Charles Barrett Elementary School

1115 Martha Custis Drive, Alexandria, VA 22302

At a Glance…			
Year Built 1949	**Tax Map** 006.01-03-01	**Current Square Feet** 83,195	**Average Educational Adequacy** Satisfactory (73)
Zoning RB	**Lot Size** 150,748	**Floor Area Ratio** 0.75	**Allowed Square Feet** 113,061
POS	64,504	0.0	0
School Site Satisfactory (71)	**Building Assessment** Satisfactory (75)	**Instructional & Support Spaces** Satisfactory (74)	**Utilization** Inadequate (72)

Background

Charles Barrett Elementary School was built in 1949. In 1997, a media center was built. Renovations in 2011 included the addition of four classrooms, with four more expected to be constructed in 2015. 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. The school also offers:

- Art instruction with a certified art teacher
- Music with a certified music teacher
- Fourth and Fifth graders band/orchestra
- Two physical education classes a week
- Health class/Family Life Curriculum
- Third, Fourth, and Fifth graders receive keyboarding instruction

- Special education programs
- Talented and Gifted program for grades K-5
- TAG pull-out program for grades 4-5 in the subjects of math and language arts

DASHBOARD

Current Enrollment (2014-2015)	**458**
School Capacity	**428**
Projected Enrollment (2020)	**512**
Projected Primary Instructional Classroom Deficit	**2020** -8
Projected Total Additional Square Feet	**2020** -4,756
Electric Usage in kilowatt-hour (7/1/2013 – 6/30/2014)	**666,060**
Number of Maintenance Calls (7/1/2013 – 6/30/2014)	**188**

Key Findings

Summary

The data collected through this assessment reveals Charles Barrett Elementary School meets 71 percent of the educational adequacy benchmarks for an ideal 21st century elementary school. A score of 71 percent translates to a satisfactory rating for this school.

High Priority Items

- The majority of classrooms did not meet the minimum size requirement.

- Core and specialty classrooms are not equipped with appropriate storage furnishings.

School Site

As shown in Exhibit A, the school site received a satisfactory rating. Site circulation received a borderline rating due to poor

Site Data

Environmental Considerations	*Steeper slopes in outfall channel and around open fields*
Number of Playgrounds	*3*
Recreation Features	*Ball fields, open fields, recreation center*
Resource Protection Areas	*None*
Number of Parking Spaces	*42*
Storm Water Management	*Flow thru planter boxes & bio-retention.*

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organization of 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 immediately before and after school. There are multiple crossing guards controlling both pedestrian and vehicular traffic.

Instructional and Support Spaces

Overall, the instructional and support spaces ranked satisfactory while the majority of the characteristics in all spaces meet or exceed the requirements. **All spaces failed to meet appropriate size requirements.** The majority of resource rooms and similar spaces making up the specialty classroom category are not only too small, but also lacked the necessary equipment, furniture, fixed infrastructure, and storage. The measured average classroom size for grades one through five is 775 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 26 percent smaller than the square foot minimums detailed in the educational specifications. The school has significant deficiencies with air temperature and quality due to the lack of individual controllability and major temperature swings 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. **The most urgent items in this section are classroom capacity and HVAC mechanical issues.**

Building Assessment

As highlighted in the Exhibit A scorecard, 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.

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Recommendations

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

GROUP 2 – FIRST PRIORITY

- **Assess** opportunities to reconfigure the spaces within the existing school to meet the recommended size requirements for individual academic spaces as outlined in the educational specifics.

- **Explore** the feasibility of an expansion to the school to meet recommended size requirements and key organizational adjacencies outlined in the educational specifics.

- **Assess** the possibility of reconfiguring the north wing of the building comprised of four classrooms to provide a more efficient layout of core academic spaces and in adjacent outdoor play spaces.

GROUP 3 – SECOND PRIORITY

- **Access** possibility of equipping all classrooms with individual climate and lighting controls

- **Explore** additional storage for teachers and students as well as an upgrade to the furniture, fixtures and equipment. Many classrooms do not have the required millwork necessary for the teaching environment.

GROUP 4 – LONG-RANGE RECOMMENDATIONS

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Exhibit A

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Appraisal Summary for :	Charles Barrett			Key	

Summary	Unweighted Points	Tier	Priority	Rating Category
					1	Excellent
1.0 School Site	71			Satisfactory	2	Satisfactory
2.0 Building Assessment	75			Satisfactory	3	Borderline
3.0 Instructional and Support Spaces	74			Satisfactory	4	Inadequate
4.0: Utilization	72			Inadequate	5	Very Inadequate
Average	73			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
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)	69	2	2	Very Inadequate
B Specialty Classrooms (Core A)	49	3	3	Very Inadequate
C Shared Spaces (Core B)	102	3	18	Satisfactory
Average : Utilization	72			Inadequate

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Cora Kelly Elementary School

3600 Commonwealth Avenue, Alexandria, Virginia, 22305

At a Glance…			
Year Built **1955**	*Tax Map* **015.02-09-01**	*Current Square Feet* **69,516**	*Avearge Educational Adequacy* **Satisfactory (72)**
Zoning **RB**	*Lot Size* **197,673**	*Floor Area Ratio* **0.75**	*Allowed Square Feet* **148,255**
School Site **Satisfactory (87)**	*Building Assessment* **Inadequate (49)**	*Instructional & Support Spaces* **Satisfactory (75)**	*Utilization* **Inadequate (77)**

Background

Cora Kelly Elementary School is located in a residential neighborhood in Alexandria. This school is dedicated to preparing its student for the 21st century through science, technology, engineering, and math.

In 2014, Cora Kelly's enrollment was 341 students with a measured capacity of 429. The enrollment projection indicates the school's population by year 2020 will be 409 students.

The academic curriculum at Cora Kelly includes reading, language arts, mathematics, social studies, and science. The school also offers:

- Guided Math, personalized instruction to meet individual needs of students
- Core subject matter is integrated within encore classes (i.e. art, library, music and physical education)
- Baldrige or Classroom Continuous Improvement is utilized to foster continuous improvement and empower students
- Science labs, computer labs and additional technology are provided for the students to help develop their science and technology literacy

DASHBOARD

Current Enrollment (2014-2015)	**341**
School Capacity	**429**
Projected Enrollment (2020)	**409**
Projected Primary Instructional Classroom (surplus/deficit)	**2020** 3
Projected Total Additional Square Feet (surplus/deficit)	**2020** 7,811
Electric Usage in kilowatt-hour (7/1/2013 – 6/30/2014)	**503,500**
Number of Maintenance Calls (7/1/2013 – 6/30/2014)	**196**

Key Findings
Summary

Based on the data collected through this assessment, Cora Kelly meets 72 percent of the educational adequacy benchmarks for an ideal 21st century elementary school.

High Priority Items

- Specialty and shared spaces are generally over-sized, while the core classrooms are generally under-sized.

- The core classrooms are also lacking air temperature controls which are required per the educational standards.

- Cora Kelly must provide basic infrastructure such as wireless internet access and ample

supply of electrical outlets for teaching devices.

School Site

Site Data	
Environmental Considerations	*Steep slopes to offsite channel around open fields*
Number of Playgrounds	*3*
Recreation Features	*Asphalt play areas, basketball courts and open fields*
Resource Protection Areas	*Adjacent nature area*
Number of Parking Spaces	*85*
Storm Water Management	*Bio-retention, multiple storm inlets*

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.

Instructional and Support Spaces

While the instructional and support spaces ranked satisfactory due to the majority of spaces meeting or exceed the requirements, core classrooms fail to meet size requirements. This area is of highest concern. The measured average size for pre-kindergarten and kindergarten class is 810 instead of the desired 1,175 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.

