

CAPITAL IMPROVEMENTS PROGRAM

Fiscal Years
2020-29



Prince William County

PUBLIC SCHOOLS

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CAPITAL IMPROVEMENTS PROGRAM

Overview Fiscal Years 2020 29

Prince William County Schools (PWCS) is the second largest of 132 school divisions in the Commonwealth of Virginia and the 36th largest school division in the country. The School Division provides services to nearly seven percent of the state's student enrollment.

The total 2018-19 enrollment is 90,203 students with permanent capacity for 88,964 students. This capacity is supplemented with 206 instructional portable classrooms. Capital needs are determined through the development of the Capital Improvements Program (CIP) which is annually updated to maintain a ten-year projection of the School Division's capital needs based upon student population growth and needed school facility renovations and renewals. Permanent capacity is set to increase by 12,623 seats over the next ten years with completion of the school facility construction identified within this CIP.

PWCS is organized to focus on meeting the needs of its students and employees while managing 95 schools, along with administrative and support facilities. The CIP serves as a tool for planning and implementing the capital improvement projects needed to house these students and employees adequately.

Since it is difficult, if not impossible, to address all county and School Division needs in a single year, a long-term approach to balance expenditures with anticipated revenues must occur. Therefore, the CIP is an ongoing plan designed to reduce portable classrooms by addressing the need for construction of new school facilities and classroom additions to existing schools. Elements of the CIP also include site acquisition, renewals of existing facilities, upgrading and maintaining the School Division's infrastructure, Title IX improvements, Energy Infrastructure improvements, and technology improvements.

The CIP is a blueprint of work to be performed over the next ten-year period as determined in assessments of building infrastructure needs, school capacities, and school space utilization. Faced with continuing growth in enrollment, the CIP enables the School Division to address the changing enrollment patterns and utilize facilities in ways that are consistent with world-class educational programs. As the CIP is reviewed and updated on an annual basis, long range plans are adjusted based on enrollment projections and fiscal limitations (debt service and budget constraints.)

The CIP addresses the need for new schools and/or additions, as well as renovations to existing school facilities, providing general guidance for the next ten years. It is not an inventory of all the work that must be performed on school facilities over the next ten years. It is, rather, a specific budget for the first year of the program (FY 2020) combined with a more general planning schedule for four additional years (FY 2021-24) and then an estimate of projects needed for FY 2025-29.

The projects designated for the first two years of the plan are the highest priority needs. Working cooperatively, the Prince William County School Board and the Prince William Board of County Supervisors, develop and implement a budget plan to address these needs.

Strategic Plan

The Prince William County Schools' Strategic Plan provides administrators and School Board members a vehicle to measure progress. All schools and departments are aligned with the same goals, objectives, and measures. The comprehensive strategic plan is a road-map allowing PWCS to focus on critical areas.

The CIP must meet the following goal and objective of the Strategic Plan:

GOAL 2: *The teaching, learning, and working environment is safe, caring, healthy, and values human diversity.*

Objective 2.3: *Enhance the appearance, condition, and capacity of physical plants, facilities, and instructional equipment.*

2.3.1 *All School Division facilities will pass compliance audits and meet building code regulations.*

This objective is addressed in two general program areas:

- New Construction - projects under construction and planned construction projects to include additions
- Renovations/Renewals/Maintenance - managing existing school building conditions

Recent Accomplishments

In the past five years, seven new schools and additions at 13 schools have been constructed, costing over \$489 million and adding capacity for 9,194 additional students. The new schools include four elementary schools, one high school, the Kilby Elementary School replacement, and the Independence Nontraditional School.

The new 54,323 square foot Independence Nontraditional School was completed at the Independent Hill complex. The PACE East students transitioned to the new school in April 2018 and the rest of the school was completed for the school year opening in August 2018.

The new John D. Jenkins Elementary School is under construction to open in the fall of 2019, adding 749 elementary student seats in eastern Prince William County. The additions at Lake Ridge Middle School and Pattie Elementary School were completed and opened in September 2018, adding 13 middle school classrooms and 10 elementary school classrooms.

The classroom additions at Leesylvania Elementary School (4), Antietam Elementary School (13), Lake Ridge Elementary School (13), Springwoods Elementary School (13), Minnieville Elementary School (10), and Stonewall Middle School (17) are in the final stages of construction to open September 2019, adding 53 elementary school classrooms and 17 middle school classrooms.

Major renewals of 15 schools were completed in the last five years at a cost of over \$145 million. Considerable progress has been made in adding activity rooms to elementary schools with renewals and music rooms have now been added to middle school renewals. Additionally, the School Division continues to assess and improve school safety, including multi-million-dollar enhancements in new school design and upgrades to existing buildings by providing controlled access entryways.

Planning

Planning for capital improvements is an ongoing process to meet critical system-wide capacity demands associated with current and projected enrollment growth. Priorities shift as conditions change at individual facilities, as programs change, and as the student population totals change. The official student enrollment count for Prince William County Public Schools, as of September 30, 2018, is 90,203 students. From 2017 to 2018, total enrollment grew by 342 students, or 0.4 percent growth rate. This is compared to growth from 2016 to 2017 of 941 students, or 1.1 percent.

Student enrollment projections are utilized for a variety of planning and decision-making functions, among which operational and capital budgeting needs are most prominent. Predicting future student enrollment is important for long-range planning, budgeting, staffing, and predicting future building and capital needs for housing PWCS students. The forecasting methodology used to predict the number of students who will be enrolling in PWCS for the next 10 years is a combination of cohort progression method and student generation factors method, along with judgmental adjustment to fine-tune the forecasts. This combination of methods provides for very accurate forecasts and at the same time is relatively inexpensive to produce.

Individual school forecasts provide a snapshot of the anticipated changes that Prince William County Schools will encounter in the course of the current planning period. 2019-20 enrollment is projected to be 91,095 students, an increase of 892 students overall. Examining student enrollment growth within school attendance areas, “Geographic Areas,” and school program capacities, guides the identification of the need for additional space for students. Possible solutions to overcrowding conditions include portable classrooms, relocation of special programs, changes in attendance area boundaries, additions, and the construction of new facilities.

