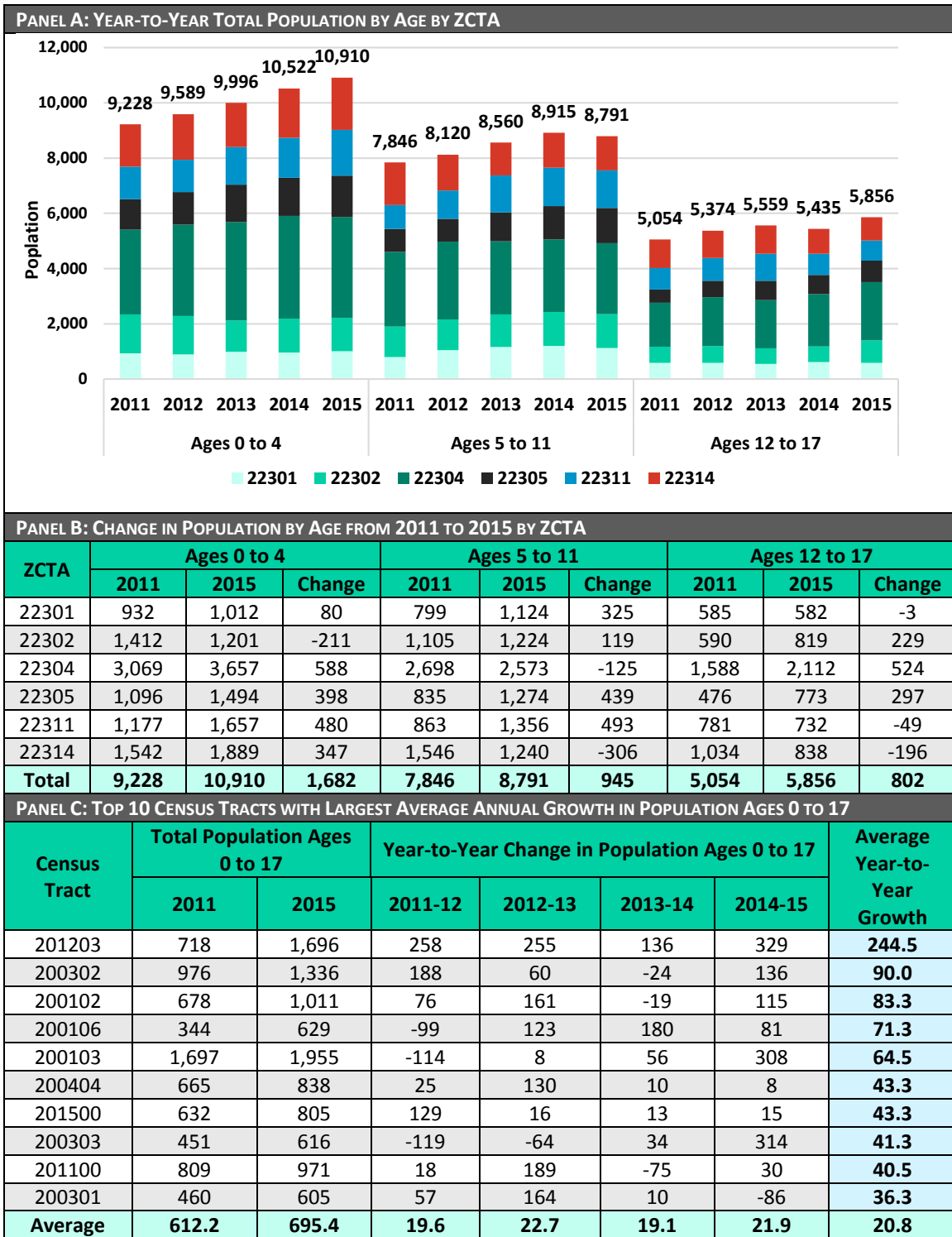
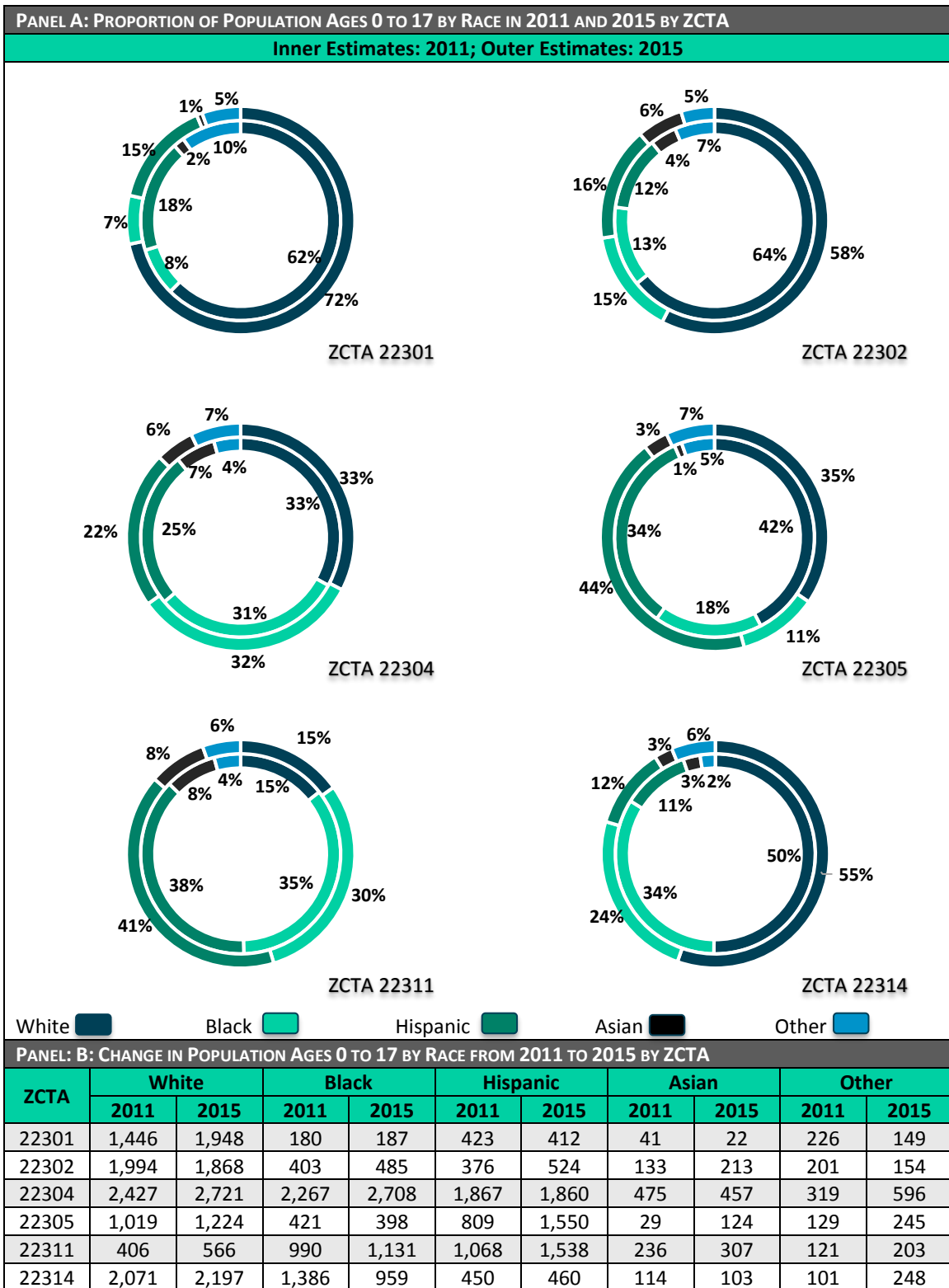


Figure 1.6: Five-Year Trends in the Racial Composition of the Population Ages 0 to 17 in Alexandria City's ZCTAs



TRENDS IN THE DISTRIBUTION OF INCOME

KEY TAKEAWAYS

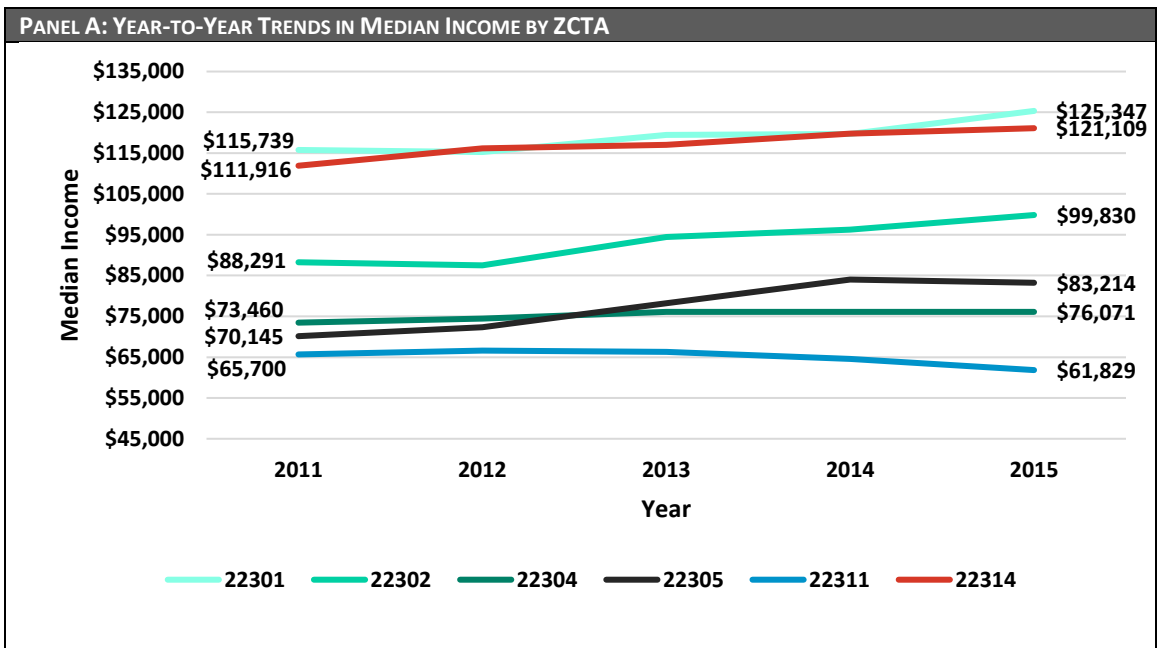
- **While the median household incomes of Alexandria City's ZCTAs have mostly increased from 2011 to 2015, wide discrepancies in median income have persisted across these communities over time** (Figure 1.7, Panel A). In 2011, ZCTA 22311 (Alexandria City West) had the lowest median household income at \$65,700 while ZCTA 22301 (near Del Ray) had the highest at \$115,739. The gap in median household income spanning these areas widened through 2015. By this year, the median household income in area 22311 lowered to \$61,829 while the median income rose to \$125,347 in area 22301. Thus, the area in Alexandria City where household incomes are highest have a median income twice that of the area in which the median income is the lowest.
 - **Such variance in incomes will likely have implications as ACPS considers alternate grade level configurations.** Students from wealthier or higher income homes enroll in private school at greater rates than those from households with less financial resources. For instance, an article published in City Lab in 2014 wrote that students from households earning incomes of \$200,000 or more were over four-times more likely to enroll in a private school than those from households earning incomes less than \$50,000.²²
- **Area 22304 (Van Dorn, where the largest proportion of families and student-aged populations reside) has a considerably large number of households that earn incomes less than \$50,000** (Figure 1.7, Panel B). Nearly 30 percent of all 20,642 households in ZCTA 22304 earned incomes under \$50,000 in 2011 while just over 15 percent earned incomes of \$150,000 or more. In 2015, roughly the same proportion of households earned incomes under \$50,000 while 17.7 percent of households earned incomes of \$150,000 or more. Unfortunately, the Census Bureau does not disaggregate these estimates among households with and without children. Nonetheless, given that ZCTA 22304 contains a relatively large number of persons ages 0 to 17, it is likely that a proportional number of those enrolled in ACPS from this area live in households with low incomes. Areas 22311 (Alexandria West) and 22305 (northern Potomac West), which boast fewer persons of school age, had even larger proportions of households with low incomes in 2015 at 39.1 and 29.6 percent, respectively. Thus, many students living in these communities may have less access to resources, which can play a role in student success.
- **Most neighborhoods display similar proportions of households earning incomes in the lower ranges; differences in the proportion of households by income, however, sharpen across neighborhoods above a \$35,000-income level** (Figure 1.8, Panel A). As illustrated in Panel A in Figure 1.8, in both the years 2011 and 2015, census tracts tend to cluster in the percent of households earning annual incomes less than

²² Kolko, J. "Where Private School Enrollment Is Highest and Lowest Across the U.S." CityLab, August 13, 2014. <http://www.citylab.com/housing/2014/08/where-private-school-enrollment-is-highest-and-lowest-across-the-us/375993/>

\$35,000. After this point, neighborhoods display greater variation in their dispersion of household income, with large inequalities in the percent of households with incomes of \$200,000 or more. Nearly 50 percent of households in tract 200202 (in eastern Van Dorn) in 2011, for example, earned incomes of \$200,000 or more, while no households reported incomes in this range in tract 200303 (in western Van Dorn). While household income varies considerably within and across census tracts, as estimates in Panel B in this figure reveal, neighborhoods with the lowest and highest median incomes have remained consistent over time.

- ***Compared to all households in Virginia, most census tracts in Alexandria City contain a smaller proportion of households earning low incomes and a greater proportion of households earning high incomes*** (Figure 1.9). Yet because the proportional distribution of household income varies considerably across neighborhoods within Alexandria City, planning for grade-level feasibility and equity as it relates to students' socioeconomic backgrounds is likely to be challenging.

Figure 1.7: Five-Year Trends in the Median and Annual Incomes of Alexandria City’s ZCTAs

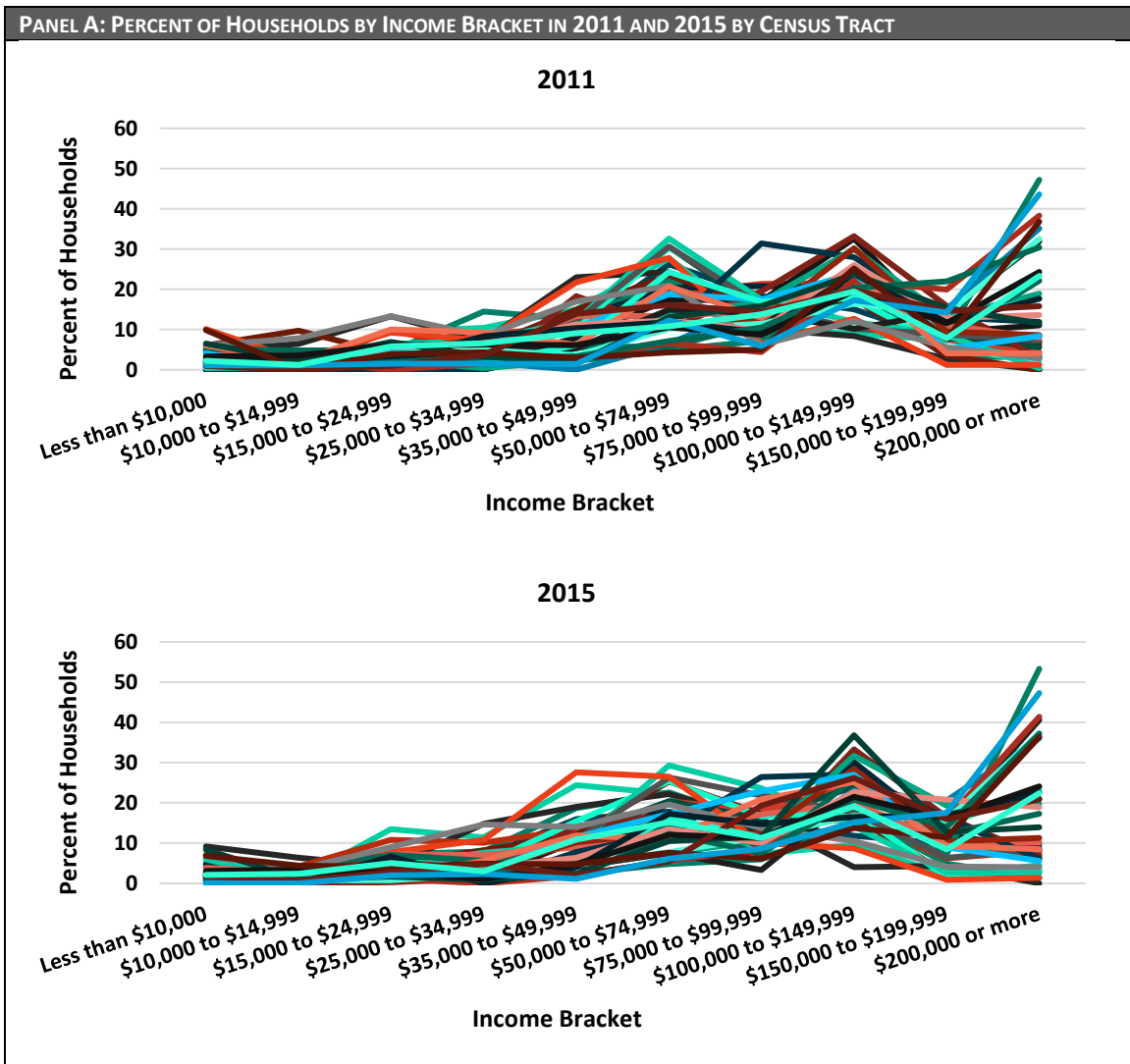


PANEL B: PERCENT OF HOUSEHOLDS IN LOWER AND UPPER INCOME BRACKETS BY ZCTA

| ZCTA | Total Number of Households | | | | |
|-------|----------------------------|--------|--------|--------|--------|
| | 2011 | 2012 | 2013 | 2014 | 2015 |
| 22301 | 4,900 | 4,838 | 4,861 | 5,012 | 5,218 |
| 22302 | 8,088 | 8,336 | 8,303 | 8,489 | 8,456 |
| 22304 | 20,642 | 20,838 | 20,974 | 20,829 | 20,988 |
| 22305 | 5,819 | 5,992 | 6,063 | 6,127 | 6,196 |
| 22311 | 7,531 | 7,418 | 7,612 | 7,527 | 7,679 |
| 22314 | 14,888 | 14,931 | 15,330 | 15,716 | 16,214 |

| ZCTA | Percent of Households Earning Incomes Less than \$50,000 (Low) and Percent Earning Incomes \$150,000 or More (High) | | | | | | | | | |
|-------|---|------|------|------|------|------|------|------|------|------|
| | 2011 | | 2012 | | 2013 | | 2014 | | 2015 | |
| | Low | High | Low | High | Low | High | Low | High | Low | High |
| 22301 | 20.6 | 35.8 | 19.5 | 36.9 | 18.4 | 37.7 | 15.1 | 39.4 | 12.7 | 41.8 |
| 22302 | 25.4 | 23.9 | 27.4 | 23 | 26.2 | 23.8 | 24.4 | 25.1 | 20.8 | 26.4 |
| 22304 | 27.9 | 15.5 | 28.4 | 17.2 | 27 | 16.8 | 28.1 | 17.9 | 27.6 | 17.7 |
| 22305 | 33.4 | 18.8 | 32.7 | 18.9 | 31.2 | 21.4 | 29.7 | 22.7 | 29.6 | 23.3 |
| 22311 | 34 | 13.4 | 33.7 | 15.5 | 35 | 14.4 | 38 | 13.9 | 39.1 | 12.1 |
| 22314 | 19.6 | 33.2 | 16.4 | 35.2 | 16.8 | 36.2 | 16.2 | 37.5 | 15.5 | 36.9 |

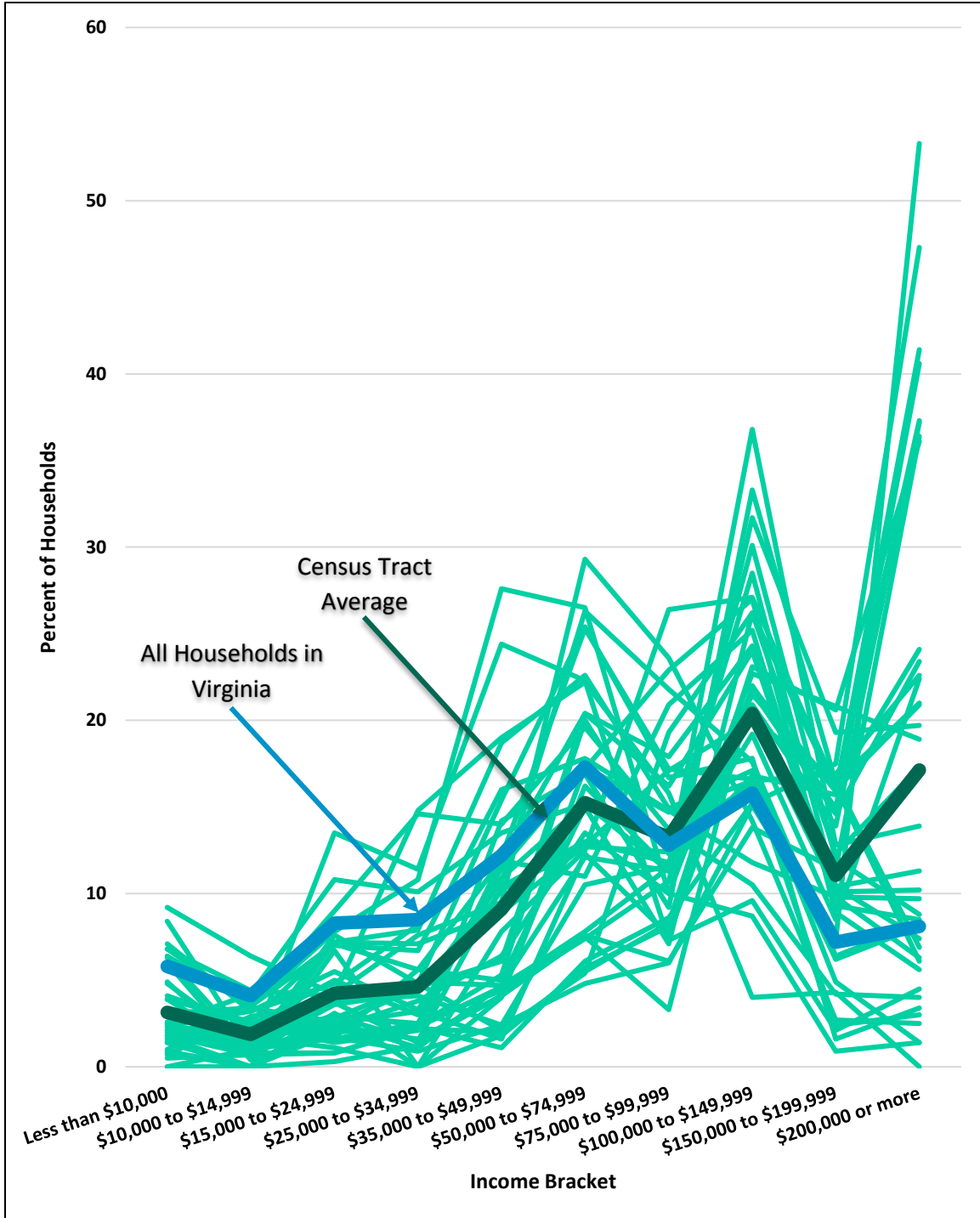
Figure 1.8: Five-Year Trends in the Median and Annual Incomes of Alexandria City's Census Tracts