The core classrooms do not have individual student desks and therefore do not support diverse learning styles or flexible seating arrangements. Very few of the core classrooms have restrooms within the classroom or even 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. Teacher furnishings are minimal if non-existent and there are very few classrooms with teacher's desk and personal storage equipment. In general, 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 comprehensive building assessment of Cora Kelly 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 programmatic spaces are appropriately located, as required, and provide 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.

To should be noted that the school building overlaps the separate/adjacent site that is zoned POS. Before building modifications are made, a consideration should be made to incorporate the square footage of the recreation center into the FAR calculations as they are currently not included in the square footage of the school.

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Recommendations

GROUP 1 – REQUIRED PLANNING

- **Site assessment** to determine whether the drop-off location location for the school can be relocated/reconfigured (based on property boundaries, setbacks, etc.). Assess whether all pedestrian circulation routes can be separated from vehicular traffic as recommended in the education specifics.

- **Explore** the feasibility of installing an elevator near the main entry to address the existing ADA accessibility issue.

GROUP 2 – FIRST PRIORITY

- **Access** opportunities to reconfigure existing instructional classroom spaces to meet the recommended size requirements outlined in the educational specifics.

GROUP 3 – SECOND PRIORITY

- **Assess** the possibility of equipping all classrooms and support spaces with individual climate control.

- **Equip** all core classrooms, corridors and support spaces with additional electrical receptacles as required.

- **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

Exhibit A

Appraisal Summary for :	Cora Kelly					Key	
					1	Excellent	
Summary	**Unweighted Points**	**Tier**	**Priority**	**Rating Category**	2	Satisfactory	
					3	Borderline	
1.0 School Site	87			Satisfactory	4	Inadequate	
2.0 Building Assessment	49			Inadequate	5	Very Inadequate	
3.0 Instructional and Support Spaces	75			Satisfactory			
4.0: Utilization	77			Inadequate			
Average	**72**			Satisfactory			

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
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)	93	2	17	Satisfactory
B Specialty Classrooms (Core A)	115	3	8	Inadequate
C Shared Spaces (Core B)	146	3	3	Very Inadequate
Average : Utilization	**77**			Inadequate

Mount Vernon Community School

1005 Mount Vernon Avenue, Alexandria, VA 22301

At a Glance…			
Year Built 1923	**Tax Map** 024.04-02-03	**Current Square Feet** 120,820	**Educational Adequacy Assessment** Borderline (54)
Zoning R-2-5	**Lot Size** 200,604	**Floor Area Ratio** 0.45	**Allowed Square Feet** 90,272
POS	18,831	0.0	0
School Site Borderline (56)	**Building Assessment** Inadequate (38)	**Instructional & Support Spaces** Borderline (64)	**Utilization** Very Inadequate (58)

Background

The current Mount Vernon Community School structure was built in 1923. Classroom additions occurred 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. The school has a total square footage of 120,820 (not including the gymnasium) over the span of three levels. The school is located at 2601 Commonwealth Ave and surrounded by quiet residential streets.

In 2014, Mount Vernon had an enrollment of 817 students and a measured capacity of 754 students. By 2020, the enrollment is expected to increase 3 percent to 841 students. Mount Vernon is a community school that encourages partnerships between the school and the community in an effort to improve the academics, health, and development of the community and its students. This relationship fosters a personalized curriculum that teaches real-world problem solving skills. Mount Vernon is an English-Spanish Dual Language program school that aims to make students bilingual, bi-literate and culturally aware.

The academic curriculum at Mount Vernon includes reading, language arts, mathematics, social studies, and science. The school also offers:

- Art instruction with a certified art teacher once a week;
- Music instruction with a certified music teacher once a week;
- Fourth and Fifth graders can join band or orchestra;
- Two physical education classes a week with a certified P.E. teacher;
- Health class as part of the Family Life Curriculum;
- Third, Fourth, and Fifth graders receive keyboarding instruction;
- Special education programs;
- Talented and Gifted program for grades K-5; and
- A TAG pull-out program for grades 4-5 in the subjects of math and language arts.

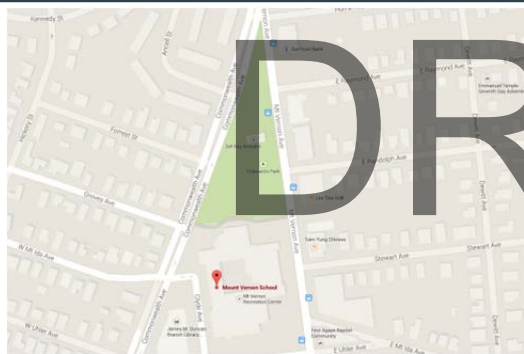| DASHBOARD	
Current Enrollment (2014-2015)	**817**
School Capacity	**754**
Projected Enrollment (2020-2024)	**841**
Projected Primary Instructional Classroom Deficit	**-6**
Projected Total Additional Square Feet	**4,705**
Electric Usage in kilowatt-hour (7/1/2013 – 6/30/2014)	**1,019,300**
Number of Maintainance Calls (7/1/2013 – 6/30/2014)	**297**

Key FIndings
Summary

The data collected through this assessment reveal that Mount Vernon Community School meets only 54 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 over capacity lacking space for 87 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

Environmental Considerations	Isolated steep area
Number of Playgrounds	2
Recreation Features	
Resource Protection Areas	No
Number of Parking Spaces	271
Storm Water Management	Multiple inlets, two underground dentention systems.

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 satisfactory, it is important to understand that **only one of two mult-iuse, hard surface, play areas is provided**. 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 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 Division's size requirements, the lack of lighting and HVAC controllability, and noise interference from inside and outside the rooms was not mitigated. Classrooms are often overcrowded with materials and students. 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. It was observed that very few classrooms 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. Numerous teachers reported mold, humidity and moisture issues in their core classroom which they indicate increases during the warmer months. 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.

Based on our assessment, the most urgent items in this section are classroom capacity and HVAC mechanical issues. The average core classroom size for prekindergarten and kindergarten is 885 rather than the suggested 1025 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, while the rating for the overall building was excellent, several classrooms had no natural light or windows with a view outdoors.

Building Assessment

Less than half of the classrooms in Mount Vernon have the technology infrastructure and tools required to support a 21st century learning environment and overall space arrangements do not meet the division's expectations 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.

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Recommendations

It should be noted that the existing school exceeds the allowable FAR for the zone. Any additions or significant renovations will require an exception or a rezoning.

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 and storm water management issues.

- **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.

GROUP 2 – FIRST PRIORITY

- **Assess** opportunities to reconfigure the spaces within the existing school to meet the recommended size requirements for individual academic spaces as outlined in the educational specifics.

- **Reconfigure** the spaces within the existing school. This would allow for more effective grade grouping and incorporation of collaborative learning spaces.

- **Explore** 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.

GROUP 3 – SECOND PRIORITY

- **Assess** possibility of equipping all classrooms and support spaces with individual climate controls, and technology equipment and infrastructure.

- **Explore** 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.

- **Upgrade** existing playing areas and fields.