Annually, the status of student housing is assessed for the next ten years. This assessment includes determining the current availability of space for students, assessing current student enrollment, projecting future student enrollment, and preparing recommendations for current and future housing of students. During the next five years, student enrollment is projected to increase by an average annual rate of about 1.0 percent. This will result in about 4,334 additional students during this period. Projected enrollments beyond 2019-20 allows for long range capital planning, such as planning for new school facilities and additions to existing school facilities. Where possible, additions are utilized as cost-effective alternatives to the construction of new facilities.

Program Capacity vs. Planning Capacity

The **Planning Capacity** of a school facility provides an estimate of the number of students who can be housed in a school based on averaged education program need and staffing. Whereas, the **Program Capacity** of a school facility provides an estimate of the number of students who can be housed in a school based on the specific educational program currently utilized at the school facility. It is a more accurate and representative means of calculating an elementary school facility’s capacity, based on the actual “program” in place at the school. The calculation of current programs housed at a specific elementary school include the effect of K-3 Class Size Reduction Grant (based on three-year average of free lunch eligibility percentage), special education program needs, gifted education program needs, and Pre-kindergarten program needs.

The 2018 enrollment capacities and projections are utilizing the Program Capacity figures at the elementary level for the CIP and boundary planning and will be updated annually to recalculate program capacities. The capacity for middle and high schools remains as Planning Capacity.

Changes from the 2019 28 CIP

Significant Issues Impacting the CIP

- Divisionwide enrollment grew by only 342 students, or 0.4%, from 2017-18 to 2018-19
 - Smallest numerical increase in the student enrollment since 1984
 - Smallest kindergarten cohort in five years (2013)
 - Overall decrease in elementary enrollment for two consecutive years
 - 10-year projections revised downward to reflect current conditions
 - Decrease in the number of anticipated students in 2027 from last year's projections by nearly 5,900
 - Residential development has slowed to levels similar to 2009/2010
- 2019 Program Capacity Changes
 - Updates to K-3 class-size reduction qualifying data (free lunch percentage), special education classroom use, and other specialized classroom use at each elementary school
 - Results in the capacity reduction of 1,005 seats across all elementary schools

Major Changes to CIP

- **2020**
 - Auxiliary Gyms at Woodbridge High School and Gar-Field High School added
 - Stonewall Jackson High School Stadium Upgrades (lighting and concession buildings) added
 - Woodbridge High School Stadium Upgrades (lighting and concession buildings) added
- **2021**
 - Renovation of Office/Admin Areas at Osbourn Park and Stonewall Jackson High Schools added
- **2022**
 - Additions at Bull Run, Gainesville, and Marsteller Middle Schools (11 Classrooms each) added
- **2024**
 - Elementary School (Yorkshire Area) delayed from 2024 to 2028
 - Middle School West (Linton Hall Area) delayed from 2024 to beyond current CIP
- **2025**
 - Occoquan Elementary School Replacement moved forward from 2028 to 2025
- **2026**
 - Middle School (TBD) delayed from 2026 to beyond scope of current CIP
- **2027**
 - 15th High School (TBD) delayed from 2027 to beyond scope of current CIP

Major Changes – Plan to Reduce Portable Classrooms

- **2022/2024**
 - Site Acquisition Funds – Elementary School (TBD) added to 2022 and 2024
- **2025**
 - Elementary School (Cardinal Area) added
- **2027**
 - Elementary School (South Route 1 Area) added
- **2028**

- Mid-County Area Elementary School Addition (8 classrooms) added
- Ferlazzo Area Elementary School Addition (5 classrooms) added
- Middle School Addition (TBD) (24 classrooms) added

Renewal/Renovation Changes

- Funding totals adjusted downward to reflect changes in enrollment projections
- Artificial Turf Fields
 - Battlefield High School and Forest Park High School added to FY 20
 - Brentsville High School (including stadium lights, restroom bldg.) and Hylton High School added to FY 21
 - Gar-Field High School (including stadium lights) and Osbourn Park High School (including stadium lights) added to FY 22

Funding

This CIP is presented by the Superintendent as part of the annual budget and reviewed and adopted by the Prince William County School Board after a public hearing. The CIP is then presented to the Prince William Board of County Supervisors as part of the School Division's budget for funding appropriation. Once the budget is adopted by the Board of County Supervisors, it becomes the basis for the CIP during the fiscal year.

Prioritizing the work within the available funding to address the most critical needs is an ever-present challenge. Funds are included in the approved budget to support the CIP. The funding formula developed by the Associate Superintendent for Finance and Support Services provides targets for construction and maintenance expenditures.

It is impossible to address all School Division needs in a single year, therefore, a long-term approach is needed to balance expenditures with anticipated revenues. Future enrollment projections is the long-term approach and is important for long-range planning, budgeting, staffing, and predicting future building capital needs. Projects are carefully evaluated and prioritized to optimize the use of limited capital funds and to meet operational and facility needs. Funding for long-range plans is adjusted for Prince William County's overall bonding capacity to maintain a Triple A bond rating, as directed by the Prince William Board of County Supervisors.

Funds from "Proffered," monetary contributions have also provided revenue. Proffers are residential rezoning applicant's monetary or in-kind contribution to the School Division to help mitigate the capital costs associated with residential development.

Proffer Changes

As of July 1, 2016, the Virginia General Assembly passed SB-549, which amends the Virginia Code relating to conditional zoning for residential rezonings and proffer amendments.

The School Division will still collect monetary contributions on rezoning cases filed prior to July 1, 2016. After this date, the School Division will be receiving monetary contributions based on the rezoning applicant's methodology to determine a proffer amount using only generated students that exceed existing capacity. The estimated proffer amounts will then be applied to the proposed residential units to be constructed.

Proposed proffers need to address an impact that is specifically attributable to a proposed new residential development that creates a need for one or more public facility improvements in excess of existing public facility capacity at the time of the rezoning and the new residential development receives a direct and material benefit from a proffer made with response to any such public facility improvement.