PANEL B: CENSUS TRACTS WITH THE LOWEST AND HIGHEST MEDIUM HOUSEHOLD INCOMES IN 2011 AND 2015

| 2011 Median Incomes | | | | 2015 Median Incomes | | | |
|------------------------------------|----------|---------|-----------------|------------------------------------|----------|---------|------------------|
| Lowest | | Highest | | Lowest | | Highest | |
| Tract | Estimate | Tract | Estimate | Tract | 2015 | Tract | 2015 |
| 200105 | \$46,183 | 202001 | \$185,536 | 200105 | \$43,904 | 200202 | \$204,318 |
| 201203 | \$47,123 | 200202 | \$182,250 | 200103 | \$46,019 | 202001 | \$184,038 |
| 200500 | \$49,349 | 200900 | \$166,667 | 200500 | \$48,838 | 200900 | \$180,893 |
| 200103 | \$55,615 | 201500 | \$152,024 | 201203 | \$51,095 | 200801 | \$173,646 |
| 200303 | \$61,108 | 200404 | \$150,375 | 200104 | \$58,409 | 200404 | \$164,094 |
| 200406 | \$61,867 | 201802 | \$135,852 | 200106 | \$65,294 | 201500 | \$157,250 |
| 200104 | \$62,380 | 201100 | \$135,156 | 200405 | \$66,456 | 201100 | \$157,031 |
| 200405 | \$65,179 | 200701 | \$129,667 | 200102 | \$66,567 | 201802 | \$142,000 |
| 201204 | \$65,475 | 200801 | \$120,294 | 200303 | \$66,769 | 200702 | \$127,375 |
| 200407 | \$67,758 | 200702 | \$118,718 | 200406 | \$71,272 | 201300 | \$123,750 |
| Tract Average Median Income | | | \$98,288 | Tract Average Median Income | | | \$106,543 |

Figure 1.9: Percent of Households by Income Bracket in 2015 in Alexandria City Census Tracts



TRENDS IN MOBILITY PATTERNS

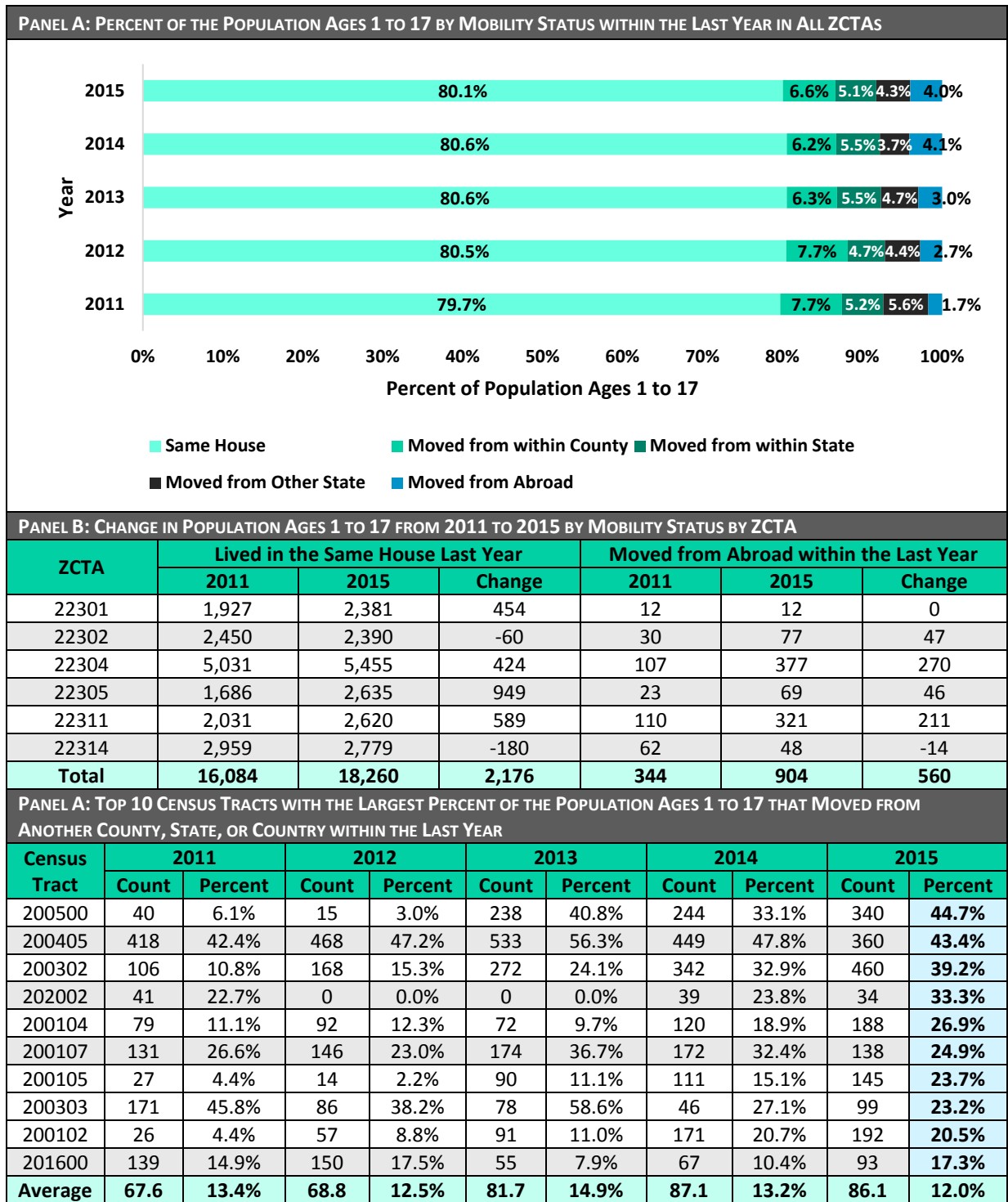
KEY TAKEAWAYS

- **Roughly four-fifths of the population ages 1 to 17 in Alexandria City’s ZCTAs indicated that they lived in the same home within the last year, a pattern that has remained consistent from 2011 to 2015** (Figure 1.10, Panel A). Between 2011 and 2015, approximately 79.7 and 80.1 percent of those ages 1 to 17 lived in the same household within the last year. The remainder of the population these ages indicated that they had moved to a community within Alexandria City from within the county, state, country, or abroad.
 - **While high, it appears that the mobility of student-aged populations has remained stable during the five-year period—a consistency that may minimize the difficulty of making enrollment projections.** As noted in the LREFWP, “Alexandria’s close-in urban location, demographics and housing stock combine to make future changes in enrollment difficult to anticipate. Of the current population of the city, more than 15% has moved into the city in the past year, and about 15% of those who lived here a year ago have moved out.”²³ Uneven density across Alexandria City’s neighborhoods as well high rates of in- and out-migration can make it difficult to project future enrollment.²⁴ Given that rates of mobility among those aged 1 to 17 have not changed significantly each year from 2011 to 2015, however, ACPS can reasonably expect similar rates of mobility among the student-aged population in the future.
- **Very few persons aged 1 to 17 moved to Alexandria City’s ZCTAs from abroad during the years spanning 2011 to 2015** (Figure 1.10, Panel B). ZCTAs 22304 (Van Dorn) and 22311 (Alexandria City West) did experience slight increases in the number of persons these ages that moved from abroad between the years 2011 and 2015, with increases of 270 and 211 persons, respectively. These areas aside, relatively small segments of the student-aged population moved to one of the six ZCTAs from another country within a year’s time span.
- **Roughly 12.0 percent of the population in 2015 ages 1 to 17 in each census tract on average moved to their current homes from another county, state, or country within a year’s time span** (Figure 1.10, Panel C). Neighborhoods with markedly higher rates of mobility among this population include tracts 200500 (in central Van Dorn), 200405 (in southern Van Dorn), and 200302 (in northern Van Dorn). These high rates of mobility can pose challenges to reconfiguration or other plans for grade-level feasibility as they make it difficult to gauge student enrollment.

²³ “Chapter 2: Enrollment Trends and Forecasting,” Op. cit., p. 2.3.

²⁴ Ibid.

Figure 1.10: Five-Year Trends in the Mobility Status of the Population Ages 1 to 17 in Alexandria City



SECTION II: IMPLICATIONS MOVING FORWARD

In the following section, Hanover identifies prominent trends in each geographic area within Alexandria City based on results from the above demographic analysis and the implications these trends may have for local schools. Findings from previous phases of Hanover’s ongoing study, including the literature review and the benchmarking analysis, are then used to explore the implications of high-growth areas for possible grade-level reconfiguration and feasibility within ACPS’s schools.

NOTABLE DEMOGRAPHIC TRENDS BY ZIP CODE

As revealed in the demographic analysis of Alexandria City above, population growth from 2011 to 2015 has been uneven across ZCTAs as well as census tracts within those ZCTAs. Should these trends persist, ACPS is likely to face greater pressure to enrollment at some schools over others. Below, Hanover summarizes key demographic trends in each ZCTA and the implications these trends could have for enrollment at nearby schools.

AREA 22301 (DEL RAY)

SCHOOLS LOCATED IN AREA 22301

| SCHOOL NAME | STREET ADDRESS | ZIP | GRADES |
|--------------------------|--------------------------|-------|--------|
| George Washington Middle | 1005 Mount Vernon Avenue | 22301 | 06-08 |
| Maury Elementary | 600 Russell Road | 22301 | KG-05 |

PROMINENT TRENDS FOR CONSIDERATION

Area 22301 near Del Ray boasts the fewest number of families than all other ZCTAs and experienced very small increases in the residency of three- to four-person and five- or more-person families from 2011 to 2015. Indeed, none of the neighborhoods located within this area—tracts 201500, 201400, and 201300—ranked among those with large increases in family residency. Though, tract 201500, a neighborhoods proximate to Maury Elementary School, has experienced increases in the number of births to women ages 15 to 50 over the five-year period. Thus, Maury Elementary may experience some increases in enrollment in the near future should these rates continue to increase. Given the area’s relatively small number of families, however, pressure to enrollment is likely to be greater elsewhere than this community.

Just as few families live in area 22301, the growth of the student-aged population residing within this community remained relatively modest from 2011 to 2015 when compared to other areas in Alexandria City. At most, area 22301 saw a sizeable increase in the population ages 5 to 11 from 2011 to 2015 (325 persons), yet it witnessed much less growth in the population ages 0 to 4 (80 persons) during this period of time. Likewise, tract 201500 ranked among those neighborhoods with high average growth in the population ages 0 to 17 from 2011 to 2015; however, trends show a decline in year-to-year, consecutive growth.

As of 2015, area 22301’s student-aged population was overwhelmingly white at about 72 percent—more than any other community in the area and much larger than Alexandria City’s white student-aged population at 42.3 percent. Indeed, racial diversity declined in this community between 2011 and 2015. The area also boasts greater wealth as measured by annual income. At large, over 40 percent of the households in the community in 2015 earned annual incomes of \$150,000 or higher, up from 35.8 percent in 2011. Should ACPS reconfigure grade levels at schools overlapping this ZCTA boundary, racial and socioeconomic factors may be prioritized to ensure equity and inclusion. Nonetheless, given area 22301’s relatively small population increases among persons ages 0 to 17 from 2011 to 2015, it is unlikely that area 22301 should experience an influx of students in the near future requiring grade-level reconfiguration.

AREA 22302 (CENTRAL ALEXANDRIA)

SCHOOLS LOCATED IN AREA 22302

| SCHOOL NAME | STREET ADDRESS | ZIP | GRADES |
|------------------------------|--------------------------|-------|--------|
| Charles Barrett Elementary | 1115 Martha Custis Drive | 22302 | PK-05 |
| Douglas MacArthur Elementary | 1101 Janneys Lane | 22302 | KG-05 |
| George Mason Elementary | 2601 Cameron Mills Road | 22302 | KG-05 |
| TC Williams High | 3330 King Street | 22302 | 09-12 |

PROMINENT TRENDS FOR CONSIDERATION

Area 22302 in the central region of Alexandria City intersects with the boundaries of several elementary schools, each of which primarily overlap with three contiguous census tracts: 201000 (overlapping with Charles Barrett Elementary), 200900 (overlapping with George Mason Elementary), and 200801 (overlapping with Douglas MacArthur Elementary). As illustrated in Section I, none of these neighborhoods are among the top tracts with the greatest numeric growth in family residency, and while area 22302 has grown by roughly 1,000 families from 2011 to 2015, the community’s growth rates have been inconsistent in recent years. In a similar vein, the number of births to women ages 15 to 50 have declined as have the area’s birth rates from 2011 to 2015.

Overall, trends in area 22302’s family growth parallel the community’s small growth among those aged 0 to 17. Not only does a small proportion of Alexandria City’s student-age residents live in this community, but ZCTA 22302 was the only area to decline in its population ages 0 to 4 between 2011 and 2015. Altogether, the evidence suggests that the enrollment of students from this area is unlikely to surge with incoming cohorts, and therefore, may not necessarily require grade-level reconfiguration to address overcrowding.

While the size of the student-aged population has remained rather constant in this community, contrary to trends experienced by other ZCTAs, area 22302’s racial homogeneity declined between 2011 and 2015. That is, black, Hispanic, and Asian subgroups ages 0 to 17

increased in their proportional size from 2011 to 2015 relative to white persons in the same age group. The distribution of high and low annual incomes across area 22302’s households has also remained fairly even and constant during this period of time. Taken together, the community appears to be more equitable than others in its representation of different racial and socioeconomic subgroups.

AREA 22304 (VAN DORN)

SCHOOLS LOCATED IN AREA 22304

| SCHOOL NAME | STREET ADDRESS | ZIP | GRADES |
|----------------------------|-------------------------|-------|--------|
| Francis C. Hammond Middle | 4646 Seminary Road | 22304 | 06-08 |
| James K Polk Elementary | 5000 Polk Avenue | 22304 | KG-05 |
| Patrick Henry Elementary | 4643 Taney Avenue | 22304 | PK-05 |
| Samuel W Tucker Elementary | 435 Ferdinand Day Drive | 22304 | KG-05 |

PROMINENT TRENDS FOR CONSIDERATION

Area 22304 in Van Dorn is the most populated area in Alexandria City and is made up of 12 census tracts. Within this community, James K. Polk Elementary and Patrick Henry Elementary overlap with tract 200302, Samuel W. Tucker Elementary overlaps with tract 200404, and Francis C. Hammond Middle overlaps with tract 200301, each of which have experienced relatively large increases in family residency, births, and/or student-aged populations in recent years. Census tracts 200301 and 200302, for instance, ranked among the top neighborhoods with the greatest numeric increase in total families from 2011 to 2015 at 274 and 170 families, respectively. These neighborhoods account for large increases in family residency among area 22304, which made its greatest gains in family residency between the years 2014 and 2015. In fact, tracts 200301 and 200302 ranked among those neighborhoods in Alexandria City with the largest year-to-year growth in families of five or more persons and average annual birth rates. Perhaps even more relevant to ACPS’s interests, both of these census tracts, tract 200404, and tract 200303 (which overlaps with the newly proposed boundaries of James K. Polk Elementary and Patrick Henry Elementary schools), ranked among the top neighborhoods with average year-to-year growth among residents ages 0 to 17. Should these high-growth trends persist in the years to come, schools in this area may face pressure to enrollment, particularly in those neighborhoods most proximate to ACPS elementary schools.

Should the division reconfigure grade levels in area 22304, ACPS should take into account the community’s racial composition, which displays the greatest racial balance compared to other ZCTAs in Alexandria City. Notably, about one-third of residents of school age are white, another third is black, and about 22 percent are Hispanic, the remainder of which identify with other racial groups. Just as area 22304’s racial composition has remained balanced over time, the community’s median household income has remained fairly stable from \$70,145 in 2011 to \$76,071 in 2015; although, this median income is much lower compared to the median incomes of Alexandria City’s other communities. A closer look at the median incomes

of the neighborhoods within area 22304 reveal wide discrepancies across census tracts. Tracts 200405, 200303, and 200406 ranked among Alexandria City’s neighborhoods with the lowest median household incomes in 2011 and in 2015 while tracts 200202 and 200404 ranked among those with the highest median household incomes each of these years. Thus, maintaining equity in student socioeconomic status across the community’s schools may prove challenging should these patterns persist.

Aside from socioeconomic inequalities, another trend with potential implications for grade-level reconfiguration is area 22304’s high rates of mobility among those ages 1 to 17. The percent of students these ages in 2015 that had moved from another county, state, or country within the last year in tracts 200405, 200302, and 200303 in 2015 was 43.4, 39.2, and 23.2 percent, respectively. These mobility rates are much higher than the tract average of 12.0 percent that year. Such moves may have effects on students’ transitions to new schools and could be amplified should these same students switch schools again as a result of reconfiguration.

AREA 22305 (POTOMAC WEST)

SCHOOLS LOCATED IN AREA 22305

| SCHOOL NAME | STREET ADDRESS | ZIP | GRADES |
|------------------------------|--------------------------|-------|--------|
| Cora Kelly Magnet Elementary | 3600 Commonwealth Avenue | 22305 | PK-05 |
| Mount Vernon Elementary | 2601 Commonwealth Avenue | 22305 | PK-05 |

PROMINENT TRENDS FOR CONSIDERATION

Area 22305 in Potomac West is primarily made up of four census tracts: 201203 (overlapping with Cora Kelly Magnet Elementary), 201202 (overlapping with Mount Vernon Elementary), 201100, and 201204. At large, this community experienced steady and positive growth in family residency between 2011 and 2015 as well as increases in the birth rate. In fact, tract 201203 had the largest numeric increase in total families (at 401 families) while tract 201100 had the largest average annual birth rate (148.2 births per 1,000 women ages 15 to 50) during this five-year period out of all the neighborhoods in Alexandria City. Area 22305 was also the only ZCTA to show positive increases in every student-aged subpopulation ages 0 to 4, 5 to 11, and 12 to 17 between 2011 and 2015. Much of this growth occurred in census tracts 201203 and 201100, which ranked highly in average year-to-year growth among the population ages 0 to 17. Thus, despite the area’s small population size compared to area 22304, 22305’s robust growth in family residency, birth rates, and student-aged populations from 2011 and 2015 indicate that this community may likely face greater pressure to enrollment in the near future.

From 2011 to 2015, the racial composition of area 22305 shifted from a white-majority to a Hispanic-majority population ages 0 to 17. The black and Asian student-aged populations saw a proportional decline during these years as did those that identify with other racial groups. At the same time, the community declined in the percent of households earning annual incomes less than \$50,000 while increased in the proportion of households with incomes of

\$150,000 or more. At the neighborhood level, tract 201203 had a low median household income in 2015 (at \$51,095) while tract 201100 boasted a high median household income (at \$157,031). Overall, these trends suggest that a considerable amount of demographic change has occurred in Potomac West while the community has grown. Such change may make it difficult to ensure equitable racial and socioeconomic representation should ACPS reconfigure grade levels across schools. Though, the community has had low residential mobility among the population ages 1 to 17 in recent years—a trend that, if remains constant, will make it easier for the division to project enrollment in the future.

AREA 22311 (ALEXANDRIA WEST)

SCHOOLS LOCATED IN AREA 22311

| SCHOOL NAME | STREET ADDRESS | ZIP | GRADES |
|---------------------------|---------------------|-------|--------|
| John Adams Elementary | 5651 Rayburn Avenue | 22311 | PK-05 |
| William Ramsay Elementary | 5700 Sanger Avenue | 22311 | PK-05 |

PROMINENT TRENDS FOR CONSIDERATION

Area 22311 in Alexandria West is primarily made up of five census tracts with a sixth (tract 200103) located just outside of its borders near Lincolnia. William Ramsay Elementary and John Adams Elementary are both located in just one of these neighborhoods (tract 200102), however, according to the approved redistricting plan, the boundaries of a third elementary school will overlap with census tracts 200104 and 200105 along Route 395. Indeed, findings from Section I’s demographic analysis reveal an increase of about 400 families in the 22311 area from 2011 to 2015, with large increases in family residency in tracts 200107 and 200106 in the northern part of the community. Tract 200104, where the new school is to be built, as well as tracts 200107, 200102, and 200103 have shown large year-to-year increases in families of five or more persons. Growth in family size in tract 200104 in particular was likely sustained with large increases in births to women ages 15 to 50 from 2011 to 2015. Growth in family size aside, the area showed substantial average year-to-year increases in student-aged populations, specifically in tracts 200102, 200106, and 200103 with increases of 333, 285, and 258 persons ages 0 to 17, respectively.

While plans for a new elementary school will undoubtedly curb pressure to enrollment as a result of this growth, other racial, socioeconomic, and mobility factors may impact potential grade-level reconfiguration should ACPS decide to rearrange grade spans across schools. Approximately 85 percent of the those aged 0 to 17 residing within area 22311 are non-white, a majority of whom are Hispanic (41 percent as of 2015). The community’s median household income has remained the lowest of all six ZCTAs from \$65,700 in 2011 to \$61,829 in 2015, a reduction of \$3,871 and the only ZCTA estimate to decline during this five-year period. In fact, five census tracts in area 22311 ranked among those with the lowest median incomes in 2015 of all the neighborhoods in the city. In addition to these demographic trends, four of the area’s census tracts—200104, 200107, 200105, and 200102—exhibited a persistently large proportion of students that had moved from another county, state, or country each year.

Thus, many children residing within this community are likely to face racial and socioeconomic disadvantages than those in Alexandria City’s other communities.

AREA 22314 (OLD TOWN)

SCHOOLS LOCATED IN AREA 22314

| SCHOOL NAME | STREET ADDRESS | ZIP | GRADES |
|------------------------------|-----------------------|-------|--------|
| Jefferson-Houston Elementary | 1501 Cameron Street | 22314 | PK-08 |
| Lyles-Crouch Elementary | 530 S St Asaph Street | 22314 | KG-05 |

PROMINENT TRENDS FOR CONSIDERATION

Area 22314 in Old Town primarily consists of 10 separate neighborhoods, two of which overlap with Lyles-Crouch Elementary (tract 202001) and Jefferson-Houston Elementary (tract 201600). At large, the community has witnessed steady growth in family residency in recent years, much of which is attributable to increases in small three- to four-person families. Just as the area witnessed modest increases in family residency, only one neighborhood within this community (tract 200703 in the southern part of Old Town) ranked among those in Alexandria City with the highest average annual birth rates from 2011 to 2015 (with an estimate of 97.2 births per 1,000 women ages 15 to 50 on average). The area also consists of a relatively small student-aged population and saw declines in residents ages 5 to 11 and 12 to 17 during this period. At the same time, the median household income rose considerably, from \$111,916 in 2011 to \$121,109 in 2015. Given these trends and the area’s low rates of mobility among those ages 1 to 17, the evidence suggests that this community is less likely to face overwhelming pressure to enrollment in the future.