GROUP 4 – LONG-RANGE RECOMMENDATIONS

- **Consider** relocating the tennis courts in order to expand the recreation fields

Exhibit A

Appraisal Summary for :	Mount Vernon		

		Key	
1	Excellent		
2	Satisfactory		
3	Borderline		
4	Inadequate		
5	Very Inadequate		

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	58			Very Inadequate
Average	54			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
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)	86	2	12	Borderline
B Specialty Classrooms (Core A)	18	3	3	Very Inadequate
C Shared Spaces (Core B)	130	3	3	Very Inadequate
Average : Utilization	58			Very Inadequate

George Washington Middle School

1005 Mount Vernon Avenue, Alexandria, VA 22301

At a Glance…			
Year Built 1935	Tax Map 054.01-01-01	Current Square Feet 237,332	Avearge Educational Adequacy Borderline (68)
Zoning RB	Lot Size 765,454	Floor Area Ratio 0.75	Allowed Square Feet 574,090
POS	258,685	0.0	0
School Site Satisfactory (82)	Building Assessment Borderline (66)	Instructional & Support Spaces Satisfactory (70)	Utilization Very Inadequate (56)

Background

George Washington was originally built in 1935 and operated as a high school until 1971. In 1971, George Washington and Francis C. Hammond 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 became a middle school (6th-8th grades) in 1993. In 2014, George Washington had an enrollment of 1,223 students with measured capacity of 1,438 students. By 2020, enrollment is expected to increase approximately 14 percent to 1,399 students. The academic curriculum at George Washington includes reading, language arts, mathematics, social studies, and science. The school also offers:

- Art/Drama/Speech
- Band/Orchestra/Choir
- Health/Physical Education
- Foreign Languages (Chinese, French, German, Latin and Spanish)
- Computer Applications
- Technology/Synergistic
- Special Education Programs
- Family life education/appropriate ages

- ELL program for students that are learning English as a second language
- Opportunity to participate in numerous after-school programs

DASHBOARD

Current Enrollment (2014-2015)	1223
School Capacity	1438
Projected Enrollment (2020)	1399
Projected Primary Instructional Classroom Surplus/Deficit	2020 +1 (surplus)
Projected Total Program Square Feet Surplus/Deficit	2020 -29,562
Electric Usage in kilowatt-hour (7/1/2013 – 6/30/2014)	1,759,940
Number of Maintenance Calls (7/1/2013 – 6/30/2014)	233

Key Findings

Summary

The data collected through this assessment reveals that George Washington Middle School meets 68 percent of the educational adequacy benchmarks for an ideal 21st century middle school. This rating earns George Washington a borderline score.

High Priority Items

- Capacity is rated at 95 percent because there are enough classrooms to accommodate the 2020 projections. However, classroom sizes do no

meet the education specifications of having enough square footage.

- The classroom conditions rate as satisfactory, suggesting these areas meet 90 percent or less of the criteria benchmarked for an ideal 21st century school. Based on 2020 projections, the school is equipped with enough space to provide an adequate learning environment for students. This conclusion is based on the overall square footage of the school, however it does not take into the account the reconfiguration needed to make classrooms the required size. The school is not lacking in overall space, but many classrooms are either undersized or underutilized.

Major issues at George Washington include lack of storage space in classrooms, classroom size, and temperature controllability. **The core classrooms, shared classrooms, and support spaces do not meet the educational requirements.**

When considering modifications to the existing site, it should be noted that zone CDD #10 overlays half of the easter recreation field and the southern end of the site (zoned POS) includes a parking area, part of the access road and the fields.

School Site
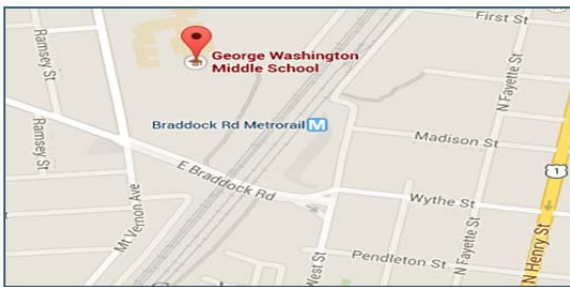
Site Data

Environmental Considerations	Isolated steep area
Number of Playgrounds	2
Recreation Features	Tennis courts, baseball fields, athletic fields and open fields
Resource Protection Areas	No
Number of Parking Spaces	271
Storm Water Management	Multiple inlets, two underground detention systems.

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 throughfare road and parking lot.

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 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.

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.

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

A high priorty recommendation includes the minor reconfiguration/addition of the main entry that would provide a more visable and controlled access point to the school. A key recommendation related to capacity include the reconfiguration of spaces within the existing school to meet the recommended size requirements for academic spaces.

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.).
- **Explore** moving the kiss-and-ride to Mount Vernon Avenue to separate pedestrian access from vehicular drop-off.

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 specifics.
- **Explore** 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 visable and controlled access point to the school for visitors as well.

GROUP 3 – SECOND PRIORITY

- **Access** possibility of equipping all classrooms and support spaces with individual climate controls, and technology equipment and infrastructure.
- **Explore** 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

Exhibit A

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	54			Very Inadequate
Average	68			Borderline

Key

1	Excellent
2	Satisfactory
3	Borderline
4	Inadequate
5	Very Inadequate

1.0 School Site

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

2.0 Building Assessment

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

3.0 Instructional and Support Spaces

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

4.0: Utilization

Section 4 : Utilization	Unweighted Points	Tier	Priority	Rating Category
A Core Classrooms (Capacity Drivers)	78	2	7	Inadequate
B Specialty Classrooms (Core A)		3	FALSE	Not Rated
C Shared Spaces (Core B)	169	3	3	Very Inadequate
Average : Utilization	54			Very Inadequate