New Schools/Additions/School Facilities (Bond Funded)

<i>Scheduled Completion</i>	<i>Project</i>	<i>Cost</i>
September 2019 (FY19-20)	John D. Jenkins Elementary School	<i>Previously Funded/Under Construction</i>
	Antietam Elementary School Addition (13 rooms)	
	Lake Ridge Elementary School Addition (13 rooms)	
	Springwoods Elementary School Addition (13 rooms)	
	Leesylvania Elementary School Addition (4 rooms)	
	Minnieville Elementary School Addition (10 rooms)	
	Stonewall Middle School Addition (17 rooms)	
	Special Needs Transportation Center @ New Dominion	
	Western Transportation Facility	
	Leesylvania Elementary School – Renewal (Funding Phase 1)	
	Marshall, Montclair, and Old Bridge ES – Renewals (Funding Phase 1a)	
	Total	
September 2020	Beville Middle School – Renewal (Funding Phase 1a)	\$9,901,400
	Mountain View ES – Renewal (Funding Phase 1a)	\$6,450,700
	Gar-Field High School – Auxiliary Gym	\$8,000,000
	Woodbridge High School – Auxiliary Gym	\$8,000,000
	Stonewall Jackson High School – Stadium Upgrades (Lighting, Concession Bldgs.)	\$1,650,000
	Woodbridge High School – Stadium Upgrades (Lighting, Concession Bldgs.)	\$2,150,000
	Total	\$36,152,100
September 2021	Middle School at Potomac Shores (\$6 m proffer)	\$64,119,000
	13th High School (2,557 capacity)	\$127,400,000
	Osborn Park High School – Renovation of Office/Admin Areas	\$1,000,000
	Stonewall Jackson High School – Renovation of Office/Admin Areas	\$1,000,000
	Bennett Elementary School – Renewal	\$8,934,143
	Penn Elementary School – Renewal	\$295,157
	Hylton High School – Renewal	\$18,429,000
	Total	\$221,177,300

New Schools/Additions/School Facilities (Bond Funded)

<i>Scheduled Completion</i>	<i>Project</i>	<i>Cost</i>
<i>September 2022</i>	Elementary School (Rosemount Lewis)	\$36,980,000
	Bull Run Middle School Addition (11 rooms)	\$14,375,000
	Gainesville Middle School Addition (11 rooms)	\$14,375,000
	Marsteller Middle School Addition (11 rooms)	\$14,375,000
	Total	\$80,105,000
<i>September 2023</i>	Elementary School (Occoquan/Woodbridge Area) ¹	\$38,650,000
	Elementary School (Potomac Shores #2)	\$38,650,000
	Renewal of Various Schools (Bond-Funded portion)	\$21,207,000
	Total	\$98,507,000
<i>September 2024</i>	14th High School (Mid-County) ¹ (2,557 capacity)	\$147,500,000
	Renewal of Various Schools (Bond-Funded portion)	\$25,000,000
	Total	\$172,500,000
<i>September 2025</i>	Occoquan Elementary School – Replacement	\$43,062,000
	Renewal of Various Schools (Bond-Funded portion)	\$25,000,000
	Total	\$68,062,000
<i>September 2026</i>	Renewal of Various Schools (Bond-Funded portion)	\$25,000,000
	Total	\$25,000,000
<i>September 2027</i>	Renewal of Various Schools (Bond-Funded portion)	\$25,000,000
	Total	\$25,000,000
<i>September 2028</i>	Elementary School (Yorkshire Area) ¹	\$47,105,000
	Renewal of Various Schools (Bond-Funded portion)	\$25,000,000
	Total	\$72,105,000
<i>New Schools, Additions, and Other Projects TOTAL</i>		<i>\$798,608,400</i>

Note 1 - Sites needed by proffer or purchase (Limited site acquisition funds identified in current CIP)

Note 2 - Middle School Music Rooms added to renewal plans (TBD)

Plan to Reduce Portable Classrooms

<i>Scheduled Completion</i>	<i>Project</i>	<i>Proposed Cost</i>
2022	Site Acquisition Funds- ES (TBD)	\$9,015,000
2024	Site Acquisition Funds- ES (TBD)	\$9,380,000
2025	Elementary School (Cardinal Area) ¹	\$42,215,000
2027	Elementary School (Route 1 South Area) ¹	\$46,110,000
2028	Elementary School Addition (Mid-County Area) [8 rooms]	\$16,300,000
2028	Elementary School Addition (Ferlazzo Area) [5 rooms]	\$12,605,000
2028	Middle School Addition (TBD) [24 rooms]	\$38,440,000
<i>New Schools, Additions, Land Acquisition to Reduce Portable Classrooms TOTAL</i>		<i>\$174,065,000</i>

Projects at School Facilities

<i>Artificial Turf Fields</i>	
Stonewall Jackson High School (Funded FY 19, complete Sept. 2019)	\$1,500,000
Woodbridge High School (Funded FY 19, complete Sept. 2019)	\$1,500,000
Battlefield High School (Funded FY 20, complete Sept. 2020)	\$1,500,000
Forest Park High School (Funded FY 20, complete Sept. 2020)	\$1,500,000
Brentsville High School (Funded FY 21, complete Sept. 2021) [includes stadium lights, restroom bldg.]	\$4,116,000
Hylton High School (Funded FY 21, complete Sept. 2021)	\$1,646,000
Gar-Field High School (Funded FY 22, complete Sept. 2022) [includes stadium lights]	\$2,294,000
Osborn Park High School (Funded FY 22, complete Sept. 2022) [includes stadium lights]	\$2,294,000
<i>TOTAL</i>	<i>\$16,350,000</i>

<i>Projects Funded with End of Year (EOY) Funds</i>	
Hylton High School –Stadium lights and bleacher upgrades (Funded FY19)	\$450,000
Middle Schools – Track Improvements (Funded FY 19)	\$565,382
<i>TOTAL</i>	<i>\$1,015,382</i>

Site Acquisition

FY 19 Property Acquisition

<i>School Facility</i>	<i>Acres</i>	<i>Date Acquired</i>	<i>Purchase Price</i>
Occoquan Elementary School Adjacent Property	0.6144	January 2019	\$865,000
Potomac Shores Elementary School #2	5.0	Final Settlement Pending	\$2,500,000
<i>Property Acquisition TOTAL</i>			<i>\$3,365,000</i>

Land acquisition for school sites is challenging as prime undeveloped land is purchased or optioned by developers for high-profit future residential, commercial, and industrial development. Real estate costs continue to escalate, therefore PWCS must look further into the future and acquire sites now or pay higher premiums later.