PRACTICAL CONSIDERATIONS FOR GRADE-LEVEL RECONFIGURATION

Based on the demographic trends discussed above, areas 22304 in Van Dorn, 22305 in Potomac West, and 22311 in Alexandria West are the most likely to face pressure to enrollment and overcrowding at several of ACPS’s schools. While reconfiguring grade levels across schools may help to organize the student body and maximize the efficiency with which the division uses facilities space, as explored in earlier phases of Hanover’s ongoing investigation, there are other practical considerations to grade-level reconfiguration. These implications include how grade-level reconfiguration impacts student achievement and wellbeing; how resources are managed across schools and whether or not alternative strategies to overcrowding should be considered; and how to best prepare for stakeholder feedback.

STUDENT ACHIEVEMENT, WELLBEING, AND SCHOOL TRANSITIONS

To briefly summarize, the most traditional grade configuration model across U.S. schools follows students from kindergarten to at least Grade 4 in elementary schools.²⁵ After Grade

²⁵ Renchler, R. “Grade Span.” *National Association of Elementary School Principals*, 16:3, Spring 2000. p.2. <http://files.eric.ed.gov/fulltext/ED440471.pdf>

4, grade configuration varies, with some students transitioning to middle school (Grades 5 to 8 or Grades 6 to 8) or junior high (Grades 7 to 8). Other models may combine junior and senior high schools, which can span from Grades 6 to 12. However, students commonly enter high school in Grade 9.²⁶ While there is an array of possible grade span options, in all, the National Center for Education Statistics (NCES) finds that the most common elementary school configuration is Pre-K/Kindergarten through Grade 5, while the most common secondary school configuration is Grades 9 through 12.²⁷

School overcrowding is just one reason a district may consider reconfiguration; sometimes districts reconfigure these grade-level models in response to new pedagogical theories aligned with the educational and developmental needs of students.²⁸ Foremost, many school districts across the nation have transitioned from middle or junior high schools into more comprehensive K-8 schools. As of 2014, there were over 6,500 K-8 schools in the United States, a significant increase from around 2,500 K-8 schools just decades earlier in 1994.²⁹ Minimizing the number of transitions students make from school to school is a key benefit to K-8 reconfiguration as students no longer have to transition to a middle school prior to high school entrance. Indeed, research shows that such transitions are linked with a wide range of academic and behavioral problems, such as decreased self-esteem, grades, test scores, engagement, attendance, and increased disciplinary infractions and suspensions.³⁰ As noted in a paper released by the Harvard University Institute for Economic Research, for example, “structural school transitions lower student achievement but [...] middle schools in particular have adverse consequences for American students.”³¹ The K-8 model, therefore, eliminates these transitions, which otherwise hinder student performance and adjustment.

In Hanover’s benchmarking analysis, two school districts combined traditional K-5 elementary and 6-8 middle schools into single K-8 schools: Aurora Joint District 28 in Colorado (referred to as Aurora Public Schools; APS) and Charlotte-Mecklenburg Schools in North Carolina (CMS). ***While both districts reconfigured schools to include this grade span for a more efficient use of space, APS also cited academic reasons for making this change as well.*** APS’s Planning Coordinator, Josh Hensley (Hensley), stated that K-8 schools were created to eliminate school

²⁶ “The Structure of Education in the United States.” National Center for Education Statistics. https://nces.ed.gov/programs/digest/d13/figures/fig_01.asp?referrer=figures

²⁷ “Table 216.75: Public Elementary Schools, by Grade Span, Average School Enrollment, and State or Jurisdiction: 2013-14.” National Center for Education Statistics, 2015. https://nces.ed.gov/programs/digest/d15/tables/dt15_216.75.asp?current=yes

²⁸ Schwerdt, G. “The Impact of Alternative Grade Configurations on Student Outcomes through Middle and High School.” Harvard University Institute for Economic Research, September 2011. p.1. <http://www.edweek.org/media/gradeconfiguration-13structure.pdf>

²⁹ [1] “Table 216.80: Public secondary schools, by grade span, average school enrollment, and state or jurisdiction: 2013-14,” Op. cit., p. 26. [2] “Table 216.10. Public Elementary and Secondary Schools, by Level of School: Selected Years, 1967-68 through 2011-12.” National Center for Education Statistics, 2013. p. 216. http://nces.ed.gov/programs/digest/d13/tables/dt13_216.10.asp

³⁰ [1] Benner, A.D. “The Transition to High School: Current Knowledge, Future Directions.” *Educational Psychology Review*, 23:3, April 2011. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3182155/> [2] Cook, P.J. et al., Op. cit. p. 106. <http://dx.doi.org/10.1002/pam.20309> [3] Juvonen, J. et al. “Focus on the Wonder Years - Challenges Facing the American Middle School.” RAND Corporation, 2004. pp. 13–15. http://www.rand.org/content/dam/rand/pubs/monographs/2004/RAND_MG139.pdf

³¹ Schwerdt, G., Op. cit., p. 23.

transitions. Hensley also noted that the K-8 model helps to build closeness between students and teachers.³² Alternatively, Scottsdale Unified School District (SUSD) in Hanover's benchmarking study separated K-8 schools into distinct elementary and middle schools. Terry Worcester (Worcester), the district's Director of Planning and Design, explained that this was done to enhance instruction at both levels, improve elementary and middle grade academic performance, and better prepare students in 6-8 schools for the transition to high school.³³

Just as districts in Hanover's benchmarking study considered the use of facilities in combination with academic factors to reconfiguration, ACPS should incorporate these factors into decision making as well when determining the best approach to overcrowding.

Overall, the body of evidence highlights that no single grade span configuration across schools works best for all districts' needs, nor do researchers unanimously agree on a "best" configuration model.³⁴ ACPS may reflect on answers to the following key questions when considering different grade-level models:³⁵

- Will the grade configuration increase or decrease parent involvement?
- How many students will be enrolled at each grade level and what implication does this have on course offerings and instructional grouping?
- How many transition points will occur? How will these be addressed?
- How will the presence or absence of older students affect younger students?
- Is the design of the school building suited to this grade configuration?
- What is the cost and length of student travel?
- What are the opportunities for interaction between age groups?
- What are the effects of the grade configuration on curriculum? Is there better continuity and articulation in curriculum with fewer gaps and overlaps?
- Are there stronger ties among schools, students, and parents?

RESOURCE MANAGEMENT AND ALTERNATIVE STRATEGIES TO ADDRESS CROWDING

Operating costs and the management of resources are key issues for consideration when reconfiguring. Grade-level reconfiguration often entails added costs to a district for new materials, classroom items, facilities space, and student transportation.³⁶ Though,

³² Hensley, Josh. Planning Coordinator, Aurora Joint District 28, Phone interview. December 14, 2016.

³³ Worcester, Terry. Director of Planning and Design, Scottsdale Unified District, Phone interview. December 16, 2016.

³⁴ Sellar, W. "Configuring Schools: A Review of the Literature." Ontario Institute for Studies in Education, August 2004. p.2. <http://www.hpedsb.on.ca/ec/directorsOffice/arc/documents/Configuringschools.pdf>

³⁵ List of bulleted information taken from: Barton, R. and J. Klump. "Figuring Out Grade Configurations." *Principal's Research Review*, 7:3, May 2012. pp.4–5. <http://educationnorthwest.org/sites/default/files/resources/PRR-Figuring-Out-Grade-Configurations.pdf>

³⁶ Paglin, C. and J. Fager. "Grade Configuration: Who Goes Where?" Northwest Regional Educational Laboratory, July 1997. p. 10. <http://www.cityofportsmouth.com/school/centraloffice/eefc/4g.pdf>

researchers have found that such costs vary by district.³⁷ For example, a report published by the Brookings Institute estimated that the costs of reconfiguring from K-5/6-8 to K-8 schools ranges from about \$50 to \$250 per student based on national data and data reported by specific districts that have undertaken these efforts.³⁸ Of course, the costs of grade-level reconfiguration ultimately depend on the resources already available to the district and how much change is needed to accommodate the needs of new grades. In Hanover's benchmarking study, for example, Worcester noted that when reconfiguring grades at CMS, elementary school buildings often lacked amenities needed for older students, such as lockers or gymnasium facilities. As these observations would imply, ACP's decisions to reconfiguration will likely impact how much financial support will be needed to accommodate instruction and program implementation.

With the costs of reconfiguration in mind, a district may turn to alternative strategies to reduce pressure to the use of facilities space. As benchmarked in earlier phases of Hanover's ongoing study, several school districts implemented a number of strategies to address overcrowding. One such strategy is altering the structure of existing spaces across classes and other rooms in a school to maximize the use of space.³⁹ Another strategy to address enrollment growth is the use of mobile or portable units to expand facilities. According to Community and Environmental Defense Services (CEDs), a network of professionals that help solve the environmental concerns of private, nonprofit, and public entities, nearly one-third of all U.S. schools during the 2012-2013 school year relied on the use of mobile units to house classrooms.⁴⁰ Adding portable units to a school is not the only structural solution to overcrowding and enrollment growth, however. Two districts Hanover interviewed in the benchmarking study have, or have considered, renovating existing or replacement schools in an effort to expand space. By doing so, students are provided with options for enrollment, which can ease overcrowding at a single school.

Altering school zone boundaries, restructuring the class schedule, and offering more online learning opportunities comprise three non-capital strategies for curbing pressure to enrollment. As noted by CEDs, adjusting school boundaries makes sense if one school is above enrollment capacity while another has excess space.⁴¹ Restructuring the class schedule and offering more online learning opportunities, moreover, shift the focus of strategic enrollment planning from facilities space to instructional practice.⁴² In these cases, districts may offer

³⁷ Jacob, B.A. and J.E. Rockoff. "Organizing Schools to Improve Student Achievement: Start Times, Grade Configurations, and Teacher Assignments." Hamilton Project, Brookings Institution, September 2011. p. 16. https://www0.gsb.columbia.edu/faculty/jrockoff/papers/092011_organize_jacob_rockoff_paper.pdf

³⁸ Jacob and Rockoff, Op. cit., pp. 5-6.

³⁹ Respondent 1. Anonymous District 1, Phone interview. December 7, 2016.

⁴⁰ "Preventing School Overcrowding & Other Development Impacts." Community and Environmental Defense Services. <http://ceds.org/school.html>

⁴¹ Ibid.

⁴² [1] "Year-Round Education Program Guide - Multitrack Year-Round Education." California Department of Education. <http://www.cde.ca.gov/ls/fa/yr/guide.asp> [2] "Research Spotlight on Year-Round Education." National Education Association. <http://www.nea.org/tools/17057.htm>

year-round or extended learning so that classrooms are shared for greater periods of time. Likewise, online learning opportunities create flexible use of learning spaces.⁴³

STAKEHOLDER FEEDBACK

Strategies to address increasing enrollment should be informed by their implications for parents, educators, and feedback from the community at large. Several respondents in Hanover’s benchmarking analysis, for example, noted that parents often express concern about the wellbeing of students during and after grade-level reconfiguration. At schools where elementary and middle grades were combined, parents expressed some apprehension about the mixing of younger and older students. Some also felt that Grade 8 students’ preparation for the transition to high school would be negatively impacted when attending a school with much younger children.⁴⁴ At schools where elementary and middle grades were separated, parents expressed displeasure at the fact that siblings close in age would be attending separate schools. Rather, these parents preferred the continuity that K-8 schools offered.⁴⁵ Such pushback has been received at districts other than those included in Hanover’s benchmarking study. A news article describing transitions taking place in Florence School District One in South Carolina, for instance, recounts such sentiment in which community members felt as though they had little input in the decision making process.⁴⁶

In addition, educators will want to ensure alignment across grade reconfiguration, and like other community members, will want to have input in assignments and transitions between schools.⁴⁷ As in the case of APS, licensing requirements for elementary and secondary teaching certification presented challenges when reconfiguring to K-8 schools. Making teacher assignments to the new K-8 schools was difficult for administrators because separate certification is needed to instruct Grades K-6 and 7-8.⁴⁸ Thus, feedback from educators, particularly those who will be directly affected by reconfiguration, should be incorporated into district decision making practices.

⁴³ [1] “Year-Round Education Program Guide - Multitrack Year-Round Education,” Op. cit. [2] “Research Spotlight on Year-Round Education,” Op. cit.

⁴⁴ Hensley, Op. cit.

⁴⁵ Worcester, Op. cit.

⁴⁶ Rollins, M. “Parents Raise Concern About Florence School District One Boundary Maps.” *SCNOW*, December 8, 2016. http://www.scnow.com/news/education/article_e45c36f2-bdc2-11e6-9dfb-1b750e1d67ac.html

⁴⁷ [1] “Supporting Students in Their Transition to Middle School.” National Middle School Association and the National Association of Elementary School Principals, 2002. [2] Lorain, P. “Transition to Middle School.” National Education Association. <http://www.nea.org/tools/16657.htm> [3] “Successful K-12 Transitions through Vertical and Horizontal Articulation.” American Institutes for Research, October 25, 2011. <http://www.ccrscenter.org/blog/successful-k-12-transitions-through-vertical-and-horizontal-articulation> [4]

Parrish, T. et al. “Making the Move: Transition Strategies at California Schools with High Graduation Rates.” WestEd, October 2011. pp. 8–9.

⁴⁸ Hensley, Op. cit.

SECTION III: CURRENT ENROLLMENT & GRADE CONFIGURATIONS

In addition to exploring demographic trends in the region overall, ACPS has expressed interest in examining how grade configurations at different school sites may impact school capacity and over-enrollments. In order to simulate how different grade configuration scenarios impact district enrollment, Hanover uses current enrollment data to create and manipulate several different grade configuration scenarios for Grades PK-8 and examine their impact on over-enrollments. The major research questions addressed by this update are as follows:

- How does grade configuration interact with school capacity to determine over-enrollments throughout the school division?
- How can changes to grade configuration minimize over-enrollment, based on current enrollment figures?

The accompanying Tableau Dashboard allows users to explore additional grade configuration scenarios for Grades PK through 8, including the potential transition of one elementary school site into a Pre-K Center and the transition of more elementary and middle school sites to a K-8 grade configuration.

METHODOLOGY

DATA AND METHODS

This analysis and the accompanying Dashboard use data from the National Center for Education Statistics (NCES) Elementary and Secondary Information System (EISi). EISi provides information on every public school and local education agency (LEA) in the United States, including division-level enrollment by grade level. For the purposes of this update, Hanover employs the ACPS grade-level enrollment data from the most recently available year (2014-2015) to examine how students during this year could be re-distributed across schools under different grade configuration scenarios.

Capacity and square footage estimates for each school are drawn from the most recently available ACPS Long-Range Facilities Planning documents.⁴⁹ **The analysis relies on school capacity estimates for 2020**, in order to include current, ongoing, and near-term construction projects that allow selected schools to accommodate more students.

⁴⁹ "Long Range Educational Facilities Plan." Joint Alexandria City Public Schools/City of Alexandria, June 2015, pp. 49-50 and 52-120. <https://www.acps.k12.va.us/cms/lib/VA01918616/Centricity/Domain/1026/lrefp/Long-Range-Educational-Facilities-Plan.pdf>

PK/K-8 SCHOOLS

In order to create multiple configuration scenarios, Hanover adds additional PK- or K-8 schools in intervals of two from two through eight school sites. **Schools are transitioned to PK- or K-8 by size, beginning with the largest available schools**, but excluding the district’s larger middle school (Hammond MS). Specific schools included in each scenario are provided in the figure below.

Figure 3.1: Summary of Schools by Configuration Scenario

| SCHOOL | CURRENT CONFIGURATION | 2020 CAPACITY |
|-------------------------------------|-----------------------|---------------|
| 1 PK/K-8 School (Status Quo) | | |
| Jefferson-Houston School | PK-8 | 800 |
| Total PK/K-8 Capacity | | 800 |
| 2 PK/K-8 Schools | | |
| Jefferson-Houston School | PK-8 | 800 |
| George Washington Middle School | 6-9 | 1,150 |
| Total PK/K-8 Capacity | | 1,950 |
| 4 PK/K-8 Schools | | |
| Jefferson-Houston School | PK-8 | 800 |
| George Washington Middle School | 6-9 | 1,150 |
| John Adams Elementary School | PK-5 | 858 |
| Patrick Henry Elementary School | PK-5 | 790 |
| Total PK/K-8 Capacity | | 1,950 |
| 6 PK/K-8 Schools | | |
| Jefferson-Houston School | PK-8 | 800 |
| George Washington Middle School | 6-9 | 1,150 |
| John Adams Elementary School | PK-5 | 858 |
| Patrick Henry Elementary School | PK-5 | 790 |
| James K. Polk Elementary School | K-5 | 756 |
| Mount Vernon Community School | PK-5 | 755 |
| Total PK/K-8 Capacity | | 4,354 |
| 8 PK/K-8 Schools | | |
| Jefferson-Houston School | PK-8 | 800 |
| George Washington Middle School | 6-9 | 1,150 |
| John Adams Elementary School | PK-5 | 858 |
| Patrick Henry Elementary School | PK-5 | 790 |
| James K. Polk Elementary School | K-5 | 756 |
| Mount Vernon Community School | PK-5 | 755 |
| William Ramsay Elementary School | PK-5 | 748 |
| Samuel W. Tucker Elementary School | K-5 | 620 |
| Total PK/K-8 Capacity | | 7,555 |
| All PK/K-8 Schools | | |
| Total PK/K-8 Capacity* | | 10,473 |

*Note: This estimate includes *all* division elementary and middle schools; the capacity estimate is *without* a division Pre-K Center.

As K-8 schools are added, Hanover “fills” each school to its capacity with an equal number of students per grade level. Thus, the remainder of “over-enrolled” PK-5 students appears under K-5 Schools, while the remainder of “over-enrolled” 6-8 students appears under 6-8 middle

schools, except when all schools are PK/K-8. Under the no Pre-K Center scenario, PK students are “placed” in the largest schools until no Pre-K students remain. Under the Pre-K Center scenario, all Pre-K students are placed in the proposed Pre-K Center school site (Maury Elementary, see notes in the following subsection).

PRE-K CENTER

Given the relatively small size of the division’s Pre-K program, Hanover selected the smallest-capacity elementary school—Matthew Maury Elementary (Maury ES)—as the potential site for a Pre-K Center. Maury ES is somewhat centrally located in southeast Alexandria and thus, presents a realistic potential site for the Pre-K program (see Figure 3.2 below). Other small schools in the division that may be viable options for a Pre-K Center include George Mason Elementary, which is also located in a somewhat central location. Two magnet schools also fit the size expectations of a potential Pre-K Center: Lyles-Crouch Tradition, which is located in the far southeast corner of the City, and Cora Kelly Elementary, which is located in the far northeast of the City. However, these additional options were not included in this analysis due to the better fit of Matthew Maury’s current size and location, as well as its lack of magnet school status.

Figure 3.2: Potential Pre-K Center Locations Considered for Analysis

| SCHOOL | LOCATION | 2020 CAPACITY | MAGNET STATUS |
|--|--------------------------------------|---------------|---------------|
| Matthew Maury Elementary School | 600 Russell Rd Alexandria, VA | 350 | ✗ |
| George Mason Elementary School | 2601 Cameron Mills Rd Alexandria, VA | 368 | ✗ |
| Lyles-Crouch Traditional School | 530 St. Asaph St Alexandria, VA | 375 | ✓ |
| Cora Kelly Elementary School | 3600 Commonwealth Ave Alexandria, VA | 429 | ✓ |

LIMITATIONS

This analysis has several limitations. First, the methodology assumes that students can be transferred easily across the school division and that schools can be enrolled evenly across schools. Furthermore, this analysis does not employ specific data on school boundaries, available classrooms in each school, or target class sizes. Thus, configuration scenarios consider potential over-enrollments in the district overall, rather than at the individual school level and does not consider that the number of students in each grade per school may mean available space is used less efficiently.

Finally, this analysis does not address the varying building and space needs of different age groups or student subpopulations in different school buildings. For instance, the analysis assumes that middle schools can be transitioned into PK-8 schools, and that elementary schools can be transitioned into either PK-8 or Pre-K only schools. Likewise, the analysis does not consider the specific space or location needs of special education students or other special programs. In practice, transitions such as these may require significant renovation to

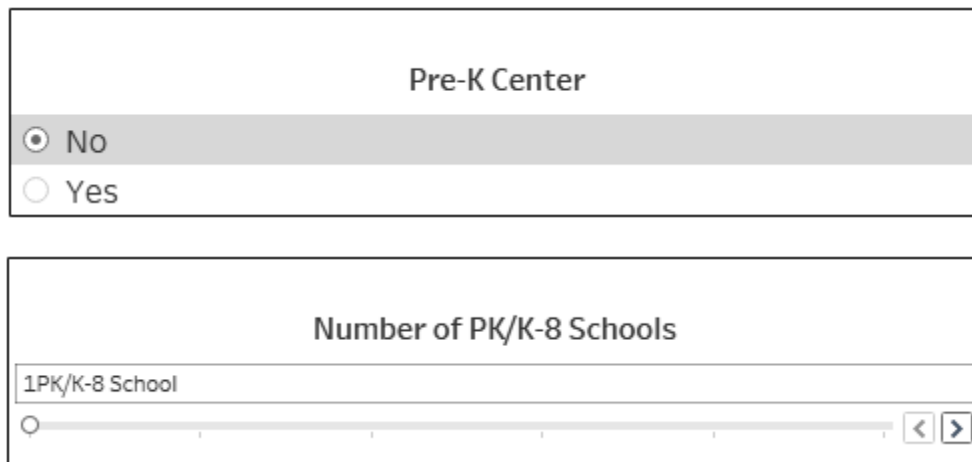
individual buildings to make spaces suitable for different student groups. Thus, the simulation tool shows an estimate of how students may be distributed based on current capacity only, rather than specific needs of different student ages or subgroups.