DRAFT

MOUNT VERNON ELEMENTARY SCHOOL
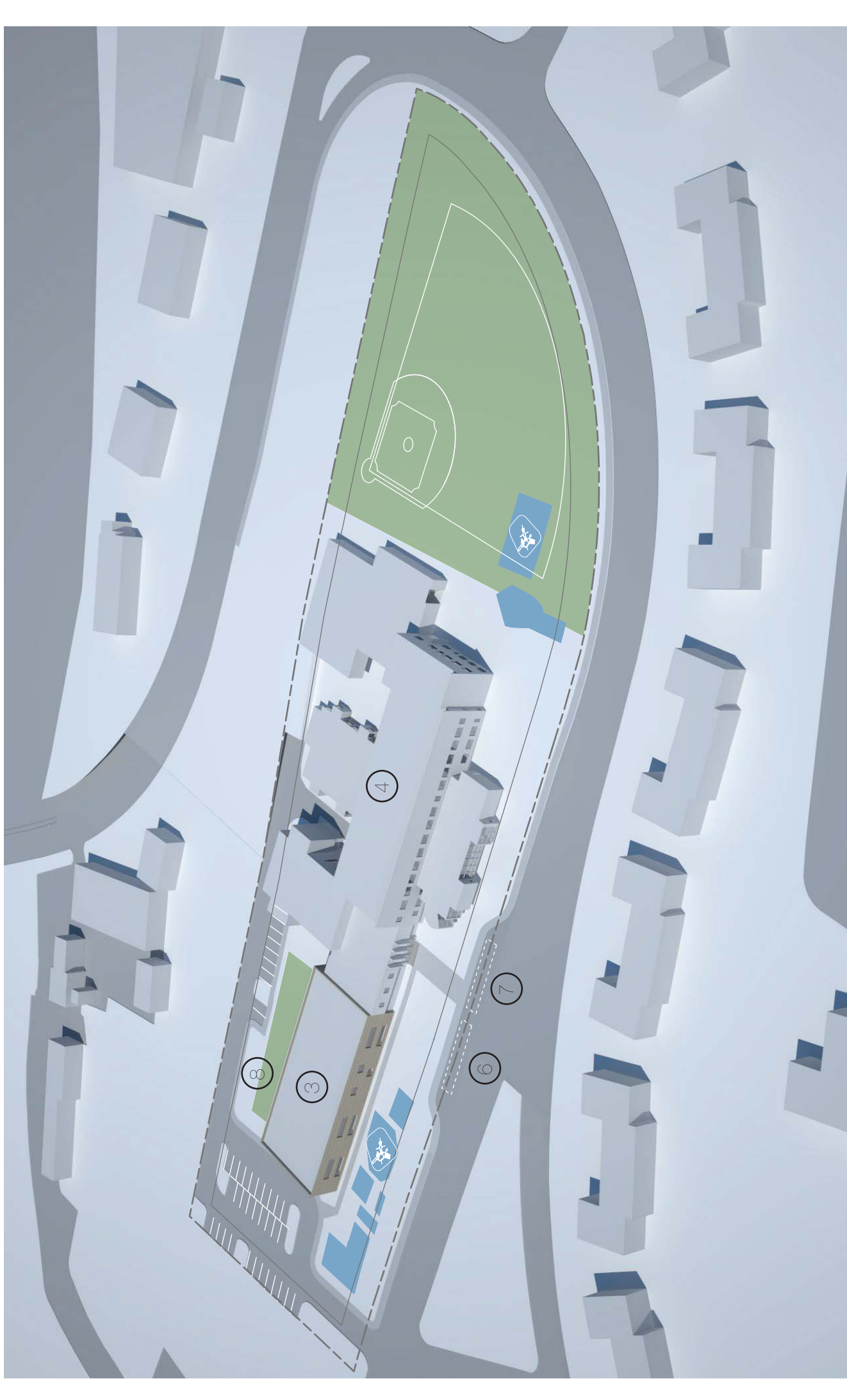

EXISTING

PROPOSED

STUDIO TWENTY SEVEN ARCHITECTURE

PROGRAM ISOMETRIC

Legend
Core Classrooms
Specialty Classrooms
Administration
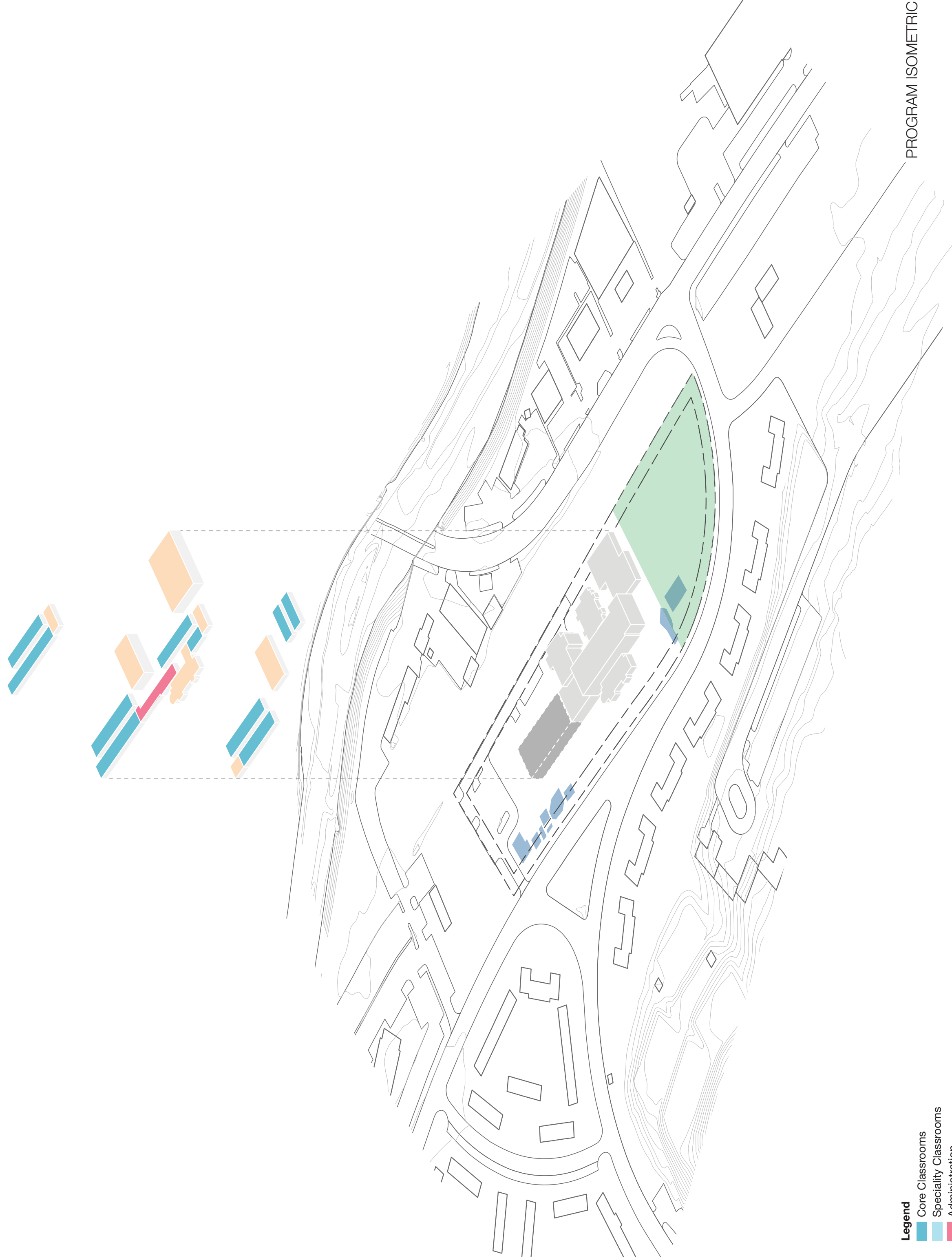Shared Spaces
Playing Fields
Support
Circulation

GEORGE WASHINGTON MIDDLE SCHOOL

EXISTING

PROPOSED

STUDIO TWENTY SEVEN ARCHITECTURE

PROGRAM ISOMETRIC

Legend
Core Classrooms
Specialty Classrooms
Administration
Shared Spaces
Playing Fields
Support
Circulation

CHARLES BARRETT ELEMENTARY SCHOOL

EXISTING

PROPOSED

STUDIOTWENTYSEVENARCHITECTURE

PROGRAM ISOMETRIC

Legend
Core Classrooms
Specialty Classrooms
Administration
Shared Spaces
Playing Fields
Support
Circulation

CORA KELLY ELEMENTARY SCHOOL

Chapter 3. Enrollment Trends and Forecasting

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 current ACPS mid-term enrollment projection are shown in *Figure 1*. The scenario recommended for use in long-range planning is termed the Recommended Planning Forecast. All three enrollment scenarios are based on the city's and the region's current population and employment 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 growth rate over the next 10 to 15 years to a rate that approximates the 1% per year growth rate of the city's total population. Enrollment growth is then expected to drop to zero, followed by a slow decline in the number of students 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 ultimately declining.

The remainder of this chapter provides background on; 1) the history of enrollment in ACPS; 2) the key contributing factors that determine ACPS enrollment each year; and 3) how APCS short-term forecasts, and the assumptions for the long-term enrollment forecast scenarios, for this plan were developed.