School staff reviews county residential development plans and maintains a database containing the number of anticipated housing units and the stage of development. This information is used in making enrollment projections. The projected enrollments by geographic area determine future school locations and attendance areas. School sites acquired must be located and sized in accordance with the adopted Prince William County Comprehensive Plan.

Land acquisition will continue to figure prominently in this and future capital improvement budgets. Funding for school site acquisition comes from a combination of developer proffer contributions from rezoning cases submitted prior to July 1, 2016, bond funds, and the operating budget. “Proffered” funds contributions to the School Division have helped to offset the impact of new residential development on schools. As of July 1, 2016 though, the Board of County Supervisors repealed the residential portion of the Policy Guide for Monetary Contributions. However, monetary contributions on rezonings filed prior to July 1, 2016 will still be collected by the School Division.

In 1990, as part of the Comprehensive Plan, Prince William County established level of service (LOS) criteria as a standard or bench-mark to measure the quantity and/or quality of service provided by a government agency. The LOS standards provide an objective justification for mitigation requests.

Sixteen school sites have been acquired by proffers since 2000, with an estimated value of \$63,800,000. The School Division purchased land for construction of 14 schools and facilities since 2000, spending almost \$70,000,000. Site acquisition funding for the two elementary schools is included in the PWCS Budget via bond funding. Even with purchased and proffered sites, there are still five school sites needed by 2029.

The location, character, and extent of all proposed public facilities must be consistent with Prince William County’s Comprehensive Plan as determined by the Prince William County Planning Commission and the Prince William Board of County Supervisors.

School Site Needs - Planned

<i>Year to Open</i>	<i>Year to Acquire</i>	<i>Planned School Facility</i>	<i>Property Status</i>	<i>Estimated Funds Required</i>	<i>Funding Source</i>
2022	2019	ES (Rosemount Lewis Park)	PWC Site Identified	NA	NA
2023	2020	ES (Occoquan/Woodbridge Area)	Site Needed	\$7,500,000	Bond
	2019	ES (Potomac Shores #2)	Site Pending	\$6,000,000	Bond
2024	2019-20	14 th High School (2,557 capacity)	Site Needed	14,000,000	Proffer, Cash
2025	2021	ES (Cardinal Area)	Site Needed	\$9,015,000	Bond
2027	2022-23	ES (Route 1 South Area)	Site Needed	\$9,380,000	Bond
2028	2023	ES (Yorkshire Area)	Site Needed	\$9,568,000	Bond
<i>Total Estimated Cost of School Site Needs</i>				<i>\$55,463,000</i>	

Joint CIP Planning Committee

The Joint Capital Improvements Program (CIP) Committee is comprised of School Board and Board of County Supervisor members. Vice-Chairman Lillie Jessie (Occoquan), Gil Trenum (Brentsville), and Loree Williams (Woodbridge) are the School Board members on the Joint CIP Committee.

Based on efforts of the Joint CIP Committee, both Boards, (School Board and Board of County Supervisors) have committed to developing a shared process for land acquisition, directing staff to work together to help efficiently acquire school sites.

Renovations/Renewals

New construction projects are only part of the CIP picture. Renovations/renewals are programmed to assure that all schools are safe, functional, and provide the facilities necessary to support the current educational programs regardless of the age of the building. School renewals are infrastructure improvements that are important to improve capacity, provide adequate activity spaces, and to meet current instructional needs such as technology and music.

Fifty-one of the Division's 95 school facilities are 25 years or older. The goal of the school renewal program is to renovate schools prior to 25 years of age since the last renewal. The older buildings are well-maintained but are in constant need of repair. They must be renewed to provide quality space, continuity, and stability for a *World-Class Education*. The projects contained in this plan are based on the planning, design review, and input from a team of in-house facility maintenance professionals, administration, school principals, and facility-condition evaluations conducted by architect and engineer consultants.

The Office of Facilities Services continues to meet these challenges head-on and to make dramatic improvements to the physical condition of schools. School building conditions are assessed annually, and consideration of critical needs and prior facility upgrades are evaluated. Recent renewals allow for changing the emphasis from systems replacements to maintenance in areas such as roofing and paving repairs.

This CIP addresses the reduction of the backlog of renewal projects at older buildings, with age of each school building the first consideration. The order of renewals may be altered when major components are addressed with previous projects, accelerated deterioration conditions warrant, and with funding constraints. The Schedule of Renovations and Renewals includes annual dollars for kitchen upgrades, energy infrastructure improvements, HVAC equipment and controls upgrades, Title IX and technology improvements, portable classroom relocations, and asphalt upgrades. The list of capital projects identified provides a clear statement of school facility requirements that have been categorized within the limitation of projected funding.

Considerable progress has been made in adding Activity Rooms to elementary schools with renewals and music rooms to middle schools with renewals.

Budget - Renovations/Renewals

The School Division budgets for repairs and renewals using the National Building Research Board recommendations. The School Board recommends that 2 to 4 % of current replacement value of facilities be budgeted annually for repairs and renewals. The current replacement value of schools is approximately \$2,957,247,000.

Prince William County Schools has established an average annual renewal and repair target of 3% of the current replacement value of facilities with 1.5% for preventive maintenance and 1.5% for repairs and renewals. The amount targeted to be budgeted each year varies from approximately 2.2% to 3.4%, dependent upon the year of the Commonwealth of Virginia's biennium funding. The target to be budgeted in FY 2020 for repairs, renovations, and maintenance is \$88,717,000 (3.0% of value), with the estimated budget for maintenance renovations, renewals, technology, and energy improvements in FY 2020 at \$82,961,076 (2.8% of value); of which \$16,352,100 will be bond funded.