DASHBOARD INSTRUCTIONS

The accompanying Tableau Dashboard allows the user to simulate several different school configuration scenarios using provided filters to examine the effect of grade configuration on over-enrollments at various school levels. The Dashboard provides two filters, displayed in Figures 3.3 below. The first allows the user to select whether or not the district operates a Pre-K Center at the current site of Matthew Maury Elementary School. The second filter allows the user to select the number of PK/K-8 schools throughout the district. As previously noted, schools are transitioned to a PK/K-8 structure beginning first with George Washington Middle School, followed by district elementary schools from largest to smallest. Within the dashboard, the user can select:

- 1 PK/K-8 School (status quo scenario)
- 2 PK/K-8 Schools
- 4 PK/K-8 Schools
- 6 PK/K-8 Schools
- 8 PK/K-8 Schools
- All PK/K-8 Schools

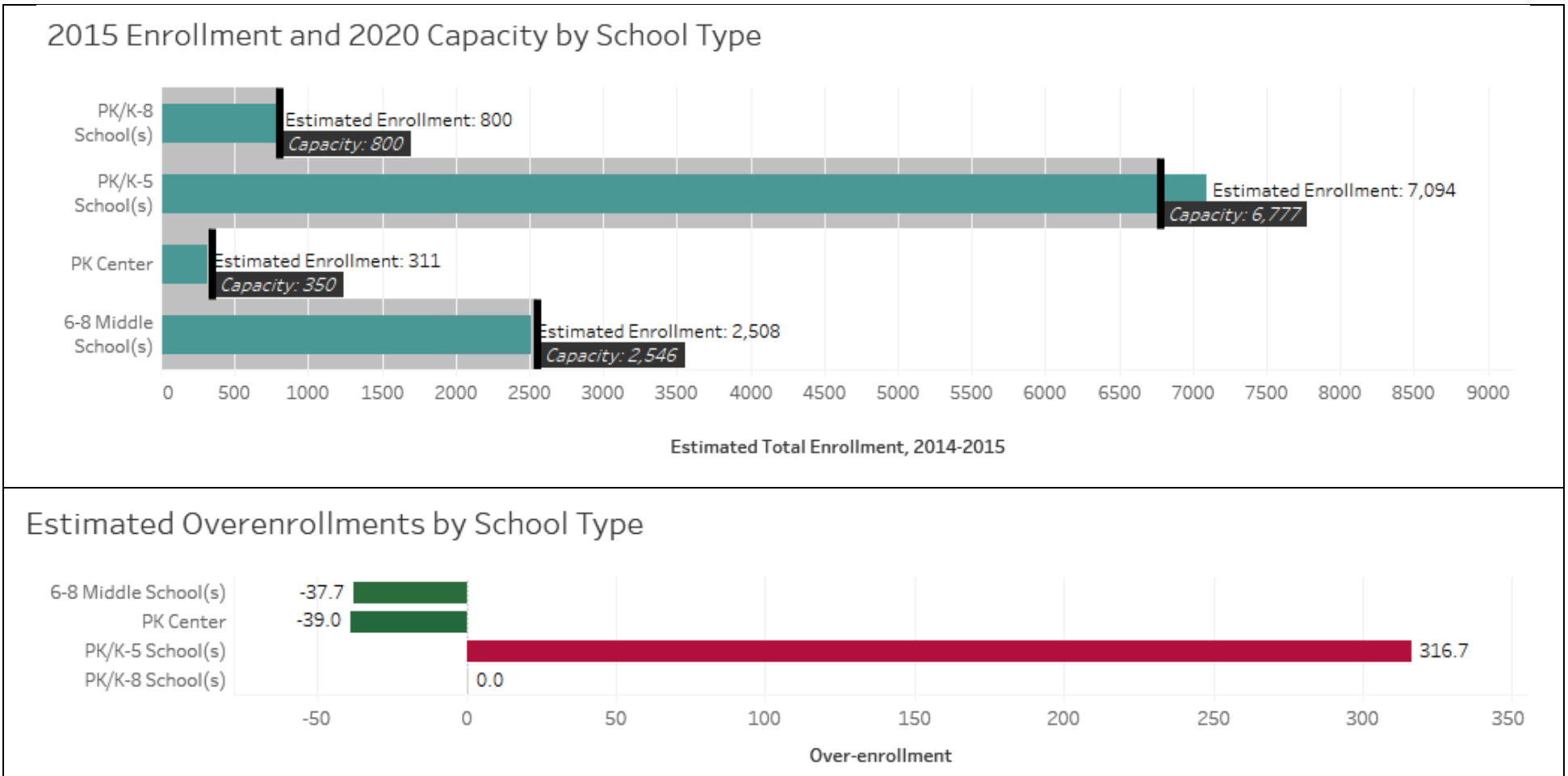
Figure 3.3: Tableau Dashboard Filter Options: Pre-K Center and Number of PK/K-8 Schools



Source: Tableau

Figure 3.4 on the following page provides a sample of one scenario: the conversion of one elementary school to a Pre-K Center. As shown in the figure, the first graph displays the simulated enrollment of each school level; those school levels where the blue bar exceeds capacity are considered over-enrolled, while those school levels where the blue bar falls below capacity are considered under-enrolled. The second graph provides a summary of the projected over-enrollment or under-enrollment by school level. Positive numbers, provided in shades of red, indicate over-enrollments beyond school capacity, while negative numbers, provided in shades of green, indicate under-enrollments.

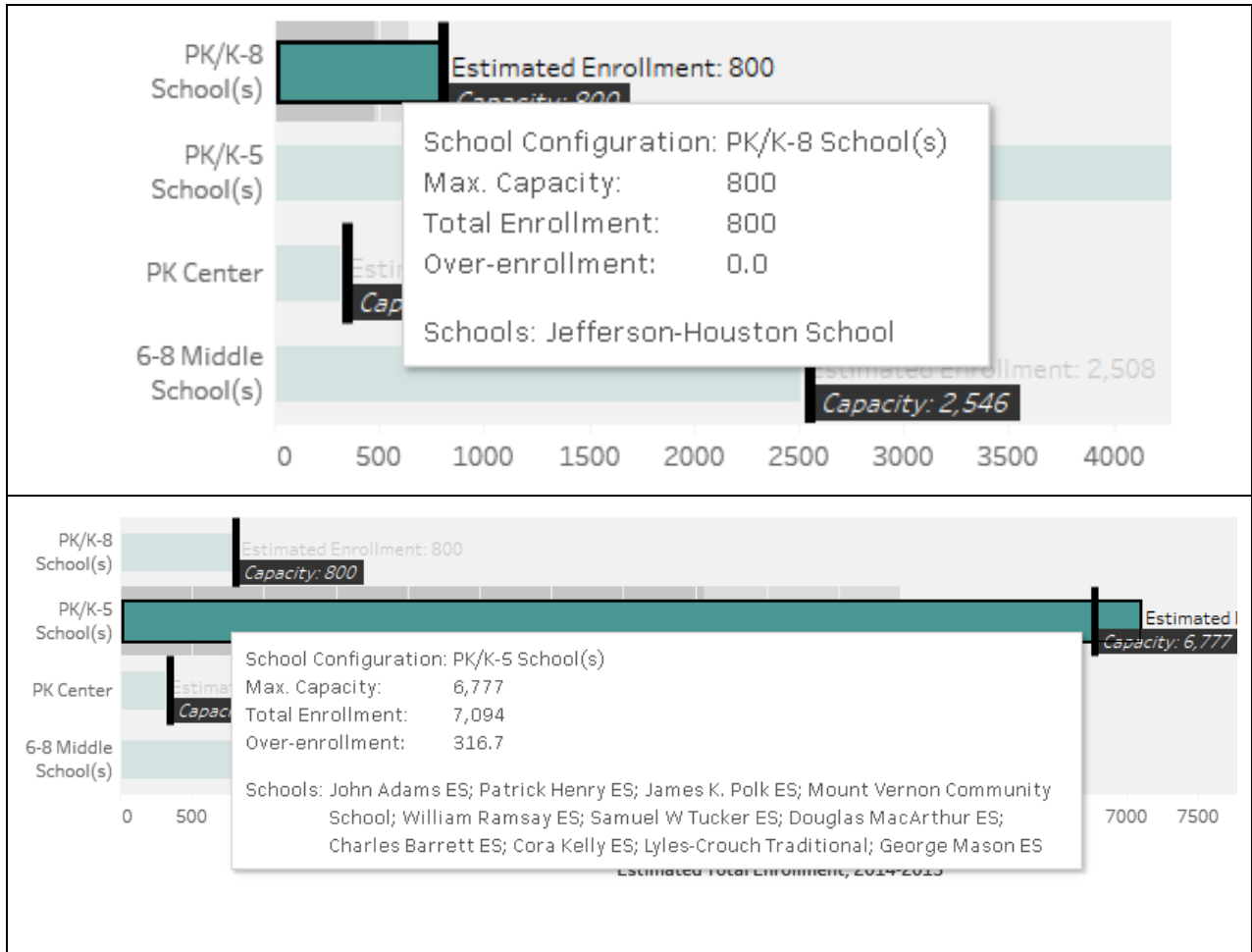
Figure 3.4: Sample of Dashboard Graphs – Pre-K Center Scenario



Source: Tableau

Hovering over or selecting a given school level, such as PK/K-5 schools or PK/K-8 Schools provides the user with a detailed label for that category. Each label offers a summary of school configuration, maximum capacity, simulated enrollment (2015 estimates), over-enrollment, and a list of the schools included in each group. For instance, Figure 3.6 below displays two sample labels for PK/K-8 and PK/K-5 Schools for the scenario listed on the previous page (1 PK/K-8 school, and a Pre-K Center).

Figure 3.5: Sample Detail Labels, PK/K-8 Schools and PK/K-5 Schools



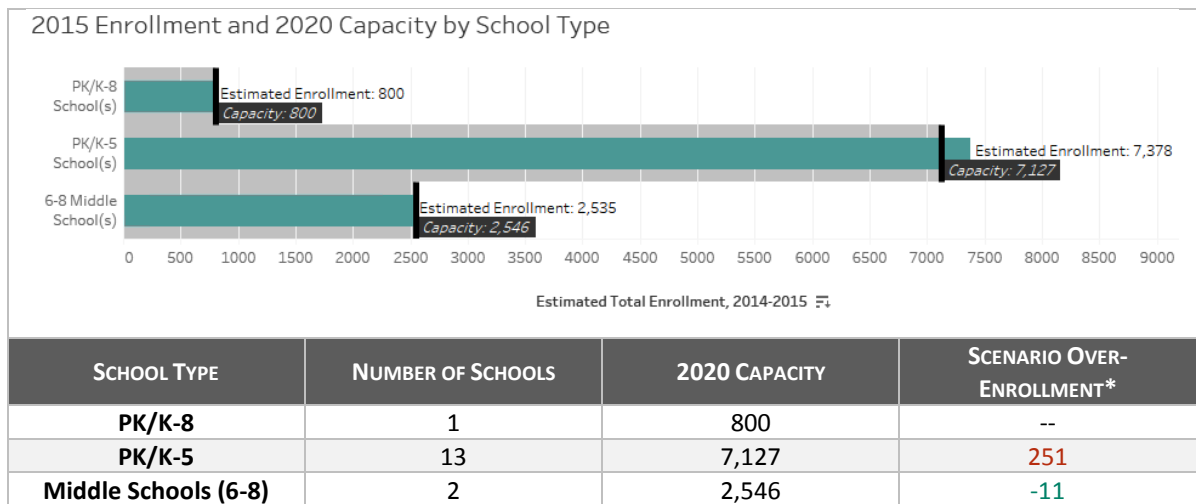
Source: Tableau

OVERVIEW OF CONFIGURATION SCENARIOS

STATUS QUO

Considering 2014-2015 enrollment data, the district’s current grade configuration concentrates over-enrollments at the elementary level (Grades K-5) if the current PK-8 school and two 6-8 middle schools are filled to capacity and grade-level cohorts at the PK-8 site (Jefferson-Houston) are roughly equal to each other. However, as student groups progress through each grade level in the coming years, the larger cohorts observed in the elementary grades will increasingly shift the burden of over-enrollment to the middle school level.

Figure 3.6: Current Grade Configuration Scenario (1 PK/K-8 School)



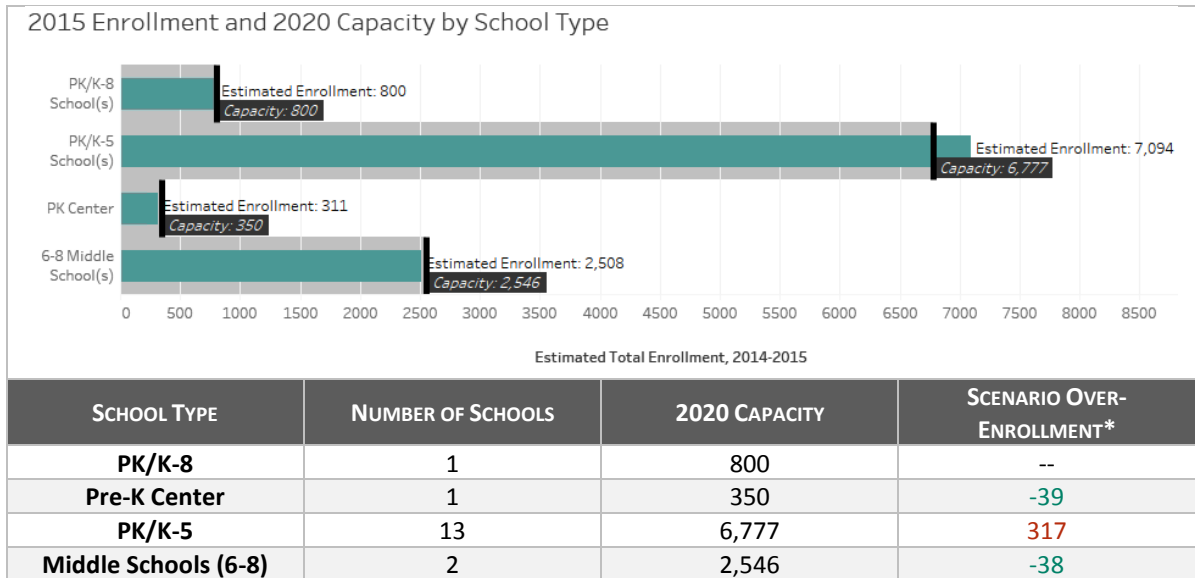
*As previously noted, the simulation “fills” each K-8 school to capacity before placing remaining students at the other PK/K-5 and 6-8 schools. Thus, PK/K-8 schools do not display over-enrollment in mixed school scenarios.

Source: Tableau

PRE-K CENTER

As shown in Figure 3.7 below, introducing a Pre-K Center at the current Matthew Maury Elementary School site has the potential to create more space at the middle school level, because existing space in K-8 schools can be used for more elementary and secondary students. However, turning an elementary school into a Pre-K Center takes away some of the existing capacity for K-5 students and increases over-enrollment at this level. In order to address the increased over-enrollment at the elementary level, ACPS may consider housing the Pre-K Center at a new site altogether and/or considering alternative grade configurations that make more efficient use of space.

Figure 3.7: Pre-K Center Scenario



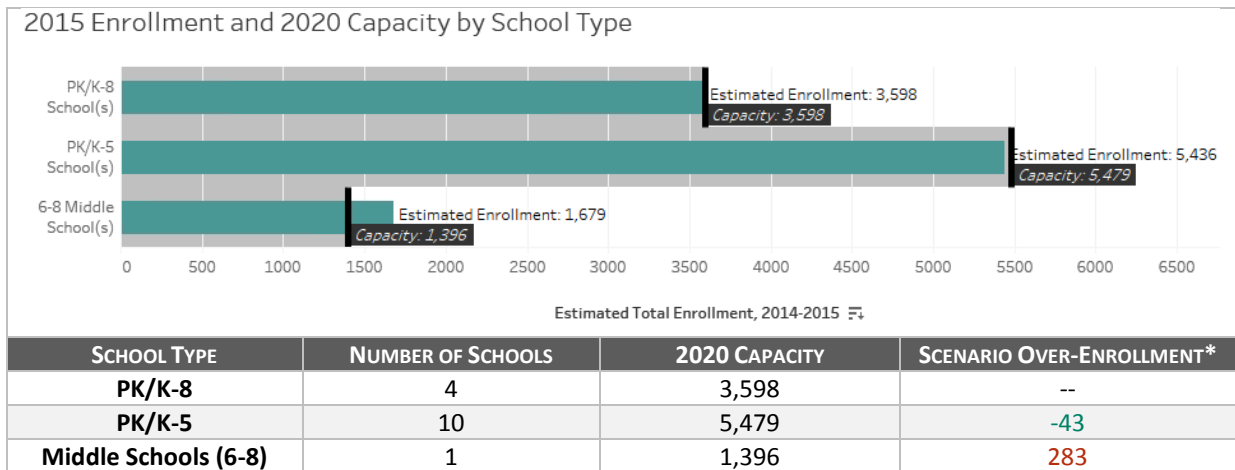
*As previously noted, the simulation “fills” each K-8 school to capacity before placing remaining students at the other PK/K-5 and 6-8 schools. Thus, PK/K-8 schools do not display over-enrollment in mixed school scenarios.
 Source: Tableau

MODERATE INTRODUCTION OF K-8 SCHOOLS

The accompanying Dashboard allows the user to “add” PK/K-8 schools to the district in intervals of two (2, 4, 6, or 8), or transition all existing elementary and middle school sites to PK/K-8. Figures 3.8 and 3.9 on the following page provide a snapshot of two scenarios (four PK/K-8 schools and six PK/K-8 schools, respectively). As shown in the figures, transitioning operating four PK/K-8 school sites produces significantly different results than operating six or more such schools.

When examining these two potential scenarios, ACPS should consider which school buildings are best equipped to handle over-enrollment. For instance, the scenario “four PK/K-8 schools” concentrates over-enrollment at the middle school level, while the scenario “six PK/K-8 schools” concentrates over-enrollment at the elementary school level. If certain buildings can be more easily expanded, adjusted, or accommodate portable classroom units, larger class sizes, or other methods of incorporating additional students beyond intended building capacity, ACPS should consider choosing a scenario that shifts over-enrollments to these sites, rather than sites where accommodating extra students may be more difficult.

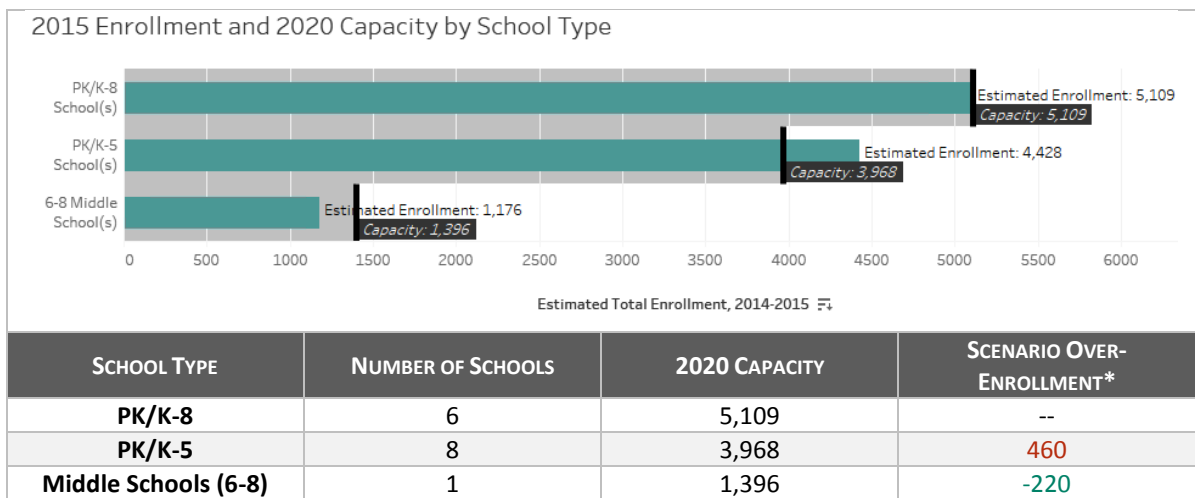
Figure 3.8: Four PK/K-8 Schools Scenario



*As previously noted, the simulation “fills” each K-8 school to capacity before placing remaining students at the other PK/K-5 and 6-8 schools. Thus, PK/K-8 schools do not display over-enrollment in mixed school scenarios.

Source: Tableau

Figure 3.9: Six PK/K-8 Schools Scenario



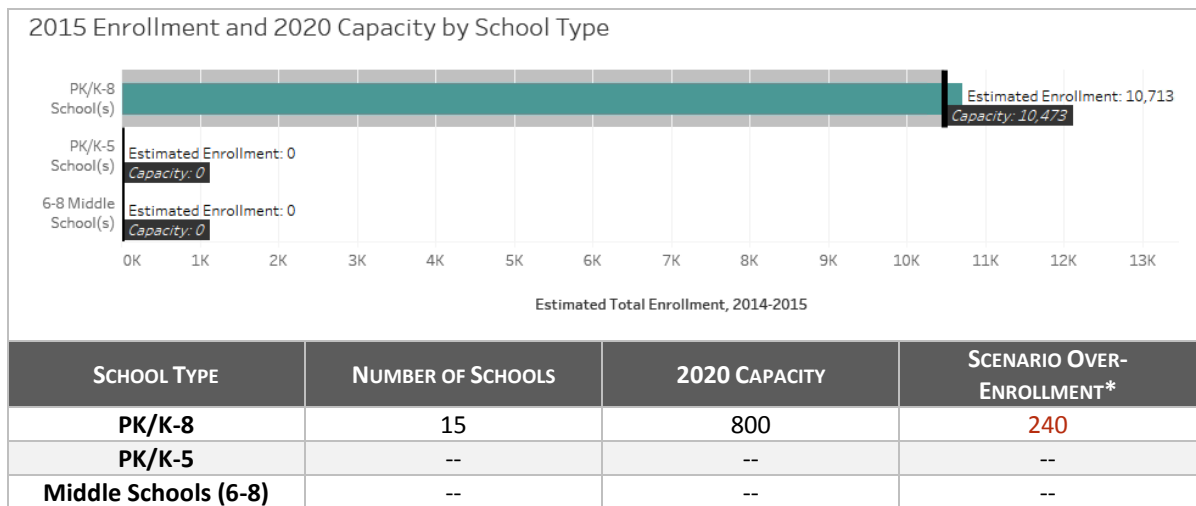
*As previously noted, the simulation “fills” each K-8 school to capacity before placing remaining students at the other PK/K-5 and 6-8 schools. Thus, PK/K-8 schools do not display over-enrollment in mixed school scenarios.

Source: Tableau

ALL K-8 SCHOOLS

Finally, the Dashboard allows the user to simulate a scenario in which all elementary and middle schools are transitioned to a PK/K-8 configuration, with or without the presence of a Pre-K Center. As shown in the figure below, total over-enrollment using the 2014-2015 simulation is 240 students, the minimum total over-enrollment among all scenarios used for this report. However, although the use of a consistent grade configuration minimizes theoretical over-enrollments, ACPS must consider the logistical challenges of shifting to an entirely PK/K-8 configuration. Students and their families in a K-8 school likely expect to stay in the same school through all nine years, potentially making redrawing school boundaries to accommodate growing neighborhoods difficult. Furthermore, this scenario would likely require the most renovation and investment in existing facilities to prepare existing elementary and middle schools to accommodate a wider range of student ages.

Figure 3.10: All PK/K-8 Schools Scenario



*As previously noted, the simulation “fills” each K-8 school to capacity before placing remaining students at the other PK/K-5 and 6-8 schools. Thus, PK/K-8 schools do not display over-enrollment in mixed school scenarios.