ACPS Enrollment History

ACPS enrollment since 1960 together with the city's population from each decennial census over that period is shown in *Figure 2 (following)*. School enrollment peaked in 1970 as the last of the baby boom children 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 the 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
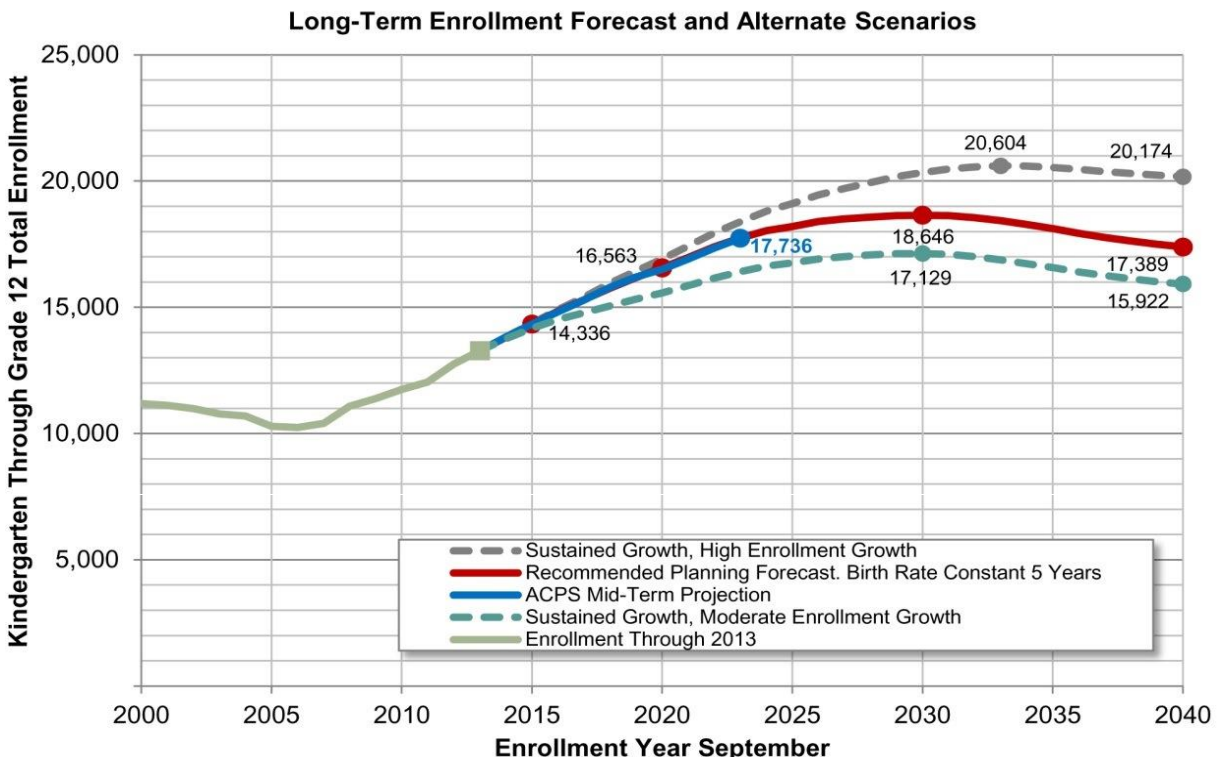

Figure 1: 2013- Three long-term enrollment scenarios together with the current ACPS mid-term enrollment projection. (to be updated with 2014 information)

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.
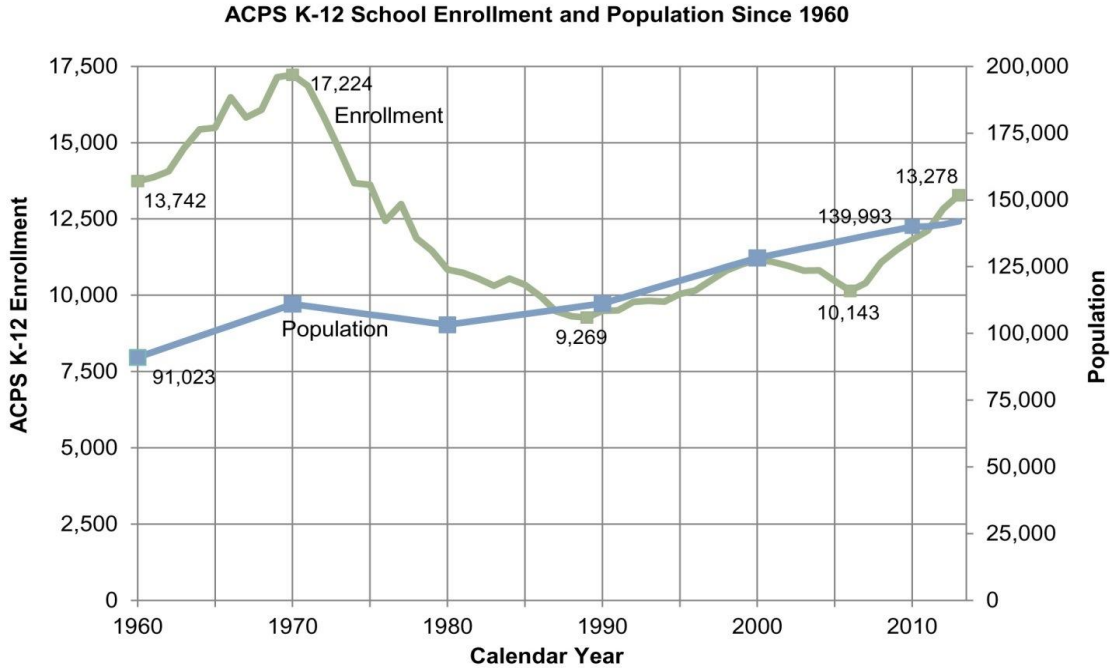

Figure 2: Alexandria Population and Public School Enrollment Since 1960.

Forecasting Future Enrollment

Enrollment Dynamics

The basic mechanism by which births in Alexandria become students in school, and how those students progress through the grades is reflected in *Figure 3.* Enrollment forecasting involves modeling this process mathematically while applying available data on 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 ago) is used, with that figure averaged to smooth random variations from year to year to estimate the future capture rate. 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 by grade (also smoothed by multiyear averaging) is used to estimate each grade in the future.
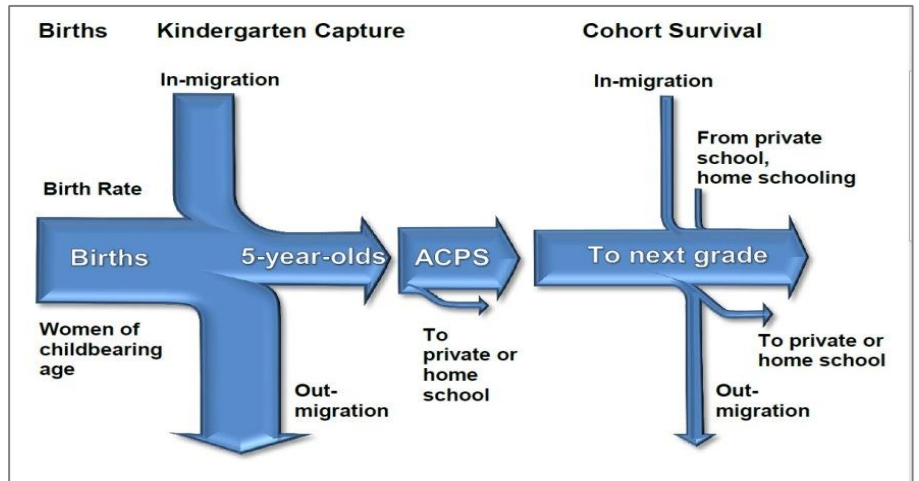
Figure 3: Enrollment Effects Diagram

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 recent trends in kindergarten

capture and cohort survival does not anticipate these 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 preliminary school year 2014-2015 enrollment numbers indicate that the total ACPS student enrollment has increased 4.4% compared to school year 2013-2014. The total 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 6.0% followed by high school at 5.8% and elementary school at 3.2%.