<i>School Renewals/Major Infrastructure Renovations may include:</i>	
HVAC Systems	Lockers
Lighting	Roof Replacement
Electrical System	Flooring
Plumbing	Painting
Fire Alarm System	Technology
Security System	Casework
Telephone and Intercom Systems	Doors/Hardware
American Disability Act (ADA)	Site Improvements
Bleachers	Title IX Improvements
Elementary School P.E. Spaces	Clinic Improvements
Secure Access Improvements	

A School Facility Renewal Prioritization List has been prepared by the Facilities Services Office. The list is based on the year the school was built or year of last renewal.

Infrastructure Task Force

As new school facilities are constructed, differences exist between the new school facilities and those previously constructed. It is important to review the features provided in new school facilities versus those available in existing schools in order to ensure consistency of educational opportunities provided within the School Division.

The School Board established an Infrastructure Task Force to examine, evaluate, recommend, and prioritize a long-term plan for resolving facility inequities amongst school facilities. Last year, the School Board approved a one-time budget expenditure of \$742,000 for the Task Force Elementary School Security-related recommendation.

This year the Task Force prioritized potential improvements for middle and high schools. Recommendations included improvements for CTE programs at Brentsville High School, (especially the horticulture program), correct HVAC, electrical, intercom/PA, and plumbing issues at all Tier 1 middle and high schools that are not scheduled for renovations in the next three years of the CIP and have not been renovated in the last 10 years, and address renovation items at Stonewall Jackson High School and Osbourn Park High School that were not completed when the open classrooms were enclosed.

The auxiliary gymnasiums at Woodbridge High School and Gar-Field High School have been approved for an expenditure of \$16,000,000, as well as the renovation of front office space at Osbourn Park and Stonewall Jackson High Schools for \$2,000,000.

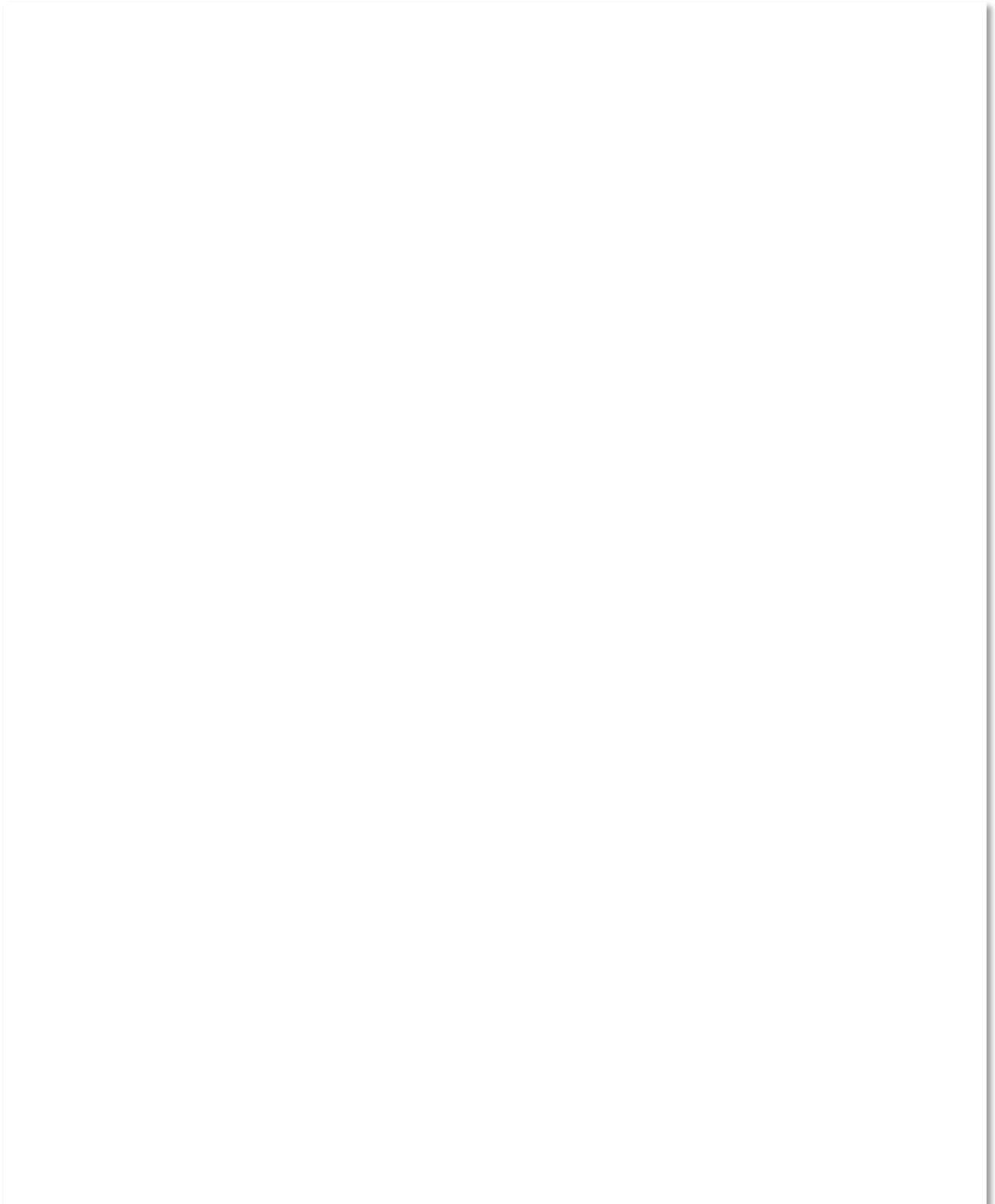
Major Maintenance

To improve and maintain current facilities, each school is evaluated at 7-year intervals and major maintenance repairs are scheduled. Major maintenance work extends the useful life of the School facilities by improving, exchanging, or replacing building components that are at or near the end of their useful life.