Source: Tableau

APPENDIX: ACS VARIABLE DESCRIPTION

Figure A.1: ACS Variable References

| ACS DATASET CODE | FILE NAME | MEASURES USED |
|--|--|--|
| Trends in Family Residency and Fertility | | |
| S1101 | Households and Families | Figure 1.2; Panels A-C <ul style="list-style-type: none"> ▪ Total Families |
| B11016 | Household Type by Household Size | Figure 1.3; Panels A-C <ul style="list-style-type: none"> ▪ Family Households: <ul style="list-style-type: none"> ○ 3- to 4-Person Households ○ 5- or More-Person Households |
| S1301 | Fertility | Figure 1.4; Panels A-C <ul style="list-style-type: none"> ▪ Women with Births in the Past 12 Months Ages 15 to 50 |
| Trends in Student-Aged Population Growth and Racial Composition | | |
| B09001 | Population Under 18 Years by Age | Figure 1.5; Panels A-C <ul style="list-style-type: none"> ▪ Total Population Living in Households: <ul style="list-style-type: none"> ○ Ages 0 to 4 ○ Ages 5 to 11 ○ Ages 12 to 17 |
| B01001H B01001B B01001D B01001I | Sex by Age (White Alone Non-Hispanic, Black Alone, Asian Alone, Hispanic or Latino) | Figure 1.6, Panels A-B <ul style="list-style-type: none"> ▪ Total Population Living in Households: <ul style="list-style-type: none"> ○ Ages 0 to 17 |
| Trends in the Distribution of Income | | |
| S1901 | Income in the Past 12 Months (in 2015 Inflation Adjusted Dollars) | Figure 1.7; Panels A-B Figure 1.8; Panels A-B Figure 1.9 <ul style="list-style-type: none"> ▪ Median Income ▪ Percent Households with Incomes of: <ul style="list-style-type: none"> ○ Less than \$50,000 and \$150,000 or more ○ Less than \$10,000 through \$200,000 or more |
| Trends in Mobility Patterns | | |
| B07001 | Geographical Mobility in the Past Year by Age for Current Residence in the United States | Figure 1.10; Panels A-C <ul style="list-style-type: none"> ▪ Moved to Current Residence from Within the Same County; Within the Same State; from Different State; From Abroad <ul style="list-style-type: none"> ○ Ages 1 to 17 |
| All ACS files can be found using file code names through American FactFinder: "American Factfinder." U.S. Census Bureau. https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml | | |

PROJECT EVALUATION FORM

Hanover Research is committed to providing a work product that meets or exceeds client expectations. In keeping with that goal, we would like to hear your opinions regarding our reports. Feedback is critically important and serves as the strongest mechanism by which we tailor our research to your organization. When you have had a chance to evaluate this report, please take a moment to fill out the following questionnaire.

<http://www.hanoverresearch.com/evaluation/index.php>

CAVEAT

The publisher and authors have used their best efforts in preparing this brief. The publisher and authors make no representations or warranties with respect to the accuracy or completeness of the contents of this brief and specifically disclaim any implied warranties of fitness for a particular purpose. There are no warranties that extend beyond the descriptions contained in this paragraph. No warranty may be created or extended by representatives of Hanover Research or its marketing materials. The accuracy and completeness of the information provided herein and the opinions stated herein are not guaranteed or warranted to produce any particular results, and the advice and strategies contained herein may not be suitable for every client. Neither the publisher nor the authors shall be liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages. Moreover, Hanover Research is not engaged in rendering legal, accounting, or other professional services. Clients requiring such services are advised to consult an appropriate professional.



4401 Wilson Boulevard, Suite 400
Arlington, VA 22203
P 202.559.0500 F 866.808.6585
www.hanoverresearch.com

A QUALITATIVE STUDY OF HIGH SCHOOL CONFIGURATIONS

Prepared for Alexandria City Public Schools

November 2017



In the following report, Hanover Research provides an analysis of 16 in-depth interviews with teachers TC Williams' King Street and Minnie Howard Campuses. The report explores teacher perceptions of the impact of a split campus format, as well as attitudes towards alternative high school grade configurations.

TABLE OF CONTENTS

| | |
|---|-----------|
| Executive Summary and Key Findings | 3 |
| INTRODUCTION | 3 |
| SAMPLE & METHODOLOGY | 3 |
| KEY FINDINGS..... | 4 |
| Section I: Perceptions of the split Campus | 5 |
| SCHOOL UNITY | 5 |
| STUDENT BEHAVIOR & MATURITY | 7 |
| COMMUNICATION | 8 |
| TRACKING STUDENTS | 10 |
| SCHOOL RESOURCES | 11 |
| COURSES & SCHEDULING | 11 |
| TRANSPORTATION | 14 |
| Section II: Thoughts on reconfiguration | 15 |
| COMPREHENSIVE HIGH SCHOOLS..... | 15 |
| 9-10/ 11-12 CONFIGURATION | 16 |
| ALTERNATIVE CONFIGURATIONS | 18 |
| Appendix | 19 |

EXECUTIVE SUMMARY AND KEY FINDINGS

INTRODUCTION

In the following report, Hanover Research (Hanover) provides an analysis of 16 in-depth interviews with teachers at TC Williams High School to understand the perceived impact of the current ninth grade academy structure. Specifically, this report explores teacher impressions and attitudes toward a split campus format. This research is part of a series of mixed methods studies Hanover has conducted to help inform Alexandria City Public Schools' (ACPS) facilities planning. Unless otherwise noted, all information in this report was obtained through telephone interviews.

This report comprises two sections:

- **Section I: Perceptions of the Split Campus** explores teachers' impressions of the current split campus format, including impact on teaching and learning, and school climate and culture.
- **Section II: Thoughts on Reconfiguration** presents teachers' attitudes toward alternative high school grade configurations, including receptiveness to a 9-10/11-12 format.

SAMPLE & METHODOLOGY

The following report findings are based on qualitative research findings from 16 in-depth interviews with TC Williams High School teachers. Hanover recruited interview participants using a list provided by ACPS. In conducting outreach, Hanover made best efforts to recruit teachers from a variety of subjects, and with different levels of tenure at the district. In two cases, participants answered interview questions in a written format rather than over the phone. Participants are identified throughout the report by campus: Minnie Howard (MH) and King Street (KS). Please see the appendix for a detailed list of interview participants.

KEY FINDINGS

9-12



- **ACPS should consider implementing one large or two smaller comprehensive high schools.** Teachers stress a sense of community and feel that ninth graders should be in the presence of older grades to learn appropriate behavior and academic expectations. Dividing students leads to perceptions of schools not being ‘real’ high school, a lack of vertical planning among teachers, and logistical challenges.

9-12



- **The intimacy and focus of the ninth-grade academy can be recreated in a larger school** through holding ninth grade orientation sessions, spatially grouping students into wings, or social grouping into academies. Alternative education programs should also be offered to target more specific student needs.
- **While acknowledging that having two high schools presents issues of diversity, teachers believe there is a way to divide the district equitably.** Teachers argue that while resources and district lines can be carefully controlled, the maturity of high school students cannot be. Participants believe a two high school model is in the best interest of the students.

If moving forward with a split campus configuration, ACPS should:

9-10



- **Ensure that students have access to a wide variety of courses.** Students must be given the opportunity to take advanced courses when needed, as well as be provided an array of electives to choose from to keep them motivated and engaged in their education. To accommodate this need, a split campus configuration must either:

- **Establish a seamless transition between the two campuses.** Schools must be in close proximity—ideally right next to each other—to accommodate students moving between classes over the course of the day. In this case, schools must take care in creating a master schedule that will align across campuses and devising a plan for testing days and other scheduling discrepancies.

or

11-12



- **Arrange for each campus to be equipped with its own resources.** To provide for ample options and equality without moving students, each school would require its own facilities and teachers. In this case, the district should invest in duplicating specialized classrooms (e.g. art studios, home economics) and hiring additional staff.

- **Allow campuses to act independently, while providing opportunities to come together as a whole school.** Teachers prefer their campus have its own administrators and decision-making power, but seek a sense of unity and school spirit between both campuses. The district should have a space that is able to accommodate the entire student body for schoolwide assemblies and special events.

- **Establish regular means of communication among teachers, across grades and disciplines.** Teachers at the smaller campus appreciate the increased collaboration with fellow Minnie Howard teachers, but report a lack of knowledge and communication between campuses which hinders expectation setting and continuity of curriculum.

SECTION I: PERCEPTIONS OF THE SPLIT CAMPUS

This section explores teachers' impressions of the current split campus configuration, including the impact on teaching and learning, student behavior, and school climate and culture.

SCHOOL UNITY

TEACHERS APPRECIATE THE TIGHT-KNIT COMMUNITY OF THE NINTH-GRADE CAMPUS

Teachers at Minnie Howard benefit from a smaller and more intimate teaching environment. Participants consistently refer to the ninth-grade campus as 'close-knit' and position this as an advantage for student learning. This can be particularly important for the ninth grade, as one teacher explains, "I think there is something nice about having the ninth graders protected. The ninth grade tends to be a very difficult year...because we are smaller and more focused, we can be more engaged with the students."

"Because we are smaller and more focused, we can be more engaged with the students"

Furthermore, Minnie Howard teachers feel the smaller campus is more conducive to collaboration and communication among teachers. As one ninth-grade teacher describes,

All of the teachers are willing to help one another and we all kind of know everybody. We know who to go to if we need help with a student. We know who to contact. It's very easy to find people... it's kind of like small-town USA, you know? We're a very tight knit community. (Resp 7, MH)

Elective teachers at Minnie Howard, however, may feel secluded from a larger group of peers at the main campus.

Teachers are quick to highlight the opportunity for ninth grade students to take advanced courses and electives at the King Street campus. One King street teacher depicts the connection between campuses and the opportunity for taking classes at the main campus as the "next best thing to having [ninth-graders] on campus" (Resp1, KS). Most teachers indicate an easy transition to the main campus since many ninth-grade students will participate in courses or activities at the King Street campus at some point.

THE NINTH GRADE ACADEMY IS NOT THOUGHT OF AS PART OF HIGH SCHOOL

Despite noting a strong sense of community, almost all teachers view Minnie Howard campus as its own entity and not part of TC Williams. Teachers are quick to note that students also feel a sense of separation from the high school. Participants highlight a strong disconnect

between the two campuses. For example, one Minnie Howard teacher states, “we seem to be more of a stepchild to the other school. They always kind of forget about us” (Resp5, MH). As an example of the exclusion felt by the ninth-grade campus, many teachers cite a recent pep rally that, due to size constraints, was split up by campus. “In previous years, we have had whole school events where we come down for an assembly or pep rally so the whole school was together,” one teacher comments, “but that’s not gonna [be] happening” (Resp7, MH).

“We seem to be more of a stepchild to the other school”

As a result of the disconnect between the ninth-grade campus and main campus, teachers express concern that rather than thinking of Minnie Howard as high school, “most students

“THE REAL TC WILLIAMS”

Teachers describe the ninth-grade campus at Minnie Howard as a way station, not perceived as the ‘real’ high school

“Holding Place” “Stop over”
“Dead zone”

think of it as an extension of their middle school years” (Resp6, KS). This, teachers feel, lowers student expectations and has a negative impact on student performance and achievement. One English teacher with experience teaching ninth-grade students in other districts indicates a higher number of failing students at Minnie Howard and attributes this difference to the student mindset. She reasons, “They’re seeing this as another level of middle school and they’re not going to push themselves to maybe achieve all they could” (Resp8, MH).

MAINTAINING ADMINISTRATIVE CONSISTENCY IS A CHALLENGE

Several teachers point to the decision several years ago to merge the administrations of the ninth-grade academy and King Street campus as a turning point. One participant commended

“you can’t maintain uniformity if you’re separate”

the change as a means of unifying campuses under one umbrella, declaring, “it was harder before. Ninth grade center was one set of rules...here at TC it was different. But there’s consistency now...the rules here apply over there and vice versa” (Resp1, KS).

Other teachers, however, highlight the difficulties encountered when trying to implement standard policies and procedures across physically separated campuses. “Sometimes you can’t maintain uniformity if you’re separate,” says one Minnie Howard teacher, “It’s just not practical in many instances” (Resp3, MH).

Several participants highlight distinct practices between campuses despite having a single administration. For example, one Minnie Howard Social Studies teacher notes,

Every coworker of my mine would vehemently agree that there are differences with our campus versus theirs. Case in point being the way we operated last year versus how their campus did in terms of PLC departments and data collection. (Resp15, MH)

Others describe the single administration as hindering practices and decisions at the school level. One teacher notes that in moving away from a stand-alone campus structure, “some of the systems that we had in place for kids are not there now that I felt were more effective for this age group” (Resp4, MH). Another ninth-grade teacher reports a decrease in teacher input and participation in decision-making:

in the past...teachers were more able to participate in some decision-making at the school level for the benefit of students and instruction and I think in an attempt to create more uniformity, the teachers have been removed from that decision-making (Resp3, MH)

STUDENT BEHAVIOR & MATURITY

THE NINTH GRADE ACADEMY PROVIDES A SAFE TRANSITIONARY SPACE

Both Minnie Howard and King Street teachers acknowledge the benefits of giving ninth graders their own space and attention to transition into high school life and expectations. Stressing that ninth grade can be a difficult year and the progression from middle school to high school is quite challenging, one reading teacher affirms,

It’s a great transition center for students coming out of middle school and trying to adjust to high school and understanding all the differences within what mattered in middle school and not what matters in high school as far as graduation and things like that. (Resp4, MH)

Teachers, like one Minnie Howard librarian, position the ninth-grade campus as an ideal “opportunity to kind of mold them” (Resp10, MH) into new, more mature ways of thinking and behaving. By secluding the younger students, some argue, older high school students are not exposed to the immature behavior of these students while faculty work to prepare them for high school life.

HOWEVER, ISOLATING NINTH-GRADERS STUNTS THEIR BEHAVIORAL GROWTH

While acknowledging the benefit of having a space to transition, most teachers feel the transformation into mature high school students is ultimately delayed by the current ninth-grade academy structure. One teacher suggests that rather than easing ninth graders into high school standards, the ninth-grade campus “babies” (Resp12, MH) these students and fails to prepare them for a higher set of expectations. Furthermore, several participants highlight the disadvantage of creating multiple transitions for students within their formative years, and argue that a second transition is more disruptive to students than helpful.

Most teachers agree that ninth-graders would benefit from the presence of older peers to set expectations and demonstrate appropriate behavior. One art teacher describes the

“the sooner students mature, the sooner they’re going to take school seriously”

advantages of having a mix of grade levels in her class, saying, “if the freshmen got a little squirrely or a little out of control, the upperclassmen could model good behavior for them” (Resp2, KS). Others echo the sentiment that when ninth graders remain at the “top of the totem pole” (Resp7, MH), they are emboldened to misbehave. Teachers who have taught in other districts contrast the maturity level of freshmen and incoming sophomores in Alexandria, and claim “it’s lower here” (Resp13, MH). This delay in maturity will also delay student learning, as one science teacher argues, “certainly the sooner students mature, the sooner they’re going to take school seriously” (Resp9, KS).

Teachers note that introverted students may benefit more from having a separate ninth-grade campus

In stressing the importance of smaller communities to engage students, teachers note that a separate campus is advantageous for shy students who may otherwise feel isolated and overwhelmed.

“I would guess that having a smaller campus would benefit those students who are more... introverted or shy or don't seem to have maybe a club or a sport that gets them involved with a smaller community of people. I think there might be some benefit for those students to not feel so overwhelmed.” (Resp9, KS)

COMMUNICATION

TEACHERS REPORT INCREASED COMMUNICATION WITHIN MINNIE HOWARD

Teachers at the ninth-grade campus praise the ability of the smaller school to facilitate communication and collaboration between teachers within the school. Participants highlight that teachers from different disciplines, who might not be expected to work together in a larger building, are coming together to align on ninth-grade curriculum and create a comprehensive and supportive learning experience for their students. One teacher explains,

I think it makes it a little easier to collaborate with other teachers, other departments, just because we're small in nature. So, while we're the largest high school in the state, the fact that we have this small building here makes it very easy for teachers to get together and collaborate, deal with student problems, deal with student issues, because everything is in just a smaller physical space. (Resp5, MH)

HOWEVER, COMMUNICATION BETWEEN SCHOOLS IS LACKING

Despite noted attempts at distributing school-related information to both campuses, teachers at the Minnie Howard campus say they do not receive important information in a timely manner, and often feel out of the loop. “Things that happen at our main campus sometimes are not communicated to us well or things that aren’t appropriate are communicated...when it doesn’t really apply to [us],” says one Minnie Howard reading teacher, “I think communication is something that breaks down between the two campuses” (Resp4, MH). Another ninth-grade teacher indicates the athletic department in particular as a key offender:

The athletic department is located at the other building. They really aren't good about communicating which students are playing which sports and the contact information for those coaches because they're supposed to be eligible with certain grade criteria but that really is not something that's communicated to the ninth-grade building. (Resp3, MH)

Teachers at the main campus who have ninth-grade students in their classes also note their frustrations with poor communication. One world language teacher cites the example of not being informed when schedules prohibit students from coming to the main campus for class. He writes, “Several times STEM field trips were not communicated to the [King Street] campus and thus, we ended up with classrooms that were half empty. It was very frustrating” (Resp6, KS).

CONTINUITY OF CURRICULUM SUFFERS IN A SPLIT-CAMPUS FORMAT

Many teachers lament the lack of communication between teachers at the Minnie Howard and King Street campuses and the resulting absence of vertical planning and expectation setting. One ninth-grade English teacher explains, “I can't plan more closely with 10th grade or 11th or 12th and I don't maybe share the same vision as them. Sometimes I have little questions. ‘Am I being too strict? Am I being not strict enough with these regulations? Are these specific things what matter to you across to board?’” (Resp8, MH). Similarly, teachers at the main campus highlight their inability to check-in with teachers in the same subject area at Minnie Howard to align on curriculum and course expectations. One teacher remarks, “I don’t even know who they are to get on them about, ‘Hey, you guys have to be more rigorous’” (Resp12, KS). Another King Street teacher describes taking his students on a field trip only to learn that they had been on the exact same trip in the ninth-grade. Not only is this lack of communication frustrating for teachers, but they feel it puts students at a distinct disadvantage.

“I can’t plan more closely with [the main campus teachers] and I don’t maybe share the same vision as them.”

While the lack of vertical planning is noted across disciplines, and primarily in core subject areas, one teacher suggests this is less of an issue for the **STEM program**.
“there’s excellent communication...so that the kids aren’t just getting the same thing over and over again. It’s more scaffolded” (Resp1, KS).

TRACKING STUDENTS

MINNIE HOWARD TEACHERS CAN PAY MORE ATTENTION TO STUDENT NEEDS...

As a result of a smaller, tight-knit community, students in the ninth-grade campus receive more time and attention from teachers than they would at a comprehensive high school. Teachers note that the increased communication helps them work together to monitor and support the progress of individual students. “I just think the more we can collaborate, the better it is for students,” says one Minnie Howard teacher, “they probably get more teacher attention here, a little more nurturing” (Resp5, MH). Another teacher highlights the ability to focus on addressing issues before students get to high school where they may get lost in the shuffle. She observes that in a smaller space, “it’s kinda hard to get passed us” (Resp11, MH).

One Minnie Howard librarian also points to the advantages of the smaller campus to tailor instruction and programming to the unique needs of each incoming class. She explains,

Every year it's a different group. So it's different personalities...Some years I have low readers and I got to have special things for programming for them. (Resp10, MH)

...THOUGH SOME SEE THIS EXTRA ATTENTION AS A WASTED EFFORT

While teachers appreciate the ability to focus on particular student needs, many highlight the irony that after taking the time to intimately familiarize themselves with students, the students move to the other campus. One participant notes that student counselors and class deans will move up with the ninth-grade class, though others express disappointment in seeing a year’s work go to waste. One teacher declares, “Having a smaller group, we do get to know the kids really well, but then they leave...It’s great that we have that opportunity but then we can’t use the knowledge that we’ve gained over the course of the year to further help the kids in any way” (Resp7, MH).

“we do get to know the kids really well, but then they leave”

TEACHERS ARE UPSET BY CURTAILED RELATIONSHIPS WITH STUDENTS

In addition to feeling that their efforts have been wasted, teachers are saddened by the fact that they are unable to maintain a personal relationship with students. Teachers note that the ninth-grade campus structure prohibits what for them is one of the most rewarding aspects of teaching this grade level. One art teacher who had previously taught at Minnie Howard comments, “Part of the fun of teaching high school is that you get to see these kids grow from year to year...you get to really watch them turn into great young men and women” (Resp2, KS). Another teacher in her first year of teaching at Alexandria City Public Schools expresses dismay at the prospect of losing touch with students:

I feel like I’ll completely lose touch with all my students next year. I would be writing college recommendations despite being a ninth-grade teacher in the past. That’s one thing that just hit me.” (Resp8, MH)

SCHOOL RESOURCES

RESOURCES ARE AVAILABLE BUT INCONVENIENT

Teachers are quick to point out that the Minnie Howard campus is small and not equipped with many of its own resources. However, most say students are given easy access to facilities and programs at the King Street campus, and that the back and forth between the two campuses generally runs smoothly.

While access to resources at the main campus is undisputed, teachers note their frustration with not having more resources at their fingertips. One Minnie Howard librarian notes, “it feels like you got the leftovers. I know they don’t mean it that way, but what you have over 1,000 staff members over there and they got first dibs to everything” (Resp10, MH). Teachers wish more electives, after school programming, and resources were available to students and staff without having to travel to another building.

“It feels like you got the leftovers”

SHARING ONE ADMINISTRATION RESULTS IN MINNIE HOWARD FEELING LEFT OUT

Teachers at the ninth-grade campus say that since the district instituted one administrator shared between high school campuses, they have not been getting as much administrative time and attention. One teacher notes that “all too often, administrators are pulled over to the main campus for other things and we’re left in the building without an administrator, and that’s not appropriate” (Resp11, MH). Another frames the lack of administrator presence in terms of student familiarity and accessibility, stating, “unfortunately some of the kids here don’t even know what the lead administrator looks like” (Resp7, MH). These participants say they preferred the old system in which the campus had more independence and decision-making power, and could apply more targeted policies and procedures for the age group.

“some of the kids here don’t even know what the lead administrator looks like”

Furthermore, a Minnie Howard librarian notes the bureaucratic headache of having administrative offices across campuses, and the need to travel to the main campus in order to accomplish her work. She explains, “when we do purchase orders and budget and things like that...we have to get our paperwork through this office and to King Street to get it signed. That’s a process” (Resp10, MH).

COURSES & SCHEDULING

THE SPLIT CAMPUS HAS LIMITED IMPACT ON CORE SUBJECT COURSES AND TEACHING

Teachers of core subject areas such as English and Science report little to no impact on their teaching or on course offerings, reiterating that students will travel to the main campus for courses which are not offered at Minnie Howard. One King Street teacher notes that this can in turn “[ease] the impact on the number of course sections we need” (Resp1, KS) since ninth grade students are given access to courses at the main campus. Similarly, a world language

teacher adds that “we need the ninth graders...to be able to run our courses with a reasonable amount of students” (Resp6, KS).