Uncertainty in Enrollment Forecasting.

Alexandria's close-in urban location, demographics and housing stock combine to make future changes in enrollment difficult to anticipate. 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 be expected, the depth and duration of the economic disruptions resulted in a more significant and longer term effect than was initially expected.

In addition, there is evidence that more families than in the past 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 kind of places many of them seek. Sorting this effect out from recession effects will take more time.

School enrollment itself is the most important leading indicator used to estimate how population is changing, and that people are making these choices. There are no clear, reliable predictive data that can be used to anticipate changes in school enrollment 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. 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 students surveyed have already enrolled in school.

Long-term Enrollment Forecast Assumptions

The forces expected to turn around the recent spurt in enrollment growth include local limitations on the Alexandria 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 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 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.

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. The table on the following page summarizes the relationship between the assumptions in the ACPS short-term and mid-term projections and the scenarios in this long-term forecast.

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 high enrollment growth scenario assumes that the birth rate will continue to rise to peak in 2017, then begins 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.

The moderate enrollment growth scenario assumes the same birth rate scenario of the recommended forecast, but assumes the kindergarten capture rate and cohort survival rate will fall faster than in the recommended forecast scenario. Each birth rate assumption 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 assumptions alone.

Long-Term School Enrollment Forecast

Enrollment from New Development and Re-development

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 units 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 was an important consideration in developing the long-term forecast.

The current average number of students per unit by type of housing and age of unit for market-rate housing are shown in ***Figure 4***. 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 remains the same for the current generation of housing.

The 2014-15 Long-Term Enrollment Forecast will include a comparison of the existing distribution of students to the estimated future distribution of student enrollment throughout the city by forecasting statistical area as a means of identifying where new or expanded educational facilities may be needed, as well as where capacity may become available in existing schools.

ACPS K-12 Student Generation from Market-Rate Housing by Unit Type and Age of Unit, 2013-14 Academic Year
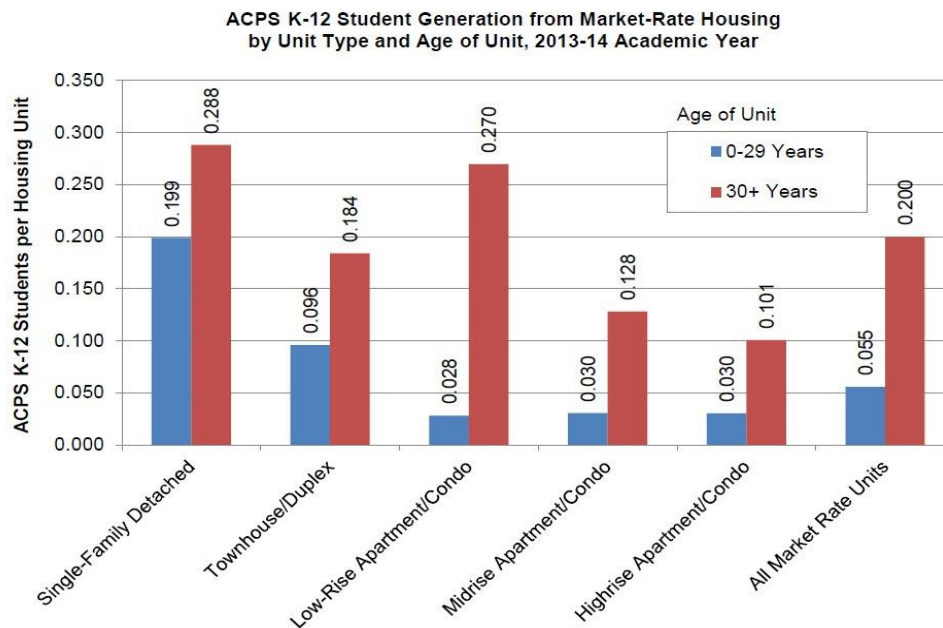
Market-rate housing includes market-rate rental projects accepting Section 8 housing choice vouchers. Does not include income-limited or otherwise subsidized housing projects which may also accept Section 8 vouchers.
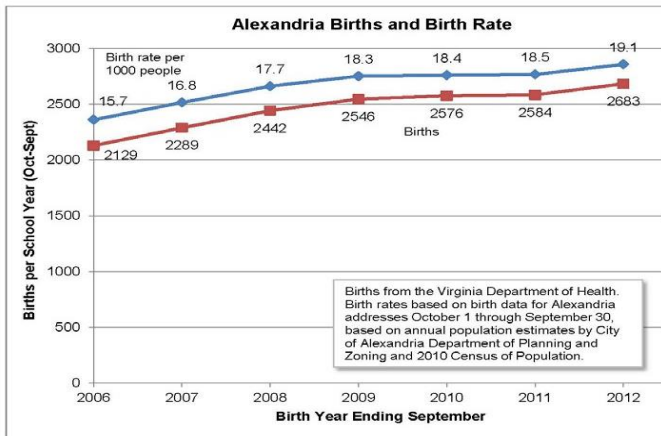
Births/Rates in Alexandria

Background

Children who were born to residents of Alexandria are potential students in the Alexandria City Public School (ACPS) system. In an effort to forecast the future population of ACPS Kindergartners (see Kindergarten Capture Rates), the subcommittee examined birthrate trends to determine how they inform mid- and long-term enrollment projections.

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 has remained at that higher rate and grown slowly since 2009 (see Figures 5, 6 and 7).

Figure 5. Alexandria Births and Birth Rate

Methodology

Analysis included comparing birth rate trends within Alexandria, neighboring jurisdictions, as well as for 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/ethnic composition of child-bearing women in the city that affects the birth rate and thus enrollment.

Figure 6. Alexandria Births and Birth Rate Table

Calendar Year	Estimated Population	Births*	Births/ 1000 People
2000	128,283		
2001	129,451	2,167	16.7
2002	130,620	2,101	16.1
2003	131,788	2,115	16.0
2004	132,956	2,266	17.0
2005	134,125	2,128	15.9
2006	135,293	2,121	15.7
2007	136,461	2,284	16.7
2008	137,629	2,436	17.7
2009	138,798	2,541	18.3
2010	139,993	2,574	18.4
2011	140,044	2,580	18.4
2012	140,809	2,683	19.1
2013	142,000		

Population: Linear interpolation between Census 2000 and 2010 Census populations, city estimates of population since 2010 based on housing

*Births: Virginia Health Department data revised to ensure valid Alexandria addresses and adjust to months of kindergarten eligibility. October-September

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 is increasing. From 2006-2012, the City of Alexandria's 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 rates are higher than those 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 (childbearing years), and a somewhat smaller proportion of seniors – so the effect of the aging population in reducing the crude birth rate will be less in the city.

- Part of this analysis addressed the potential impact race/ethnicity may have on birth/trends in Alexandria as it relates to enrollment. Nationally, birth rates are decreasing, including those of some racial/ethnic groups with historically high rates. Currently, the city population is comprised of many racial/ethnic groups, however, that may change in the future - resulting in a change in student population. This decrease, as well as the potential impact of the high cost of living, could affect some group's ability to live in the city.