Based on restricted funding levels, many of the following major maintenance items will not be addressed. Repairs are made on an 'as need' basis until other funding sources become available.

<i>Typical Major Maintenance Activities</i>	
<i>7-Year Cycle</i>	<i>14-Year Cycle</i>
Carpeting	Paint Exterior and Interior (Partial)
Paint Hallways, Offices, Exterior Doors, Kitchens, (Partial)	Repave/Seal Coat Parking Lot, Paved Areas, and Tennis Courts
Seal Coat Paved Areas and Repaint	Re-Key Interior and Exterior Doors
Minor HVAC Repairs	Repair/Replace Fencing and Backstops
Repair Concrete Sidewalks and Curbs	Carpeting (Partial)
Clean and Repair Storm Drains	Update Food Service Equipment (Partial)
Repair Fencing	Minor Roof Repairs
Electrical System Preventive Maintenance	Update Plumbing Fixtures
Trim Trees/Landscaping	Update Electrical Service
Re-Lamp Interior and Exterior Light Fixtures	Update HVAC Controls
Stage Lighting/Curtains	Minor Chiller Rebuilding

Schedule of Renovations and Renewals



Ann Ludwig	1975	44		
Admin Building (B-51)	1985	34		
Lake Ridge MS	1989	30		2018
Montclair ES	1991	28		2020
Hylton HS	1991	28		2022
Old Bridge ES	1995	24		2020
Leesylvania ES	1996	23		2020
Penn ES	1998	21		2022
Parkside MS	1963	19	2000	2023
Brentsville HS	1965	19	2000	2024
Forest Park HS	2000	19		
Swans Creek ES	2001	18		2024
Graham Park MS	1963	18	2001	
Occoquan ES	1927	17	2002	
Ashland ES	2002	17		
Marsteller MS	2002	17		
Transportation Center, West (McCuin)	2002	17		

School Facility Renewal Prioritization List

Based on Year Built or Last Renewal

<i>School Facility Name</i>	<i>Year Opened</i>	<i>Effective Facility Age Not including effect of scheduled renewals</i>	<i>Facility Renewal Date</i>	
			<i>Most Recent Previous Renewal</i>	<i>Next Scheduled Renewal per Approved CIP</i>
Woodbridge MS	1964	16	2003	
Alvey ES	2003	16		
Sudley ES	1972	15	2004	
Woodbridge HS	1974	15	2004	
Battlefield HS	2004	15		
Ellis ES	2004	15		
Freedom HS	2004	15		
Porter (Combined)	2004	15		
Williams ES	2004	15		
Minnieville ES	1972	14	2005	
Potomac View ES	1964	14	2005	
Stonewall Jackson HS	1973	14	2005	
Vaughan ES	1964	14	2005	
Glenkirk ES	2005	14		
Transportation Center, Central	2005	14		
Victory ES	2005	14		
Belmont ES	1967	13	2006	
Dale City ES	1967	13	2006	
Marumscos Hills ES	1966	13	2006	
Osborn Park HS	1975	13	2006	
Buckland Mills ES	2006	13		
Parks ES	2006	13		
Potomac MS	2006	13		
Kerrydale ES	1973	12	2007	
Rockledge ES	1972	12	2007	
Tyler ES	1968	12	2007	
Gainesville MS	2007	12		
Bel Air ES	1968	11	2008	
Fitzgerald ES	2008	11		
Gravelly ES	2008	11		
Kelly Leadership Center	2008	11		
Coles ES	1968	10	2009	
Enterprise ES	1978	10	2009	
Neabsco ES	1969	10	2009	

Sinclair ES	1968	10	2009	
Yorkshire ES	2009	10		
Rippon MS	1967	9	2010	
Patriot HS	2011	8		
Wood ES	2011	8		
Potomac HS	1981	7	2012	
Reagan MS	2012	7		
Washington-Reid ES	1951	6	2013	
Haymarket ES	2014	5		
Yung ES	2015	4		
King ES	1981	3	2016	
Loch Lomond ES	1962	3	2016	
Colgan HS	2016	3		
Antietam ES	1990	2	2017	
Mullen ES	1990	2	2017	
Covington-Harper ES	2017	2		
Independence Nontraditional	2018	1		

Summary

<i>Existing Conditions</i>	
Projected Growth in Students (2018-2029)	9,375
Student Enrollment (2018-2019)	90,203
Student Enrollment (2028-2029)	99,578
Current Student Capacity	88,964
Current Portable Classrooms in Use	206

<i>Proposed Capital Improvements Program</i>	
New School Facilities	10
New Elementary Schools	6
New Middle Schools	1
New High Schools	2
Replacement Elementary School	1
School Additions (Classrooms)	70
Elementary School Additions (2 Schools)	13
Middle School Additions (4 Schools)	57
High School Additions	-----
Support Facilities	2
Western Transportation Center	1
New Dominion – Special Needs Transportation	1
Proposed Capacity to be Constructed	12,623
Proposed Costs	
New School Facilities	\$633,699,000
Classroom Additions	\$136,970,000
Renewals	\$664,524,000
Site Acquisition	\$18,395,000

Key Highlights of Fiscal Year 2020 Budget - Capital Projects Funded

- Opening of the new John D. Jenkins Elementary School
- First phase funding for renewals at Mountain View Elementary School and Beville Middle School
- Funding to expand auxiliary gyms with multiple courts at Gar-Field High School and Woodbridge High School
- Stadium upgrades, including lighting and concession buildings, at Stonewall Jackson High School and Woodbridge High School

APPENDIX A

School Facility Information

School Facility Data by School Type

- Elementary, Middle, High, Special, Alternative, and Other
- School Name
- Planning Capacity
- Portable Classrooms
- Regular Classrooms
- Year Opened
- Year of Last and Next School Renovation
- Year of School Addition(s)
- Building Square Feet
- Site Acres

School Facilities – Count of Educational Facilities

Prince William County Schools

2013-14 to 2018-19

School Type	Count of School Facilities					
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Elementary Schools	57	57	58	59	60	60
Combined Schools	2	3	3	3	3	3
Middle Schools	16	16	16	16	16	16
High Schools	11	11	11	12	12	12
Total (<i>Regular Education</i>)	86	87	88	90	91	91
Special Education	3	3	3	3	3	4
TOTAL	91	92	93	95	96	95

*Independence Non-Traditional School includes the New Dominion program, New Directions program and the PACE East program.