One issue, raised by a Minnie Howard teacher, occurs when ninth grade students fail a course and must re-take it. The teacher points out that, “The only option is during summer school because they don’t offer that course widely. Kids cannot repeat ninth grade classes for all subject areas easily” (Resp3, MH). While not wishing to encourage failing a course, she frames this as a limitation of the current grade configuration.

ELECTIVES CAUSE THE BIGGEST HEADACHE

While core courses run smoothly, teachers tend to agree that, when it comes to electives, “the multi-campus set up and different schedules provide for a logistical headache” (Resp15, MH). While most say course offerings are not seriously impacted, several point out that students are limited to the last two periods of the day, and one art teacher questions what happens when electives at the main campus fill up. In the case of electives offered at the Minnie Howard campus, an art teacher reports being limited in the scope of what she is able to teach, noting “if I were on campus with all five art teachers, I might have more opportunity to teach other subjects, other areas of art” (Resp13, MH). Most teachers express a desire for increased elective offerings at the ninth-grade campus.

Most of the trouble with electives comes when scheduling them. Teachers highlight days in which schedules between the two campuses are not aligned, due to testing or other events, as problematic and frustrating from a variety of perspectives, as noted below.

- Nomadic Teachers** **Scheduling complications arise for teachers who must go back and forth between high school campuses**
 - “Sometimes the schedules for testing...didn’t work well because I had to be in two places at one time, depending on how they scheduled classes for those days” (Resp2, KS).
- Minnie Howard Staff** **When classes at the main campus are cancelled, Minnie Howard is left with ninth-grade students with nothing to do**
 - “Well [if] King Street’s got something else going on [like the PSATs], it totally screws up our day...now we gotta babysit 300 kids for a period during the day...literally 300 kids do nothing during a period of the day. I don’t like things like that.” (Resp11, MH)
- King Street Staff** **When ninth grade students are unable to make it to the main campus for class, teachers end up having to repeat lessons**
 - “When...the 9th graders don’t come because of whatever reason I have to reteach everything we have just done. Which is really irritating.” (Resp14, KS)

Lastly, a trades and industry teacher at the King Street campus notes the complications of offering afterschool work to students at different campuses. “I allow my students to come and work after school here for a project they’re doing, or even for extra credit,” she explains, “[but] the ninth graders are very rarely able to do this because they’re not here” (Resp14, KS). She acknowledges that due to the need to extend project timelines for these students, opportunities are more limited. “They have less activities that I offer them because they take longer to do activities.”

A SEPARATED CAMPUS HINDERS PARTICIPATION IN AFTER-SCHOOL PROGRAMMING

Teachers affirm that, like electives, students at the ninth-grade campus are invited to participate in any of the after-school clubs and programming offered at the main campus. Several indicate, however, that despite receiving the same information, the physical separation requires ninth grade students to take more initiative to become involved in these activities. One Minnie Howard teacher suggests that the extra effort involved means fewer ninth graders are participating:

If they maybe walk by a classroom and see someone they know, they might be more inclined to go in and check it out...but if it involves walking several blocks then they’ll just kind of shoulder shrug and ‘no, I’m not going to do that.’ So, that is a concern. (Resp3, MH)

Other teachers suggest that limited ninth grade participation is the result of students not regarding Minnie Howard as part of the high school. “I think, weirdly, that they see that as something they’re gonna do at King Street,” says one English teacher, “It’s kind of like...‘oh, I’ll do that next year’” (Resp8, MH). Moreover, a science teacher describes not actively advertising his club as it already has plenty of participation from students at the main campus. He notes, “it’s one of those things where I don’t want too many kids in the club, so I don’t really make an effort. That probably puts ninth graders at a disadvantage because they’re not exposed” (Resp9, KS).

“ninth graders [are] at a disadvantage because they’re not exposed”

Teachers say when they try to offer more programs at the ninth-grade campus, they are prohibited by administrators who tell them it is already offered at the main campus. In cases where ninth graders do have their own extra-curriculars at their campus, teachers wish for more collaboration between the ninth-grade and main campus clubs. In describing her poetry club at Minnie Howard, one librarian regrets that the club “never [has the King Street] kids that participated in the national slam poetry contest to come and present at our café” (Resp10, MH).

- Teachers note curbed participation in after-school programming **with the exception of sports**
 - *“Not being in the big, physical building, we probably have less kids involved with clubs...unless they’re involved with a sport.” (Resp5, MH)*
- However, navigating ninth grade participation in sports teams can create disruptions in class time
 - *“the ninth graders are often pulled from class early because they need to be transported over to the other building before the team can leave or something. So, that does interfere with academics if we have to pull students early because they’re not physically already located at the same school as the rest of their teammates.” (Resp3, MH)*

The ninth-grade campus is **not** a barrier for participation in school sports



TRANSPORTATION

TRAFFIC MAY INTERFERE WITH CLASS TIME

Teachers note that while there are always buses running back and forth between campuses, the traffic encountered en route between Minnie Howard and King Street can lead to delays and interrupted class time. As one King Street science teacher describes,

It's too bad you have to go through one of the worst intersections in Northern Virginia to get here. There's a place where three major roads cross. And we like to call it 'dysfunction junction'. There are times it can take you ten minutes to go from one building to the next. (Resp1, KS)

In addition to legitimate transportation delays, another King Street teacher suggests students may arrive late to class and use the late bus as an excuse.

TRAVELING TO THE MAIN CAMPUS IS AN ADDITIONAL BURDEN

A few teachers note some frustration with consistently having to travel over the to the main campus for events and meetings. “I mean it’s no more than a mile,” says one teacher, “but somebody’s gotta get in their car and go, and that’s after you’ve just done your duty here at your school” (Resp10, MH). These teachers decry the unbalanced obligations on Minnie Howard staff and wish King Street faculty would come to them from time to time.

SECTION II: THOUGHTS ON RECONFIGURATION

This section presents teachers' attitudes toward alternative high school grade configurations, including receptiveness to a 9-10/11-12 format.

COMPREHENSIVE HIGH SCHOOLS

MOST TEACHERS PREFER A COMPREHENSIVE 9-12 GRADE FORMAT

Many teachers express a strong preference towards having one or two 9-12 high schools. These teachers argue that the comprehensive structure facilitates a sense of unity throughout the school, and continuity throughout the curriculum. Furthermore, this format allows ample time and opportunity for students to learn from each other, and provides a wide variety of course offerings available to all students without scheduling complications. These teachers believe that both academic and behavioral outcomes would improve under this structure:

two schools [or one massive] unit...I think they'd see scores come up and I think they'd see behavior improve because again, you're all one unit." (Resp8, MH)

Several teachers argue that these larger schools can still maintain a sense of intimacy and community through holding ninth-grade orientation sessions, separating groups of students into their own wing, or breaking the student body down into smaller clusters or 'academies.'

TEACHERS ACKNOWLEDGE DIVERSITY CONCERNS

Many participants indicate a concern around dividing the district up into two high school populations, but express different views on the attainability of diverse and equitable schools.

Unattainable

Several frame concerns as justified, and feel that two highschools would breed unhealthy competition and racial/socio-economic segregation

"I would be concerned a bit if there were two different high schools, exactly how the student body for each...would be selected. Is it geographically, and does that segregate students socioeconomically?"(Resp9)

Others position this a problem that can be avoided through proper planning and ignoring opinions that are not in the best interest of the students

"You can control district lines. You can control what teachers you hire at each school, and provide the same thing equally, but you can't change [the] nature of a ninth and tenth grader." (Resp13)

Attainable

9-10/ 11-12 CONFIGURATION

TEACHERS FEEL THIS FORMAT WOULD EXACERBATE CURRENT PROBLEMS

Teachers who find the current ninth-grade academy problematic express concern over a 9-10/11-12 configuration and feel that it would create even more complications for the district in terms of school unity, scheduling electives, and continuity of curriculum. While a few suggest ninth graders would benefit from having an older grade to look up to, many teachers feel the format would instead hold back tenth graders. One teacher offers, “I think the tenth graders are going to lose out. I think they’re not going to be as big a part of the high school as we’d like” (Resp5, MH), and another expresses concern about student behavior, remarking, “they’re not gonna get that boost of that maturity level up. I think they’re just gonna kinda stay where they’re at” (Resp13, MH). Lastly, one English teacher highlights the importance of continuity between the SOL-focused tenth and eleventh-grade years, and worries that splitting up those grades would result in lowered scores.

Several advocates for the current ninth grade campus structure echo concerns that incorporating tenth graders would jeopardize the focus on ninth grade students and limit opportunities for tenth graders. While less participation in clubs and programming is seen as acceptable for ninth graders who are transitioning to high school life, hindered participation for tenth graders is seen as more problematic.

A few teachers report that this configuration would not be a significant change from the current format, but stress that the problem of a divided community would persist. One teacher suggests that a split campus format could work if the district had a space where the entire school population could converge. She explains,

That’s a good idea, as long as there’s opportunities for the whole school to come together and really support that whole community initiative as like, ‘we’re all one school’ and be able to work together (Resp7, MH).

COURSE OFFERINGS MAY BECOME LESS FLEXIBLE AND MORE LIMITED

In considering a 9-10/11-12 configuration, teachers indicate that students would be more restricted to the courses offered at their own school. “You’re limiting the kids to what’s offered within the confines of the building,” (Resp1, KS) says one King Street teacher. Elective courses continue to be the primary concern among teachers. Without a larger pool of students to pull from, a world language teacher notes that a 9-10 school would “not be able to offer as many classes since we wouldn’t have the numbers” (Resp6, KS). Rather than highlighting specific courses or disciplines, teachers emphasize the importance of offering a wide variety from which to choose. As one elective teacher describes, “there’s just got to be

“You’re limiting the kids to what’s offered within the confines of the building”

enough choice. Not every kid wants to take art. Not every kid wants to take home [economics]" (Resp11, MH). A few teachers, however, indicate that vocational/CTE courses are of particular concern since they may be sequenced over the course of several years.

In addition to electives, teachers also express concern about opportunities for younger students to take advanced classes. One King Street teacher ponders:

So our high flier tenth graders, where do they go? How do they fit? Where do they duplicate/ Where can we combine? We would have to think of one school in two places even more than we do now" (Resp16, KS).

TO ENSURE ENOUGH CHOICE, SCHOOLS REQUIRE PROXIMITY OR THEIR OWN RESOURCES

Teachers feel strongly that students should not be confined to the courses and programs at one specific school. Several teachers suggest continuing a flow of students back and forth between schools. In this case, schools would need to be close enough together that students could easily walk back and forth between campuses.

Alternatively, many teachers suggest that both campuses would need to be equipped with independent resources. While one science teacher worries about the earth science division, noting, "we'd have to split the deck. Which means we'd have to split the staff, we'd have to

split up the equipment," (Resp1, KS) others propose that facilities and staff would have to be duplicated. In addition to more teachers and classroom facilities, several participants push for schools to be run independently for increased efficiency. One Minnie Howard teacher notes, "I'd like to see a campus where we have everything on one campus. When I need something, I can get it done right there. I don't have to go to King Street [to] get answers to a budget question" (Resp10, MH). In contemplating how to best implement the configuration, teachers indicate that both solutions come with major obstacles. These are presented in Figure 2.1 on the following page.

NEW CONFIGURATIONS MUST SUPPORT THE NEEDS OF ALL STUDENTS

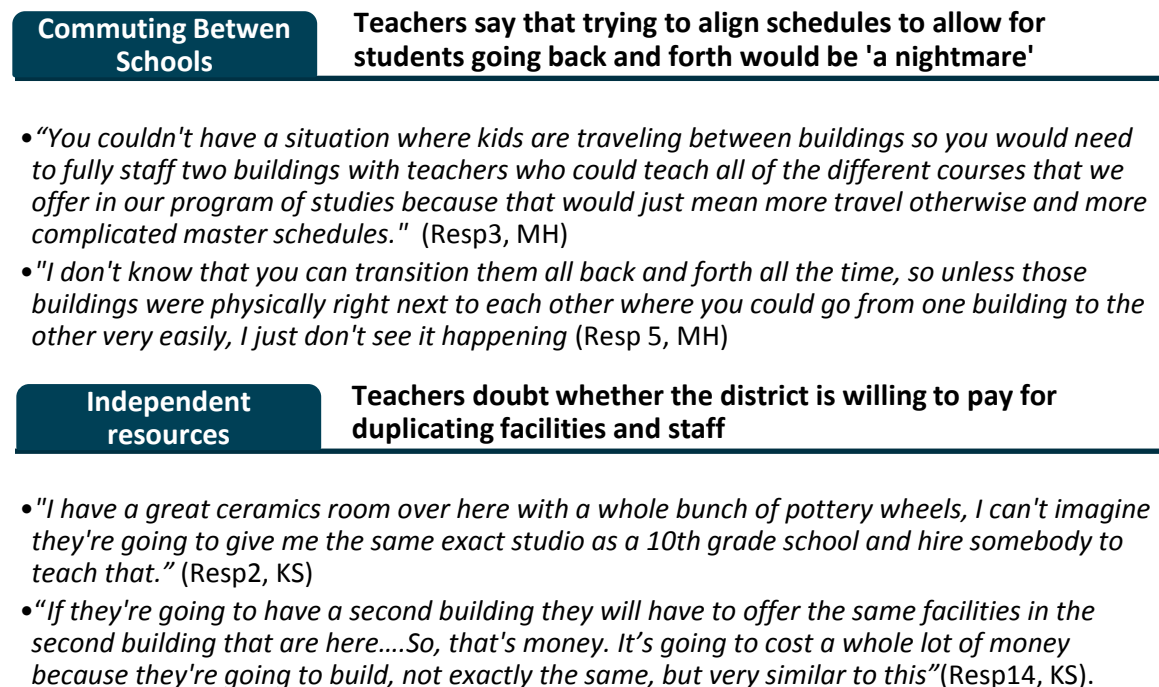
Several teachers emphasize the importance of addressing the needs of students who require additional support or an alternative educational environment, and express uncertainty that a 9-10/11-12 configuration would allow for this. One Minnie Howard reading teacher asserts,

I would like to see some alternative program set up for students that would do better in a smaller environment or...like designed specifically for their needs and things or if we had a vocational program, things like that. I don't know if nine, ten, eleven, twelve solves the problem with meeting the needs of all the different learners that we have. (Resp4, MH)

Another teacher claims that the biggest problem with the high school currently is a lack of alternative education options, and calls for such opportunities within a new configuration.

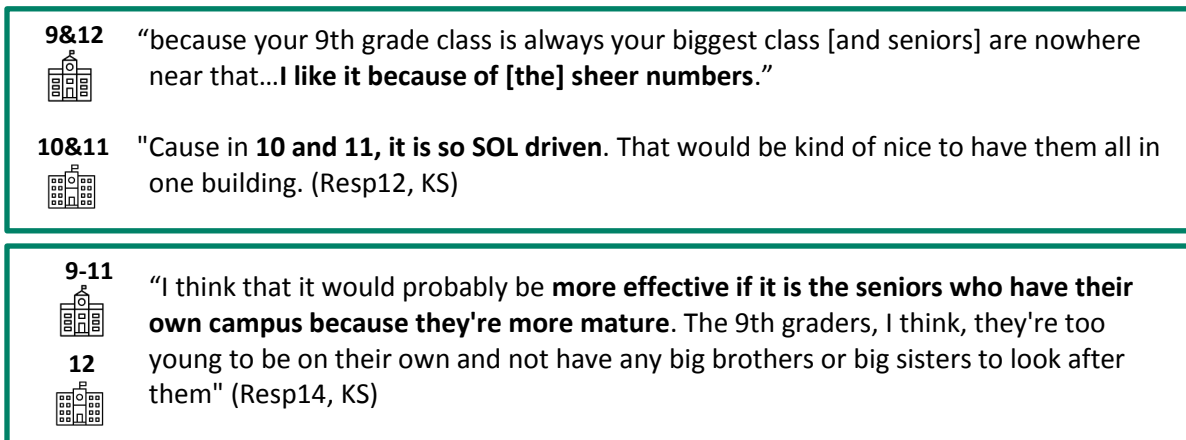
Several teachers highlight the International Academy specifically, and wish to maintain this program throughout the high school grades. Though, as one science teacher points out, these students should also have the opportunity to participate in traditional classes as well. He notes, "I think it's important that whatever final decision is made that it remain a school within a school so there's opportunities for those students...to be able to try classes outside of the academy to learn more English" (Resp9, KS).

Figure 2.1: Primary Barriers to 9-10/11-12 Solutions



ALTERNATIVE CONFIGURATIONS

A few teachers bring up ideas for alternative configurations for a split campus concept.



APPENDIX

Figure A.1: Participant List

| PART. | CAMPUS | YEARS AT ACPS | SUBJECT | PREFERRED FORMAT |
|-------|----------------------|---------------|---------------------|---|
| 1 | King Street Campus | 41 | Science/Planetarium | 9/10-12 or 9-10/11-12 |
| 2 | King Street Campus | 7 | Art | 2 comprehensive high schools |
| 3 | Minnie Howard Campus | 14 | Anonymous | 2 comprehensive high schools |
| 4 | Minnie Howard Campus | 16 | Reading | 2 comprehensive high schools |
| 5 | Minnie Howard Campus | 25 | Anonymous | 9/ 10-12 |
| 6* | King Street Campus | 22 | World Language | 1 large high school campus |
| 7 | Minnie Howard Campus | 2 | Anonymous | 9-10/11-12 campus |
| 8 | Minnie Howard Campus | 1 | English | 2 comprehensive high schools |
| 9 | King Street Campus | 18 | Science | 1 large high school or 9-10/11-12 |
| 10 | Minnie Howard Campus | 17 | Library | 2 comprehensive high schools |
| 11 | Minnie Howard Campus | 15 | Anonymous | 9-10/ 11-12 (2 comprehensive high schools is ideal but does not trust district to do equitably) |
| 12 | King Street Campus | 19 | Anonymous | 9-10/11-12 |
| 13 | Minnie Howard Campus | 3 | Art | 2 comprehensive high schools |
| 14 | King Street Campus | 18 | Trades & Industry | 9-10/11-12 or 9-10/12 |
| 15* | Minnie Howard Campus | 3 | Social Studies | 2 comprehensive high schools |
| 16 | King Street Campus | 18 | Anonymous | No preference |

*Participated via written response to questions

PROJECT EVALUATION FORM

Hanover Research is committed to providing a work product that meets or exceeds client expectations. In keeping with that goal, we would like to hear your opinions regarding our reports. Feedback is critically important and serves as the strongest mechanism by which we tailor our research to your organization. When you have had a chance to evaluate this report, please take a moment to fill out the following questionnaire.

<http://www.hanoverresearch.com/evaluation/index.php>

CAVEAT

The publisher and authors have used their best efforts in preparing this brief. The publisher and authors make no representations or warranties with respect to the accuracy or completeness of the contents of this brief and specifically disclaim any implied warranties of fitness for a particular purpose. There are no warranties that extend beyond the descriptions contained in this paragraph. No warranty may be created or extended by representatives of Hanover Research or its marketing materials. The accuracy and completeness of the information provided herein and the opinions stated herein are not guaranteed or warranted to produce any particular results, and the advice and strategies contained herein may not be suitable for every client. Neither the publisher nor the authors shall be liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages. Moreover, Hanover Research is not engaged in rendering legal, accounting, or other professional services. Clients requiring such services are advised to consult an appropriate professional.



4401 Wilson Boulevard, Suite 400
Arlington, VA 22203
P 202.559.0500 F 866.808.6585
www.hanoverresearch.com

GRADE-LEVEL FEASIBILITY: EXECUTIVE SUMMARY

Prepared for Alexandria City Public Schools

May 2018



In the following document, Hanover Research summarizes key findings from a series of studies that evaluated the feasibility of different PK-12 grade level configurations.

TABLE OF CONTENTS

- Executive Summary.....3**
- INTRODUCTION3
- Section I: A Review of Methodologies.....5**
- Literature Review.....5
- Benchmarking Study6
- Environmental Scan7
- In-Depth Interviews with High School Teachers.....10
- Section II: Key Findings and Themes 11**
- IDENTIFYING DEMOGRAPHIC TRENDS IN ACPS11
- Population Growth11
- Changing Demographics12
- Impacts on ACPS12
- Teacher Perceptions of the Current Configuration of TC Williams High School14
- REVIEWING DISTRICT STRATEGIES TO ADDRESS RISING ENROLLMENT16
- CHOOSING TO RECONFIGURE GRADES17
- FEATURES OF EFFECTIVE CONFIGURATIONS18
- Configuration Models18
- Configuration Processes21
- TEACHER PERCEPTIONS OF FUTURE GRADE CONFIGURATION OPTIONS24

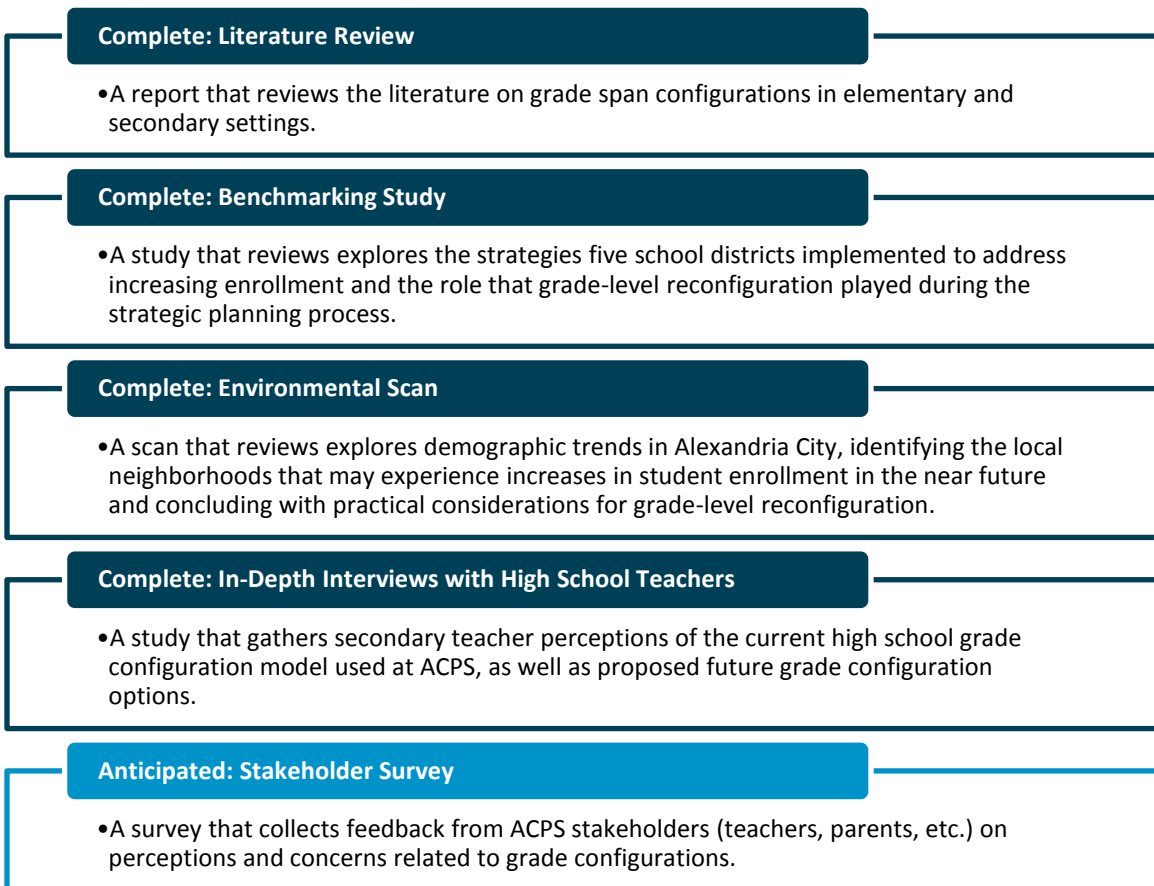
EXECUTIVE SUMMARY

INTRODUCTION

The following document comprises an executive summary of key findings from a series of reports by Hanover Research (Hanover) delivered to Alexandria City Public Schools (ACPS) that assess the feasibility of PK-12 grade level configurations. In the last decade, ACPS experienced large increases in student enrollment, creating overcrowding and space constraints at the Division’s schools. To confront this challenging trend of overpopulation, ACPS has considered reconfiguring grade levels across schools and/or building an additional facility. Overall, ACPS aims to identify solutions to address the increasing student populations by establishing a long-term plan for grade-level feasibility and sustainability.