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 and an unusually large proportion of residents of childbearing-age (20-35 years).
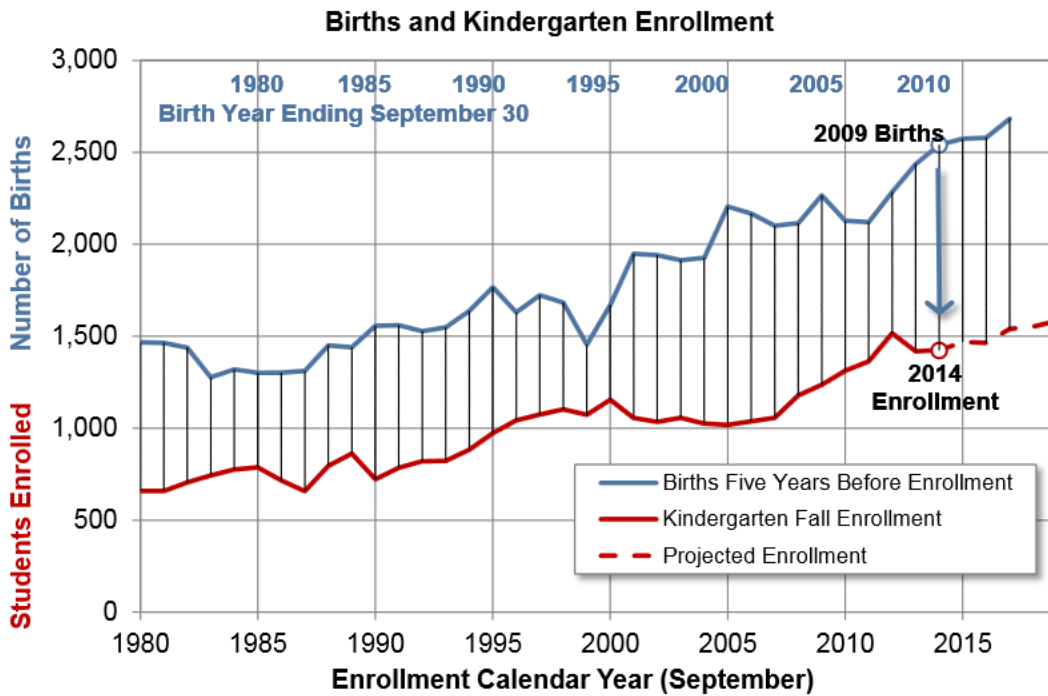
Figure 7. Births and Kindergarten Enrollment

Kindergarten Capture Rates

Background

Kindergarten Capture Rate refers to the number of births and share of births that became Alexandria City Public Schools (ACPS) Kindergarten students five years later. As part of its work to forecast the future population of ACPS, the subcommittee analyzed Alexandria's Kindergarten Capture Rate and evaluated how they may inform the short-, mid-, and long-term projections.

In Alexandria, the capture rate for ACPS kindergarten students since 2008 has ranged between 54.3% in 2009 to 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. While a large increase in kindergarten capture for one year has a big effect on kindergarten the following year- and on the years to follow- the effect on total enrollment is small. If the increase 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.

A long-term trend of families choosing urban living could increase this rate. The rate, in turn, is carefully monitored and adjusted each year in making school enrollment forecasts.

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 Statics and data obtained directly from other school districts.

Alexandria has traditionally had a lower Kindergarten Capture Rate compared to 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.

Kindergarten Capture Rate
Kindergarten Enrollment as Percent of Births Five Years Ago
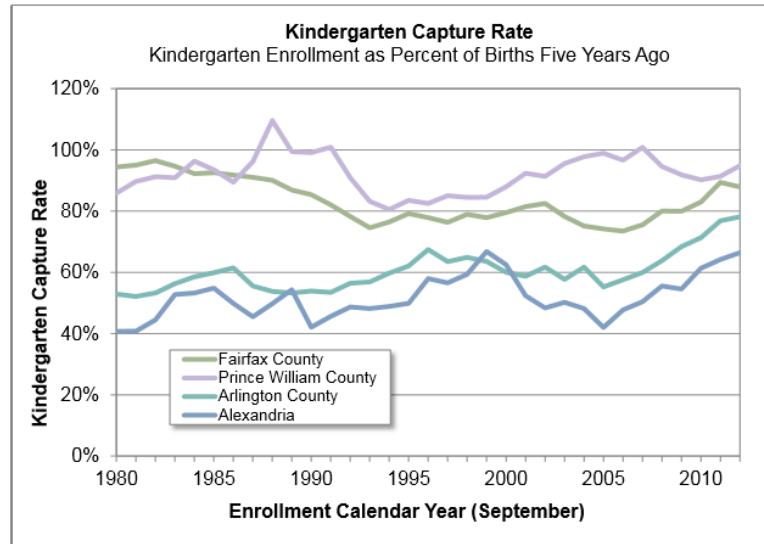
Findings

- Since 2005, Kindergarten Capture Rate have been rising, indicating that more families are remaining in Alexandria until their children reach kindergarten age and are choosing to enroll in their kindergarten-aged children in ACPS.

- Alexandria has traditionally had a lower Kindergarten Capture Rate compared to neighboring jurisdictions.

- 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) play a role-the effects of which can be seen in the capture rate.

Summary

While the data cannot prove a cause-and-effect relationship, it is reasonable to connect the housing bubble that peaked 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, 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 encouraged such moves. Similarly, the housing finance crises 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 from 2007 through today at a rate much higher than the rate of increase in housing stock in the city. Once children enter into ACPS for Kindergarten, recent trends have shown they are more likely to stay within the system.
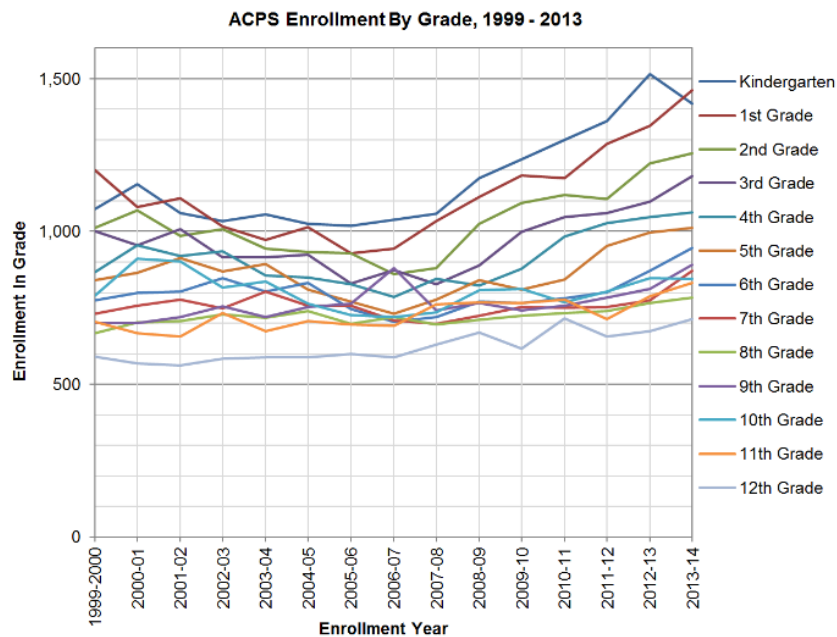
Cohort Survival Rate

Background

The cohort survival rate, as used in enrollment forecasting, is the share of students moving from one grade to the next in each grade. For example, if 1,000 kindergarteners attended school last year, and 950 first-graders attend this year, the cohort survival rate for kindergarten to first grade for this year is 95%. A percent 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. 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-grader, and nearly 6% greater total K-12 enrollment if sustained for 12 years until all grades graduate.

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 below 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.