School Facilities – Summary Information

Prince William County Schools

2018-19

Use Type	School Type	Facility Count	Program / Planning Capacity	Portable Class-rooms	Square Feet	Acres
Educational	Elementary	60	40,734	107	4,532,948	994.103
	Combined	3	2,333		269,407	80.130
	Middle	16	19,658	47	2,194,133	557.656
	High	12	26,239	51	3,627,651	843.609
	Special	4		1	195,688	34.467
Non-Educational	Administrative	3			299,914	62.616
	Transportation	5			81,676	87.480
Total		103	88,964	206	11,201,417	2,660.061

School Facilities – Detail Information

Prince William County Schools

Elementary School	Program Capacity	Portable Classrooms 2018-19	Regular Classrooms	Year Opened	School Renovation		School Addition(s)				Building Square Feet	Site Acres
					Next	Last	Addition #1 Year	# Class-rooms	Addition #2 Year	# Class-rooms		
Alvey ES	857		41	2003							83,084	20.2
Antietam ES	569	1	31	1990		2018	2019	13			62,334	14.9
Ashland ES	979		46	2002			2008	5			98,461	18.1
Bel Air ES	449	2	28	1968		2008	2008	8			53,712	15.0
Belmont ES	540		36	1967		2006	2006	4	2017	10	74,332	14.3
Bennett ES	847		40	1996	FY 2022		2000	8			83,969	15.3
Bristow Run ES	795		40	1998	FY 2023		2004	8			83,885	21.7
Buckland Mills ES	938		43	2006							89,936	15.0
Cedar Point ES	874		41	2001	FY 2024						83,084	15.5
Coles ES	469	3	25	1968		2009					52,745	17.0
Covington-Harper ES	750		45	2017							101,288	21.4
Dale City ES	347	4	25	1967		2006	2001	4			44,333	14.8
Dumfries ES	419	4	27	1939		2014	1989	8			44,925	10.0
Ellis ES	481	3	32	2004							76,724	10.5
Enterprise ES	444	3	26	1978		2009					51,260	15.0
Featherstone ES	425	3	29	1961		2001	2015	6			56,246	12.0
Fitzgerald ES	776	2	46	2008							106,170	11.2
Glenkirk ES	839		41	2005							83,084	15.6
Gravelly ES	955		43	2008							95,314	18.0
Haymarket ES	946		44	2014							98,736	24.3
Henderson ES	808		42	1985		2016	2017	10			76,077	14.9
Kerrydale ES	345	6	24	1973		2007					46,300	15.4
Kilby ES	646		45	2017							98,615	12.8
King ES	431		26	1981		2016					57,546	15.2
Lake Ridge ES	535	5	27	1983		2016	2019	13			59,904	15.1
Leesylvania ES	631	2	41	1996	FY 2020						83,084	16.3
Loch Lomond ES	433	6	30	1962		2016	2013	4			58,278	10.7
Marshall ES	770		35	1994	FY 2020		1999	4			62,700	24.2
Marunco Hills ES	589	5	35	1966		2006	2006	2	2009	4	56,651	12.2
McAuliffe ES	436		28	1989		2018					59,517	15.1
Minnieville ES	447	1	28	1972		2005					53,028	15.2
Montclair ES	735		35	1991	FY 2020		2008	4			70,928	15.9
Mountain View ES	722		35	1995	FY 2021		2002	4			67,815	30.0
Mullen ES	707	2	43	1990		2018	1999	4	2013	6	82,219	15.0
Neabsco ES	679	2	43	1969		2009	2017	8			72,295	12.8
Occoquan ES	498	7	30	1927		2002	2003	5			55,225	10.1
Old Bridge ES	553	1	32	1995	FY 2020						74,433	17.9
Parks ES	853		41	2006							83,084	15.2
Pattie ES	795		37	1978		2013	2018	11	2011	0	69,479	15.0
Penn ES	797	5	39	1998	FY 2022		2013	7			87,542	16.9
Piney Branch ES	965		44	2011							104,448	21.0
Potomac View ES	529	10	37	1964		2005	2005	4	2009	4	60,756	12.4
River Oaks ES	633	2	38	1990	FY 2019		2014	7			80,618	15.2
Rockledge ES	522	5	31	1972		2007	2009	7			64,769	16.2
Signal Hill ES	803	2	41	2000	FY 2023						83,084	24.5
Sinclair ES	682		42	1968		2009	2001	6	2013	11	75,698	15.0
Springwoods ES	593	7	28	1985		2016	2019	13			58,221	15.1
Sudley ES	640	1	38	1972		2004	2013	10			73,457	14.0
Swans Creek ES	653	1	38	2001	FY 2024		2012	6			86,934	18.5
Triangle ES	743		44	2010							103,679	18.9
Tyler ES	558		28	1968		2007	2007	4			56,014	25.5
Vaughan ES	607	3	36	1964		2005	2001	4	2009	9	58,967	13.6
Victory ES	935		43	2005							89,911	21.2
West Gate ES	516	3	36	1964		2009	2013	4			59,727	12.1
Westridge ES	710	2	34	1989		2018	2012	6			70,559	15.0
Williams ES	707	1	41	2004							83,084	13.6
Wilson ES	997		49	2016							106,345	19.5
Wood ES	998		44	2011							104,448	33.8
Yorkshire ES	793	3	46	2009							106,614	13.3
Yung ES	1,041		46	2015							107,273	20.8
Total	40,734	107	2,209					211		44	4,532,948	994.1