Hanover’s research agenda to date included four distinct projects, and is anticipated to include a survey within the next twelve months. Figure A provides an overview of the research agenda.

Figure A: Hanover’s Research Agenda



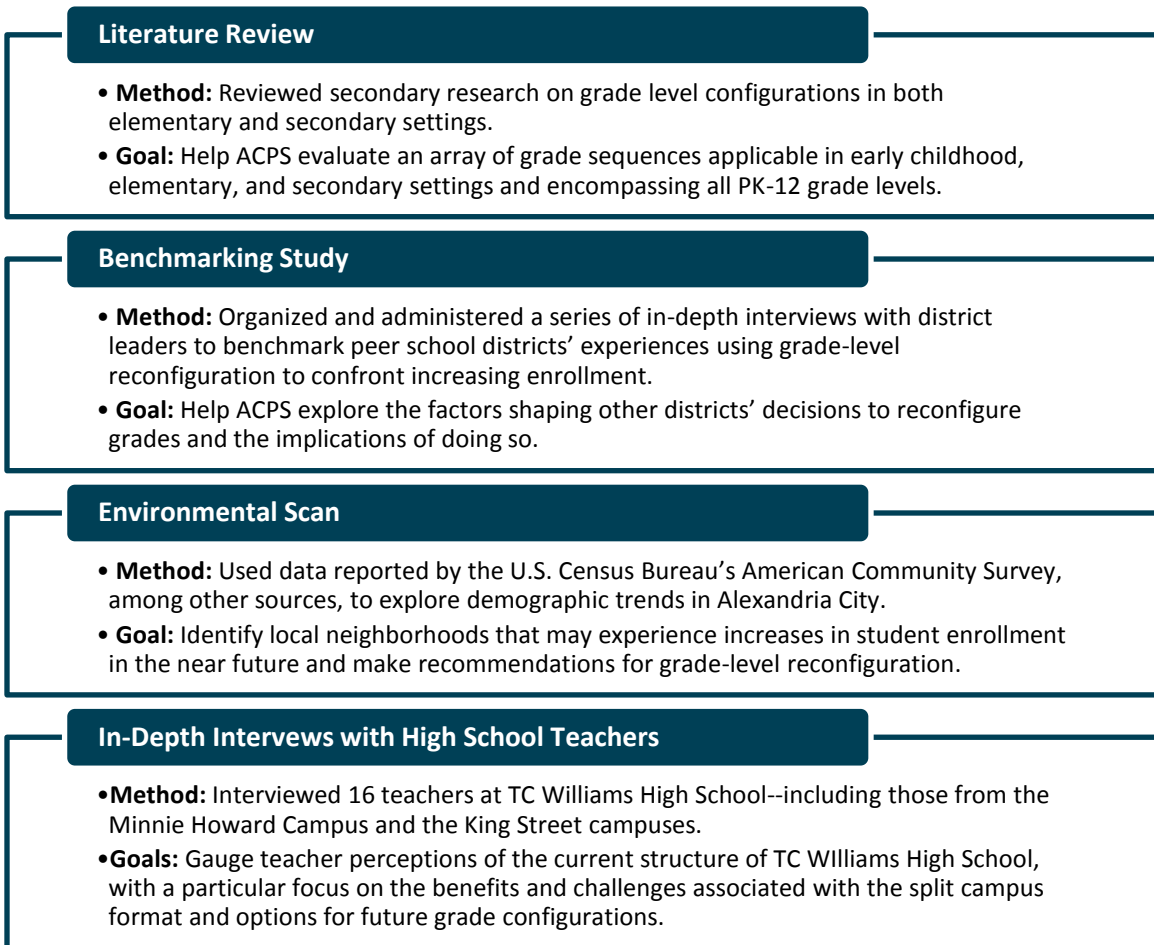
This summary proceeds in two sections. Section I reviews the methodologies of the studies completed to date, linking research approach with the research agenda's goals. Section II synthesizes these studies' key findings as they correspond with prominent themes, such as what demographic trends in ACPS' local neighborhoods may impact school enrollment, how districts typically address rising enrollment, best practices in deciding whether to reconfigure grades to address rising enrollment, and features of effective grade level configurations.

SECTION I: A REVIEW OF METHODOLOGIES

To assess the feasibility of PK-12 grade level configurations, Hanover took a comprehensive, multi-methods research approach. In this section, Hanover describes each of the projects' methodologies in detail, linking research approach with the research agenda's goals.

Below, Figure 1.1 briefly summarizes the methodology and goal of each project.

Figure 1.1: Summary of Research Methodologies



LITERATURE REVIEW

In November 2016, Hanover conducted a review of secondary research on grade level configurations in both elementary and secondary settings. When possible, this review relied on data-driven studies. Hanover reviewed several online databases to identify high-quality studies to address this topic, including ProQuest, EBSCOHost, ERIC, and the U.S. Department of Education. Secondary anecdotal literature supplements research-based findings from these studies throughout the report to offer a holistic assessment of the

major grade configuration models available to public school districts similar to ACPS. Overall, the central aim of this review is to help ACPS evaluate an array of grade sequences applicable in early childhood, elementary, and secondary settings and encompassing all PK-12 grade levels.

BENCHMARKING STUDY

In November 2016 through February 2017, Hanover organized and administered a series of in-depth interviews with district leaders to benchmark peer school districts' experiences using grade-level reconfiguration to confront increasing enrollment. The following sub-sections detail three components of this environmental scan's methodology (see Figure 1.2).

Figure 1.2: Methodological Components



Overall, the central aim of this benchmarking study was to help ACPS explore the factors shaping other districts' decisions to reconfigure grades and the implications of doing so.

SAMPLE DEVELOPMENT

To draft an initial sample of target school districts for outreach, Hanover identified school districts associated with the fastest-growing U.S. Metropolitan Statistical Areas (MSAs) based on an analysis of population change from April 1, 2010, to July 1, 2015. This analysis used data reported by the U.S. Census Bureau.¹ Analysts then used the National Center for Education Statistics' (NCES) database search tool to identify the public K12 education providers serving these regions and enrolling at least 10,000 students.² This step produced a total of 60 potential school districts likely to have experienced increases in student populations in recent years.

SAMPLE OUTREACH

After identifying these school districts, interview outreach (conducted via email) targeted districts similar to ACPS in size as defined by: student enrollment between 10,000 and 30,000 students and/or 50 or fewer total schools. Outreach efforts also focused on districts that considered or employed grade-level reconfiguration as a strategy for managing increasing enrollment. Ultimately, Hanover conducted phone interviews with respondents across five school districts, two of which requested complete anonymity (see Figure 1.3 for details).

¹ "American FactFinder - Advanced Search." U.S. Census Bureau.

<http://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>

² "Search for Public School Districts." National Center for Education Statistics. <https://nces.ed.gov/ccd/districtsearch/>

Figure 1.3: Summary of Qualitative Data Collection

| PARTICIPANT | PARTICIPANT TITLE | DISTRICT | STATE |
|------------------------|---|------------------------------------|-------|
| Josh Hensley | Planning Coordinator | Aurora Joint District 28 | CO |
| Terry Worcester | Director of Planning and Design | Scottsdale Unified School District | AZ |
| Scott McCully | Executive Director for Planning and Student Placement | Charlotte-Mecklenburg Schools | NC |
| Respondent 1 | -- | Anonymous District 1 | -- |
| Respondent 2 | -- | Anonymous District 2 | -- |

IN DEPTH INTERVIEW GUIDE DESIGN

In collaboration with ACPS, Hanover developed an interview guide that contained questions tailored to district responses to growing enrollment. The complete guides are available in the interview protocol previously delivered to ACPS.

In brief, these questions focused on:

- Recent changes in enrollment
- Solutions districts used to address increasing enrollment
- Why districts chose to reconfigure grades
- How districts chose to reconfigure grades
- Challenges districts faced when reconfiguring grades
- Outcomes from reconfiguring grades

ENVIRONMENTAL SCAN

In February 2017, Hanover used data reported by the U.S. Census Bureau’s American Community Survey to explore demographic trends in Alexandria City. The following sub-sections detail three components of this environmental scan’s methodology (see Figure 1.4).

Figure 1.4: Methodological Components



Overall, the central aim of this study was to identify the local neighborhoods that may experience increases in student enrollment in the near future and make practical considerations for grade-level reconfiguration based on those demographic trends.

AMERICAN COMMUNITY SURVEY (ACS) DATA

All data used to assess demographic trends in Alexandria City were derived from the American Community Survey (ACS).³ The ACS is a survey administered by the U.S. Census Bureau to a subpopulation of residents every month, containing a range of questions that focus on age, sex, race, education, income, occupation, and many other personal characteristics.⁴ Estimates were taken from five ACS 5-Year Summary Files that contain aggregated demographic data from 2011 to 2015 for small geographic areas. These data were extracted from the U.S. Census Bureau’s American FactFinder database.

GEOGRAPHIC SCOPE

To provide ACPS with the most detailed analysis of regional population change, Hanover analyzed data that reflect two geographic levels: Zip Code Tabulation Areas (ZCTAs) and census tract estimates. ZCTAs are closely related to the U.S. Postal Service’s ZIP Code service areas; however, because the Postal Service uses ZIP Codes to inform mail delivery routes—not to define population features—ZCTAs allow the Census Bureau to segment population and housing data into more clearly-demarcated geographic zones. Census tracts are “small, relatively permanent statistical subdivisions of a county or equivalent entity that [...] have a population size between 1,200 and 8,000 people.”⁵ Census tracts are typically embedded within ZCTAs and are often bordered by “visible or identifiable features.”⁶ Census tracts are regularly understood as neighborhood-level communities that range in geospatial size depending on the density of their resident populations.⁷

Unfortunately, the American FactFinder does not match a state’s ZCTAs to other geographic units, including Virginia’s counties or school divisions. To determine which ZCTAs correspond with ACPS’s geographic domain, Hanover consulted the Missouri Census Data Center’s (MCDC) Geographic Correspondence Engine, a database that allows users to match geocodes.⁸ The six ZCTAs that correspond with ACPS as reported by the MCDC are illustrated in a map provided in Panel A in Figure 1.5 on the next page.⁹ In total, 38 census tracts, otherwise referred to as neighborhoods, lie within Alexandria City’s ZCTAs (see Panel B in Figure 1.5). A map of these census tracts can be found [here](#).

³ “American Community Survey: Methodology.” U.S. Census. <https://www.census.gov/programs-surveys/acs/methodology.html>

⁴ “ACS Information Guide.” U.S. Census Bureau. <https://www.census.gov/programs-surveys/acs/about/information-guide.html>

⁵ “Geographic Terms and Concepts - Census Tract.” U.S. Census Bureau. https://www.census.gov/geo/reference/gtc/gtc_ct.html

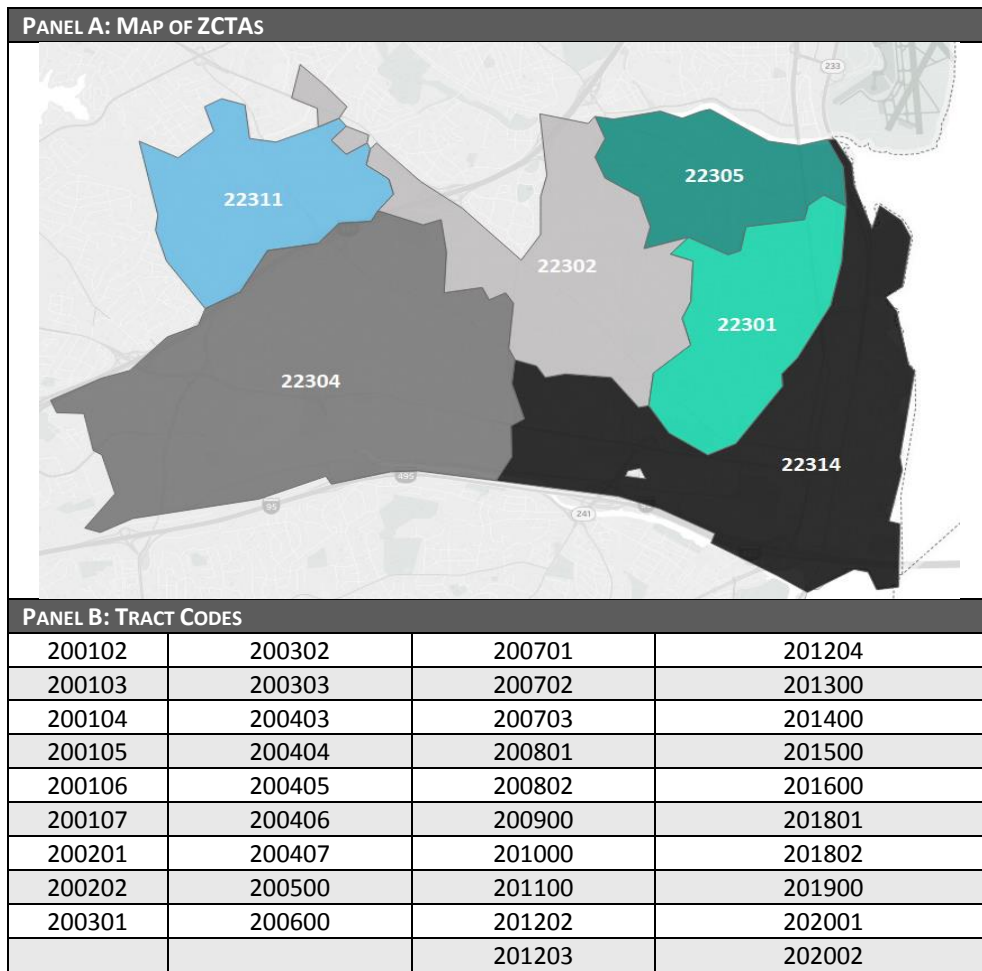
⁶ *Ibid.*

⁷ *Ibid.*

⁸ “Geographic Correspondence Engine.” Missouri Census Data Center. <http://mcdc.missouri.edu/websas/geocorr12.html>

⁹ It should be noted that the boundaries of two ZCTAs, areas 22206 in Shirlington and 22312 in Lincolnia, overlap with ACPS but are excluded from this list because the proportion of their boundaries that lie within ACPS are relatively small.

Figure 1.5: ZCTAs and Census Tracts in Alexandria City Public Schools



Source: Missouri Census Data Center,¹⁰ map made using Tableau software.

VARIABLE OF INTEREST AND ANALYTICAL STRATEGY

Using the American Factfinder, Hanover collected multiple ACS data files that contain demographic measures relevant to ACPS’s interest in grade-level feasibility and potential reconfiguration. In total, the data reflect five-year trends in family residency and fertility estimates, student-aged population and race estimates, income estimates, and mobility estimates. For every ACS measure, Hanover discussed population change over time, citing how these rates of change, if held constant, can be used to understand population growth in the years to come. For a more in-depth examination, Hanover identified top areas (ZCTAs and census tracts, where appropriate) with large and fast growth. Aside from an analysis of this data, information obtained from secondary sources about population change and projected growth in the region were included in the discussion to help contextualize findings.

¹⁰ Ibid.

IN-DEPTH INTERVIEWS WITH HIGH SCHOOL TEACHERS

This study focused on gathering perceptions of current teachers surrounding the impact of the split campus model and Ninth Grade Academy on both the Minnie Howard and King Street campuses.

SAMPLE DEVELOPMENT & OUTREACH

This report involved qualitative research findings from 16 in-depth interviews with TC Williams High School teachers conducted during fall 2017. Hanover recruited interview participants using a list provided by ACPS. In conducting outreach, Hanover made best efforts to recruit teachers from a variety of subjects, and with different levels of tenure at the district. In two cases, participants answered interview questions in a written format rather than over the phone. All teachers interviewed for the study remain anonymous.

INTERVIEW GUIDE DESIGN

In collaboration with ACPS, Hanover developed an interview guide that contained questions tailored to TC Williams High School's current design and structure. A complete in-depth interview guide is provided in the interview protocol previously delivered to ACPS. Questions presented to teachers focused on two major themes:

- Perceptions of the current split campus model
- Thoughts on potential future grade configuration options

SECTION II: KEY FINDINGS AND THEMES

Hanover’s multi-method research approach uncovered several findings on the feasibility of PK-12 grade level configurations. The following section synthesizes these studies’ key findings as they correspond with several prominent themes, such as: what demographic trends in ACPS’ local neighborhoods may impact school enrollment, how districts typically address rising enrollment, best practices in deciding whether to reconfigure grades to address rising enrollment, and features of effective grade level configurations (see Figure 2.1).

Figure 2.1: Themes




IDENTIFYING DEMOGRAPHIC TRENDS IN ACPS

The following sub-section identifies demographic trends in in Alexandria City and discusses how those demographic trends may impact specific neighborhoods and schools.

POPULATION GROWTH

Alexandria City experienced growth in family residency as well as sizable increases in student-aged populations from 2011 to 2015. Alexandria City’s six ZCTAs grew by a total of over 3,000 families from 28,311 in 2011 to 31,375 in 2015. During the same period, the population ages 0 to 17 increased from 22,128 to 25,557 persons, an increase of 15.5 percent.

| | | | |
|---|-------------------------|-----------------|---------------------------|
|  | 2011 | 28,311 families | 22,128 people age 0 to 17 |
| | 2015 | 31,375 families | 25,557 people age 0 to 17 |
| | Percent Increase | 10.8% | 15.5% |

While Alexandria City experienced sizable growth in residency, this growth was unevenly experienced across different geographies. Area 22311 (Alexandria West) witnessed some of the largest percent increases in total families from 2011 to 2013 but experienced a sharp decline in families between 2013 and 2014 prior to experiencing growth again by 2015. Area 22305 in Potomac West experienced the most consistent growth in family residency. At the same time, area 22304 in Van Dorn made large gains in those ages 0 to 4 and 12 to 17, with increases of 588 and 524 persons, respectively.

CHANGING DEMOGRAPHICS

The racial composition of Alexandria City’s ZCTAs among those ages 0 to 17 drastically differ and have grown even more segregated during the 2011 to 2015 period. In 2015, 42.3 percent of persons ages 0 to 17 residing within all six of Alexandria City ZCTAs identified as white, 25.5 percent as black, 22.6 percent as Hispanic, 4.6 percent as Asian, and 5.0 percent as another race. This same year, 72, 58, and 55 percent of area 22301 (Del Ray), 22302 (central Alexandria), and 22314’s (Old Town) population was majority white, respectively. Approximately 44 and 41 percent of area 22305 (Potomac West) and 22311’s (Alexandria West) population was majority Hispanic. Only area 22304 (Van Dorn) has continued to maintain racial balance. Beyond these recent trends, white residents are expected to continually make up a smaller portion of Alexandria City’s residents between 2020 and 2040 per projection estimates released by the Virginia Employment Commission (VEC).

Such segregation is likely to increase the difficulty of maintaining racial balance and equity among ACPS’s schools. Given these projections and current patterns in the racial composition of the student-aged population, ACPS is likely to witness increases in students of color, yet may encounter racial segregation across schools as a reflection of neighborhood segregation.

Disparities in the median household income of Alexandria City’s ZCTAs have also grown wider over time, which may impact inequalities in student access to resources across neighborhoods and schools. Inequalities in household income are even more apparent at the neighborhood level, in which low-income census tracts saw reductions in median incomes while high-income tracts saw increases in median income. Taken together, spatial unevenness in racial makeup and socioeconomic status across Alexandria City’s communities may pose challenges to the division as it considers grade level reconfiguration. Should division leaders choose to reorganize grades, ACPS must consider how such reconfiguration will impact the balance of students across schools and equitable access to opportunity.

Figure 2.2: District Example: Charlotte-Mecklenburg Schools

Maintaining equity in educational offerings is a priority of Charlotte-Mecklenburg Schools (CMS) when planning for grade-level reconfiguration and the construction of new schools. CMS uses a blind lottery to assign students to its full and partial magnet schools. In these cases, students record their first, second, and third priority schools. The district has since expanded the capacity of the most popular schools to accommodate “students who really have a desire to be in [those] program[s].” Overall, the district has not received any major concerns or pushback from the community on these policies.

IMPACTS ON ACPS

The three high-growth areas within the city are ZCTA 22304 in Van Dorn, ZCTA 22305 in Potomac West, and ZCTA 22311 in Alexandria West. ACPS may wish to monitor these areas due to their large growth, and consider how grade reconfiguration or other strategies to address rising enrollment may help ease enrollment pressure on local schools. See Figure 2.3, on the following page, for details.