ACPS Enrollment By Grade, 1999 - 2013

Methodology

ACPS and he City of Alexandria measured 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 described in the kindergarten capture and student generation rate summaries.
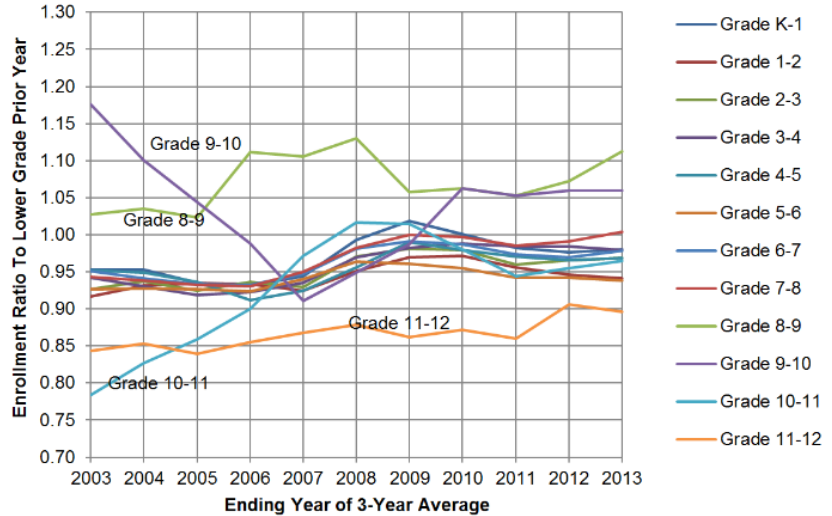
The graph shows the 3-year moving average of cohort survival rates for all grades since 2003, reflecting the average of rates since 2001. The cohort survival rate for most grades reached a recent minimum in 2005 or 2006, reached historic highs in most grades from 2007 to 2009, and has stabilized at levels somewhat lower than these

The figure illustrates the concept of cohort survival and compares average cohort survival rates within the school levels before and after 2007.

peaks from 2010 through 2013. 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 forecast. Expectations for cohort survival will also inform the long range forecast model.

Grade	2010	2011
K	118	121
1	110	116
Cohort survival from kindergarten to 1st grade		98%

Average Cohort Survival			
	Elem.	Middle	High
Pre-2007	93.2%	93.5%	95.1%
Post-2007	97.8%	97.6%	99.8%
Difference	+4.6%	+4.0%	+4.7%

Common trends supported by the data are the spike of students remaining and migrating into the school system at the high school level is likely to be explained by private school students transferring in to the public school system, since a number of private and parochial schools do not continue into the high school grades. Additionally, the ACPS increase of new students at the first grade level

Student Generation Rates

<u>**Background**</u>

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 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), tenancy (owner or rental), unit size and number of bedrooms, 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.

<u>**Methodology**</u>

Using the address of every ACPS student, staff was able to map each student to a housing type for the past five school years. (Approximately 5% of students could not be assigned to a city residence address for a variety of reasons, and some housing characteristics were not available for all types of housing.)
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.
.
<u>**Findings**</u>

The current student generation by housing type, averaged over a three year period, 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.
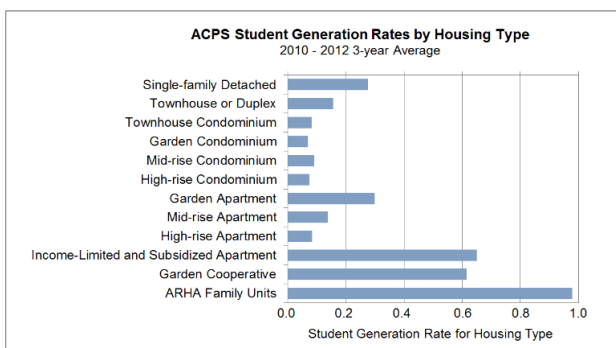
Affordability was found to be a key determinant of student generation for most housing types. Student generation is highest for housing with the second lowest values and rents as reflected in the ACPS Enrollment by Average Project Rent bar chart. This applies to both programmed affordable housing (subsidized 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/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.
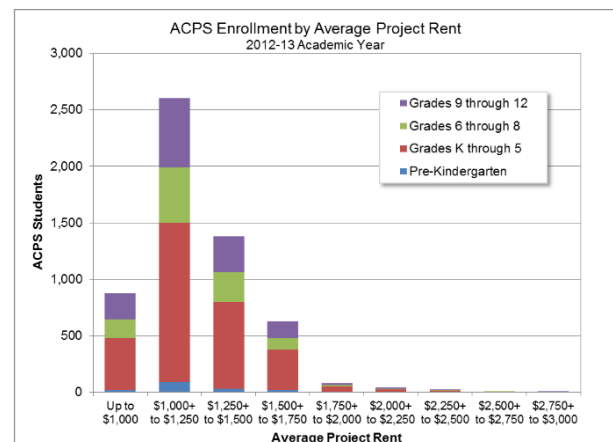
The ACPS Student Generation Rates by Housing Type chart above shows the total number of ACPS students generated by rental units with various average rents listed in the Office of Housing's annual apartment survey. (Average rent in the analysis was based on a single number for each project and not based 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

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 Realtors from McEnearney & 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:

1. *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.

2. *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 Realtor's group noted that families are willing to pay a premium, as much as $100,000 – 150,000 more to live in the more desirable school districts within Alexandria.

3. *Alexandria schools are likely better than perceived:*

   The Realtors 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 Realtors 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.

4. *There are schools with higher ratings outside Alexandria:*

   An examination of *greatschool.org* ratings supports Realtor observations about the perception of

School Ratings within 10 Miles of Alexandria (scale: 1=lowest rating, 10=highest rating)

Prudent Planning — Serving Students
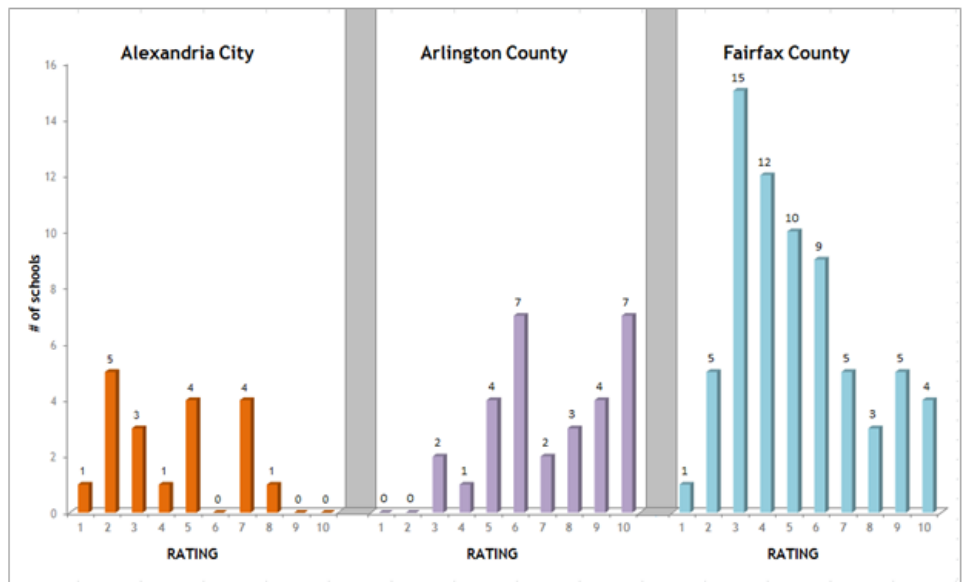
Alexandria schools. Currently, ACPS has jumped from having no schools with ranking of 6 or better, (two years ago) on a scale of 1 to 10, to now reflecting 5 with rankings of 6 or better on *greatschools.org*. The Figure below illustrates how Alexandria schools are perceived relative to schools in neighboring 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 neighboring jurisdictions, and is not likely to increase.