Figure 2.3: Three High Growth Areas in Alexandria City

| COMMUNITY | DEMOGRAPHIC TRENDS | IMPLICATIONS | SCHOOLS IN THE COMMUNITY |
|---|---|--|---|
| <p>ZCTA 22304 in Van Dorn</p> | <ul style="list-style-type: none"> ▪ Population Growth: Between 2011 and 2015, family residency grew by over 10 percent with an increase of 929 more families. The birth rate and the population ages 0 to 4 and 12 to 17 has also steadily increased during this period. ▪ Racial Composition: Should the division reconfigure grade levels in area 22304, ACPS should consider the community’s racial composition, which displays the greatest racial balance compared to other ZCTAs in Alexandria City. ▪ Median Income: The median income has remained fairly stable from \$70,145 in 2011 to \$76,071 in 2015; although, this median income is much lower compared to the median incomes of Alexandria City’s other communities. A closer look at the median incomes of the neighborhoods within area 22304 reveal wide discrepancies across census tracts. | <p>Maintaining equity in student socioeconomic status across the community’s schools may prove challenging should these discrepancies in median incomes persist.</p> | <ul style="list-style-type: none"> ▪ Francis C. Hammond Middle ▪ James K. Polk Elementary ▪ Patrick Henry Elementary ▪ Samuel W Tucker Elementary |
| <p>ZCTA 22305 in Potomac West</p> | <ul style="list-style-type: none"> ▪ Population Growth: Between 2011 and 2015, family residency grew by over 20 percent with an increase of 593 families. In addition to large family growth, the birth rate continued to rise. ▪ Racial Composition: From 2011 to 2015, the racial composition of area 22305 shifted from a white-majority to a Hispanic-majority population ages 0 to 17. ▪ Median Income: The community declined in the percent of households earning annual incomes less than \$50,000 while increased in the percent of households with incomes of \$150,000 or more. | <p>Overall, these trends suggest that a considerable amount of demographic change has occurred while the community has grown. Such change may make it difficult to ensure equitable racial and socioeconomic representation should ACPS reconfigure grade levels across schools.</p> | <ul style="list-style-type: none"> ▪ Cora Kelly Magnet Elementary ▪ Mount Vernon Elementary |
| <p>ZCTA 22311 in Alexandria West</p> | <ul style="list-style-type: none"> ▪ Population Growth: Between 2011 and 2015, family residency grew by about 400 families, with large increases in family residency in the northern part of the community. ▪ Racial Composition: Approximately 85 percent of the those aged 0 to 17 residing within area 22311 are non-white, a majority of whom are Hispanic. ▪ Median Income: The community’s median household income has remained the lowest of all six ZCTAs from \$65,700 in 2011 to \$61,829 in 2015, and was the only ZCTA estimate to decline during this five-year period. | <p>Many children residing within this community are likely to face racial and socioeconomic disadvantages than those in Alexandria City’s other communities.</p> | <ul style="list-style-type: none"> ▪ John Adams Elementary ▪ William Ramsey Elementary |

TEACHER PERCEPTIONS OF THE CURRENT CONFIGURATION OF TC WILLIAMS HIGH SCHOOL

In addition to demographic pressures, ACPS must consider the challenges associated with the current configuration of TC Williams High School. The following pages summarize teacher perceptions surrounding the School’s current split campus model.

SCHOOL UNITY

Teachers at Minnie Howard benefit from a smaller and more intimate teaching environment. Participants consistently refer to the ninth-grade campus as ‘close-knit’ and position this as an advantage for student learning.

Despite noting a strong sense of community, almost all teachers view Minnie Howard campus as its own entity and not part of TC Williams. Teachers are quick to note that students also feel a sense of separation from the high school. As a result of the disconnect between the ninth-grade campus and main campus, teachers express concern that rather than thinking of Minnie Howard as high school, “most students think of it as an extension of their middle school years.” This, teachers feel, lowers student expectations and has a negative impact on student performance and achievement. Furthermore, some teachers note a lack of consistency in administration between the two campuses, as well as a lack of attention given to the Minnie Howard campus due to the shared administration.

“THE REAL TC WILLIAMS”

Teachers describe the ninth-grade campus at Minnie Howard as a way station, not perceived as the ‘real’ high school

“Holding Place” “Stop over”
“Dead zone”

In general, teachers believe that **the intimacy and focus of the ninth-grade academy can be recreated in a larger school** through holding ninth grade orientation sessions, spatially grouping students into wings, or social grouping into academies.

STUDENT BEHAVIOR AND MATURITY

Both Minnie Howard and King Street teachers acknowledge the benefits of giving ninth graders their own space and attention to transition into high school life and expectations. However, while acknowledging the benefit of having a space to transition, most teachers feel the transformation into mature high school students is ultimately delayed by the current ninth-grade academy structure. **Most teachers agree that ninth-graders would benefit from the presence of older peers to set expectations and demonstrate appropriate behavior.**

COMMUNICATION

Teachers at the ninth-grade campus praise the ability of the smaller school to facilitate communication and collaboration between teachers within the school. Participants highlight that teachers from different disciplines, who might not be expected to work together in a

larger building, are coming together to align on ninth-grade curriculum and create a comprehensive and supportive learning experience for their students. **However, teachers at both Minnie Howard and King Street note a lack of communication that prevents vertical planning and expectation-setting for students across grade levels.**

LOGISTICS: SCHEDULING AND TRANSPORTATION

The split campus model has a limited impact on core subject courses and teaching, largely because Grade 9 students are able to travel to the King Street campus for those courses that

“SCHEDULING COMPLICATIONS”

Teachers note that scheduling complications tend to arise when there are changes to the schedule at either school due to testing or assemblies.

“... [I]f King Street’s got something else going on... we’ve got to babysit 300 kids for a period during the day.”

“When... the ninth graders don’t come because of whatever reason, I have to reteach everything we have just done.”

are not offered at Minnie Howard. However, teachers report challenges in scheduling related to electives, as well as for those students who fail a class during ninth grade. Students “cannot repeat ninth grade classes for all subject areas easily,” one teacher noted, and summer may be the only option to retake certain courses.

Teachers also report scheduling conflicts due to testing and assemblies that sometimes result in wasted or lost class time. Transportation challenges, such as traffic buses encounter en route between the two campuses, can also result in lost class time.

Some teachers report that the split campus model hinders participation in afterschool activities and clubs, although participation in athletics is notably not affected by the split.

RESOURCES AND RELATIONSHIPS

Teachers at Minnie Howard also note that, while students are able to access resources by traveling back and forth between the two campuses, the Grade 9 campus is smaller and not equipped with many of its own resources. For example, teachers

expressed interest in establishing more resources at Minnie Howard for electives and afterschool programming. **In general, teachers at each campus expressed a desire for their own campus to be equipped with its own resources, have its own administrators, and hold decision-making power.**

Finally, as a result of a smaller, tight-knit community, students in the ninth-grade campus receive more time and attention from teachers than they would at a comprehensive high school. However, teachers at Minnie Howard note that while they are able to provide

additional attention to Grade 9 students during the current school year, relationships suffer over time, as students move to the King Street campus and lose touch.

REVIEWING DISTRICT STRATEGIES TO ADDRESS RISING ENROLLMENT

Districts like ACPS have used several capital and non-capital strategies to accommodate increases in local population like those described above, including:



Grade reconfiguration: School districts may choose to reconfigure grades to better meet the instructional needs of a growing student body. Two of the three districts in the benchmarking study that reconfigured grade levels chose to combine K-5 elementary and 6-8 middle schools into single K-8 schools. One instituted the change to accommodate a growing student body, while the other made the change to use facility space across the district more efficiently. The third district that reconfigured grade levels separated K-8 schools into K-5 elementary and 6-8 middle schools to encourage instructional focus.



Space renovations: School districts may also choose to make internal building modifications, expand schools, or renovate schools. Two anonymous school districts in the benchmarking study rearranged classrooms, offices, and/or other facility spaces within schools as a first step to maximize the usage of space.



Portable units: Another strategy to address enrollment growth is the use of mobile or portable units to expand space. However, while mobile units may provide quick and temporary facilities space, and while research has not identified any detrimental effects of their use for learning, several studies have documented some health and safety hazards to their use. Nevertheless, none of the three districts in the benchmarking study that introduced portable units discussed such complications.



New school zone boundaries: Altering school zone boundaries is a non-capital strategy to curb enrollment pressure. Adjusting school boundaries helps to redistribute student populations across schools where one school may be above enrollment capacity while another has excess space. Researchers warn, however, that frequent “non-promotional school change” negatively affects students’ academic achievement, their social adjustment, and the school environment.



Restructured class schedules: Extending the school day or creating a year-round schedule is another non-capital strategy that districts facing over-enrollment consider. Indeed, proponents of a year-round academic calendar often cite the benefit of facilities efficiency in addition to other academic benefits.



Increased online learning: Offering more online learning opportunities shift the focus of strategic enrollment planning from facilities space to instructional practice.

Rather than relying solely on grade level reconfiguration, ACPS leaders may wish to consider how the division could use a combination of the above strategies over the short- and long-term to address rising enrollment and counteract the growing spatial unevenness in racial makeup and socioeconomic status in Alexandria City communities.

CHOOSING TO RECONFIGURE GRADES

Districts that choose to reconfigure grades as a strategy to accommodate increases in local population should understand that the empirical data does not universally support any specific configuration as “the best” for students. Instead, much of the support (or not) for a grade span model is based on anecdotal and descriptive literature. Nevertheless, districts can reorganize schools in several ways to reflect their internal capabilities and the needs of their student population, which can positively influence student outcomes despite the inconclusive literature. In many cases, reforming a school’s organization or management style can represent a potentially cost-effective way to stimulate student performance and other indicators of success. Compared to policy changes regarding teacher tenure or the implementation of new standards, for example, school organization is a high-impact, low-cost reform that schools can enact to drive district-wide improvements in targeted areas such as achievement scores or non-academic growth.

Before reorganizing grade configurations, districts may wish to consider several key questions (see Figure 2.4). It is critical for district leaders to consider the potential benefits and challenges, both in terms of cost and student impact, of reorganizing buildings and grade spans. Experts believe that “school districts poised on the brink of making these decisions must consider factors beyond simply what is best for the students. They also must consider projected enrollments, transportation costs, number of transitions to be made by students, size of school, and overall school goals.”¹¹ Moreover, education practitioners note that grade spans that are effective in some districts may be less effective in others, cautioning district administrators to consider the context of reform efforts.

¹¹ Howley, C.B. “Grade-Span Configurations.” The School Superintendents Association. <http://www.aasa.org/SchoolAdministratorArticle.aspx?id=10410>

Figure 2.4: Key Questions to Ask When Considering New Grade Configurations

- Will the grade configuration increase or decrease parent involvement?
- How many students will be enrolled at each grade level and what implication does this have on course offerings and instructional grouping?
- How many transition points will occur? How will these be addressed?
- How will the presence or absence of older students affect younger students?
- Is the design of the school building suited to this grade configuration?
- What is the cost and length of student travel?
- What are the opportunities for interaction between age groups?
- What are the effects of the grade configuration on curriculum? Is there better continuity and articulation in curriculum with fewer gaps and overlaps?
- Are there stronger ties among schools, students, and parents?

Source: Barton and Klump¹²

FEATURES OF EFFECTIVE CONFIGURATIONS


To reorganize schools in a way that reflect their internal capabilities and the needs of their student population, districts like ACPS may wish to consider grade configuration *models* and the configuration *process*. By considering grade configuration models, districts can develop a strong understand of the models that exist, which models are most common, and the features of models that can impact student achievement. By considering grade configuration processes, districts can better understand how to implement grade configurations in a way that accounts for the needs and interests of their community stakeholders.

CONFIGURATION MODELS

State-level data on grade level configurations suggests that there is no limit to the division of grades that is possible, and common models range from wide-scale schools that serve up to seven grade levels to single- or two-grade buildings.

However, the most *common* grade configurations for public schools nationally and in ACPS' region are generally PK/K-5 at the elementary level and 9-12 at the high school level. Three-year middle schools are the most common model nationally and regionally, although K-8 schools are becoming more popular. The number of K-8 schools nationally has increased substantially over the past 20 years from 2,500 schools in 1994 to 6,500 schools in 2014.

¹² Barton, R. and J. Klump. "Figuring Out Grade Configurations." *Principal's Research Review*, 7:3, May 2012. p. 6. <http://educationnorthwest.org/sites/default/files/resources/PRR-Figuring-Out-Grade-Configurations.pdf>



| | | |
|----------------------|----------------------------------|----------------------------------|
| Grades PK/K-5 | 25,309 schools nationally (2014) | 38 percent of elementary schools |
| Grades 9-12 | 16,361 schools nationally (2014) | 13 percent of secondary schools |
| Grades PK/K-8 | 6,553 schools nationally (2014) | 10 percent of elementary schools |

Although the research does not universally support any specific configuration as “the best” for students, some studies do suggest that some configurations are better than others. For example, researchers have found that young students do not benefit from isolated early childhood experiences in PK-K schools. Likewise, students do not benefit from isolated intermediate experiences in 5-6 schools. On the following page, Figure 2.5 summarizes these research findings for all major grade level configurations.

Figure 2.5: Summary of Research Findings for Grade Level Configurations

| GRADE LEVELS | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|----|----|----|
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Students do not appear to benefit from isolated early childhood experiences. Students in standalone pre-primary schools do not gain skills as fast over the course of the school year as their peers in elementary schools. Generally, researchers find that more time is dedicated to instruction when Kindergarten is included in elementary grade spans. | | | | | | | | | | | | | |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| PK/K-5 schools are the most common grade configuration for public schools at the elementary level. However, the data indicates that Grade 6 students have higher academic outcomes and better behavior in elementary school settings. In two separate studies, researchers found that Grade 6 students who attended K-6 schools outperformed their peers in Grades 6-8 schools in ELA and math on end-of-year assessments. Moreover, when comparing infraction rates for Grade 6 students between the two school settings, researchers found that these students, when attending a middle school, acquired more infractions than peers in elementary schools. However, districts transitioning to a K-6 grade configuration will need to consider how they will address increased student enrollment in elementary schools. | | | | | | | | | | | | | |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Intermediate schools are not supported by the literature. Students in Grades 5-6 perform better as part of larger elementary grade spans, and there is no evidence that intermediate schools are better equipped to provide students with dedicated social and emotional supports resources than more standard elementary school settings. | | | | | | | | | | | | | |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Despite the wealth of literature and recent school district trends favoring K-8 schools, studies comparing student outcomes at K-8 schools and middle schools have found conflicting results. Several studies found improved academic and behavior outcomes for K-8 students compared to middle school students, while others found no difference in outcomes between K-8 and middle school students. Other studies, however, found grade span is not associated with negative outcomes. Rather, classroom quality or the social environment may be better predictors of student outcomes. | | | | | | | | | | | | | |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Relatively few studies have compared junior high and middle school grade configurations to each other or to other secondary configurations. One study found that the 7-8 pattern was superior to the 6-8 model, as students in Grade 7 were more likely to have higher test scores and less likely to have disciplinary infractions. Other studies, however, have found grade span itself is not associated with negative academic or behavioral outcomes. Rather, classroom quality or the social environment may be better predictors of student outcomes. | | | | | | | | | | | | | |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Ninth grade academies are often difficult for schools to implement, as academies have distinct administrative structures and programmatic characteristics, which can be difficult to implement without substantial district support and resources. Moreover, research on their effects is inconclusive. While some studies have found that students attending such academies have higher achievement levels than students in typical high schools, other studies have found no differences. | | | | | | | | | | | | | |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 7-12 schools are not generally supported by the literature. Proponents of the 7-12 model argue that it is effective because it minimizes school transitions and allows middle grades students to access high school facilities and advanced coursework. However, research and anecdotal accounts of the model's outcomes have been mixed. Adopters of the model have acknowledged that middle and high school students have different needs, and typically use school-within-school models to serve 7-8 and 9-12 students separately on the same campus. | | | | | | | | | | | | | |
| PK | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 9-12 schools are by far the most prevalent type of secondary school configuration. The empirical evidence supporting the use of alternative secondary school configurations, like Ninth grade academies, is limited. | | | | | | | | | | | | | |

BEST PRACTICE FEATURES OF CONFIGURATION MODELS

A focus on school quality and effective educational practices should underpin any grade reconfiguration effort. Regardless of the grade span configuration used in a district, leaders should focus on implementing best practice features of K-12 education, such as:

- **Alignment in Grades K-3:** Comprehensive PreK-3 alignment is critical to ensure successful transitions into formal schooling and maintain student achievement. A dedicated PreK-3 framework ensures that curricula and pedagogy are aligned across early childhood and early elementary classrooms, and this sequences points to the efficacy of including early childhood grades with elementary sequences.
- **Support of Student Transitions:** Transition programs, which address students' concerns and expectations about new schools, should align with overall K-12 articulation efforts; teachers and administrators at each school level should coordinate efforts to address transition issues.
- **Developmentally Appropriate Instruction:** Districts should strive to meet students' academic and developmental needs at all ages. High-impact schools will address the developmental and academic needs of students regardless of how grades are organized, and this will ultimately boost outcomes.

CONFIGURATION PROCESSES

Once a grade configuration is selected, implementing new configurations can initially be disruptive or frustrating for teachers, students, and parents as schools adjust to serving new student populations. This section reviews strategies that other districts have used to facilitate the implementation of new grade configurations, including: engaging stakeholders, considering costs and resources, and committing to student achievement and well-being.

Engage all stakeholders throughout the process



Districts typically review the grade configuration literature and solicit feedback from stakeholders when deciding whether to adopt new grade configurations. Experts recommend that districts first review the literature on grade configurations and visit or speak with other districts with the same configuration to learn about the benefits and disadvantages of potential configurations. After selecting potential configurations based on the research literature and regional trends, districts should assess stakeholders' views on these potential configurations by administering surveys, interviews, or focus groups. Districts have also created boundary review committees, consisting of parents, teachers, and staff, which have reviewed district plans for grade configuration and school boundary zones.

District's experiences also suggest that engaging with stakeholders after the process is completed is likewise valuable. In Colorado, Aurora Joint District 28's (APS) stakeholders were generally pleased with the change from Grades K-5 to K-8 schools. However, a primary

challenge the district faced to combining elementary and middle school grades was preparing students for the transition, particularly those that were moving from a middle to a K-8 school. As a planning coordinator in the district’s planning department explained, students already in traditional middle schools struggled with switching to a K-8 school because they had developed different expectations surrounding school and instructional culture.

Consider costs and resources needed



Cost considerations are a key issue for districts to weigh when considering new grade spans. Transportation costs could increase or decrease depending on the details of the new configuration. Schools may also need to add classrooms, purchase additional furniture, or modify their facilities to meet the needs of older or younger students; space is often a limiting factor for districts that wish to modify their grade configurations.

Scottsdale Unified School District (SUSD) in Arizona, for example, found that efficiently managing facilities and costs was difficult when restructuring K-8 schools into K-5 schools to meet population needs. Ultimately, the restructure left SUSD with extra classrooms. The district decided to use this space for the instruction of small-scale programs, such as special education programs, pull-out instruction, or classes for the community. Meanwhile, CMS has found that PK-8 schools required more features than previous K-5 schools. After prior attempts to shift middle schoolers into buildings that were previously used as elementary schools, administrators learned that while such buildings were not fully utilized, the spaces within the schools still lacked the features and amenities needed to accommodate instruction for middle grade students. Finally, APS found that switching to K-8 models required teachers to obtain new certifications to be able to teach in both Grades K-6 or Grades K-8. **Thus, if ACPS decides to reconfigure grades, leaders should weigh how different configurations would impact their human resources (e.g., staff), fiscal resources, and facilities.**

Commit to student achievement and wellbeing



Educators, researchers, and district leaders emphasize that a commitment to “sound educational practices” should be the underlying goal of any grade reconfiguration. Districts should a) be aware of the developmental issues facing students at different grade levels and ensure that the curriculum, class schedules, and behavioral expectations meet students’ needs, b) consider whether staff and teachers need additional training to serve new student populations, and c) ensure articulation between K-12 curricula.

Some stakeholders may worry that administrators are not considering student achievement and well-being adequately. At APS, for example, a few stakeholders expressed concern that their younger children would attend school with much older students in K-8 schools. **Thus,**

as part of the stakeholder engagement process, ACPS may wish to reassure parents, teachers, and students of this commitment to student achievement and wellbeing.

TEACHER PERCEPTIONS OF FUTURE GRADE CONFIGURATION OPTIONS

The results of the In-Depth Interviews with High School Teachers suggest that **ACPS should consider implementing one large or two smaller comprehensive high schools**. In general, teachers expressed a preference for a 9-12 grade configuration among upper-secondary students. Teachers stress a sense of community and feel that ninth graders should be in the presence of older grades to learn appropriate behavior and academic expectations. Dividing students by grade level leads to perceptions of the lower school not being “real” high school, a lack of vertical planning among teachers, and logistical challenges.

PERCEPTIONS OF THE 9-10/11-12 GRADE CONFIGURATION PROPOSAL

Teachers who find the current ninth-grade academy problematic express concern over a 9-10/11-12 configuration and feel that it would create even more complications for the district in terms of school unity, scheduling electives, and continuity of curriculum. **While a few teachers suggest ninth graders would benefit from having an older grade to look up to, many teachers feel the format would instead hold back tenth graders.** Teachers also suggest that the proposal configuration would limit the availability of electives at both campuses.

Teachers note that certain student populations may not benefit if the campuses are split into a 9-10/11-12 configuration without providing comprehensive, consistent resources at each campus. Several teachers emphasize the importance of addressing the needs of students who require additional support or an alternative educational environment, and express uncertainty that a 9-10/11-12 configuration would allow for this. Furthermore, several teachers highlight the International Academy specifically, and wish to maintain this program throughout the high school grades.

CONCERNS SURROUNDING DIVERSITY

Many teachers acknowledge concerns around dividing the district up into two high school populations, but express different views on the attainability of diverse and equitable schools. Several frame concerns as justified, and feel that two high schools would breed unhealthy competition and racial/socio-economic segregation, while others position this a problem that can be avoided through proper planning and ignoring opinions that are not in the best interest of the students.

CONCERNS FOR EQUITY

Teachers are divided as to whether the district can be equitably divided into two, integrated high schools.

“I would be concerned a bit if there were two different high schools.... [D]oes that segregate students socioeconomically?”

“You can control district lines. You can control what teachers you hire at each school, and provide the same thing equally, but you can’t change the nature of a ninth and tenth grader.”

PROJECT EVALUATION FORM

Hanover Research is committed to providing a work product that meets or exceeds client expectations. In keeping with that goal, we would like to hear your opinions regarding our reports. Feedback is critically important and serves as the strongest mechanism by which we tailor our research to your organization. When you have had a chance to evaluate this report, please take a moment to fill out the following questionnaire.

<http://www.hanoverresearch.com/evaluation/index.php>

CAVEAT

The publisher and authors have used their best efforts in preparing this brief. The publisher and authors make no representations or warranties with respect to the accuracy or completeness of the contents of this brief and specifically disclaim any implied warranties of fitness for a particular purpose. There are no warranties that extend beyond the descriptions contained in this paragraph. No warranty may be created or extended by representatives of Hanover Research or its marketing materials. The accuracy and completeness of the information provided herein and the opinions stated herein are not guaranteed or warranted to produce any particular results, and the advice and strategies contained herein may not be suitable for every client. Neither the publisher nor the authors shall be liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages. Moreover, Hanover Research is not engaged in rendering legal, accounting, or other professional services. Clients requiring such services are advised to consult an appropriate professional.



4401 Wilson Boulevard, Suite 400
Arlington, VA 22203
P 202.559.0500 F 866.808.6585
www.hanoverresearch.com