School Facilities – Detail Information

Prince William County Schools

Combined School	Planning Capacity	Portable Classrooms 2018-19	Regular Classrooms	Year Opened	School Renovation		School Addition(s)				Building Square Feet	Site Acres
					Next	Last	Addition #1 Year	# Classrooms	Addition #2 Year	# Classrooms		
Nokesville School, The	1,098		55	2014							141,832	48.2
Pennington TS	608		31	1969		2012					56,330	15.0
Porter TS	627		32	2004							71,245	16.9
Total	2,333		118								269,407	80.1

Middle School	Planning Capacity	Portable Classrooms 2018-19	Regular Classrooms	Year Opened	School Renovation		School Addition(s)				Building Square Feet	Site Acres
					Next	Last	Addition #1 Year	# Classrooms	Addition #2 Year	# Classrooms		
Benton MS	1,464		76	2000	FY 2025		2013	11			151,130	48.2
Beville MS	1,191		65	1991	FY 2021						134,140	42.1
Bull Run MS	1,233		65	2002							135,309	39.4
Gainesville MS	1,233	7	65	2007							135,309	39.4
Graham Park MS	867	8	47	1963		2001	2001	4			110,514	21.9
Hampton MS	982	2	54	1970		2010	2002	8			124,610	30.0
Lake Ridge MS	1,464		78	1989		2018	2018	13			158,900	34.1
Lym MS	1,170	4	64	1963		2001					131,974	28.6
Marsteller MS	1,233	5	65	2002							135,309	36.4
Parkside MS	1,453		74	1963	FY 2023	2000	2014	15			145,677	30.0
Potomac MS	1,464		76	2006			2013	11			151,130	36.4
Reagan MS	1,233	5	65	2012							134,765	41.9
Rippon MS	1,390		63	1967		2010	2016	8			156,094	30.2
Saunders MS	1,212		64	1988		2018					137,088	29.5
Stonewall MS	1,003	7	52	1964		2002					127,673	32.2
Woodbridge MS	1,066	9	56	1964		2003					124,511	37.4
Total	19,658	47	1,029					70	0		2,194,133	557.7

High School	Planning Capacity	Portable Classrooms 2018-19	Regular Classrooms	Year Opened	School Renovation		School Addition(s)				Building Square Feet	Site Acres
					Next	Last	Addition #1 Year	# Classrooms	Addition #2 Year	# Classrooms		
Battlefield HS	2,053	18	101	2004							285,086	78.8
Brentsville HS	1,110		53	1965	FY 2024	2000	2000	9	1980		163,066	29.0
Colgan HS	2,095		102	2016							371,381	109.2
Forest Park HS	2,053		101	2000							283,268	79.1
Freedom HS	2,053	6	101	2004							285,886	80.7
Gar-Field HS	2,839		128	1972		2003					353,742	91.5
Hylton HS	2,053		101	1991	FY 2022						282,346	74.8
Osborn Park HS	2,430		115	1975		2006					328,386	56.1
Patriot HS	2,053	20	101	2011							320,124	60.0
Potomac HS	2,357		113	1981		2012	2013	30			273,329	75.1
Stonewall Jackson HS	2,409	7	117	1973		2005					328,540	56.6
Woodbridge HS	2,734		125	1974		2004					352,497	52.7
Total	26,239	51	1,258					39	0		3,627,651	843.6

Special School	Planning Capacity	Portable Classrooms 2018-19	Regular Classrooms	Year Opened	School Renovation		School Addition(s)				Building Square Feet	Site Acres
					Next	Last	Addition #1 Year	# Classrooms	Addition #2 Year	# Classrooms		
Independence NT			57	2018							122,659	9.9
PACE West SE			21	2012							39,998	13.5
Washington-Reid ES			9	1951		2013					24,711	9.2
Woodbine SE		1	4	1953							8,320	1.9
Total	0	1	91					0	0		195,688	34.5

Administrative	Planning Capacity	Portable Classrooms 2018-19	Regular Classrooms	Year Opened	School Renovation		School Addition(s)				Building Square Feet	Site Acres
					Next	Last	Addition #1 Year	# Classrooms	Addition #2 Year	# Classrooms		
Ann Ludwig				1975							14,220	4.8
Independent Hill Complex				1968							139,947	37.6
Kelly Leadership Center				2008							145,747	20.3
Total	0	0	0					0	0		299,914	62.6

School Facilities – Detail Information

Prince William County Schools

Transportation	Planning Capacity	Portable Classrooms 2018-19	Regular Class-rooms	Year Opened	School Renovation		School Addition(s)				Building Square Feet	Site Acres
					Next	Last	Addition #1 Year	# Class-rooms	Addition #2 Year	# Class-rooms		
McCuin Transportation Cntr				2002							8,400	11.5
New Dominion Transportation Ctr (Special Needs)			5	1975							14,749	9.3
Transportation Center Central				2005							14,934	29.9
Transportation Center East				2002							15,565	16.8
Transportation Cntr (Hooce Rd)				1979							28,028	20.0
Total	0	0	5				0		0		81,676	87.5

All Facilities	School Capacity	Portable Classrooms 2018-19	Regular Class-rooms	Year Opened	School Renovation		School Addition(s)				Building Square Feet	Site Acres
					Next	Last	Addition #1 Year	# Class-rooms	Addition #2 Year	# Class-rooms		
Total	88,964	206	4,710				320		44		11,201,417	2,660.1

Portable Classrooms: Current and Historical Totals

By School Type, 1998 to 2018

Year	School Type					Total
	Elementary	Middle	High	Alternative	Special Education	
1998	101	21	28	0	5	155
1999	109	25	25	0	5	164
2000	118	31	5	10	5	169
2001	122	37	2	10	5	176
2002	130	26	2	10	5	173
2003	141	16	2	10	5	174
2004	168	19	2	10	5	204
2005	185	40	5	10	5	245
2006	179	27	8	10	5	229
2007	184	20	14	10	10	238
2008	171	20	21	10	10	232
2009	150	21	36	10	7	224
2010	145	21	37	10	10	223
2011	132	31	21	10	10	204
2012	136	29	18	10	9	202
2013	126	23	30	11	9	199
2014	121	22	37	11	9	200
2015	122	27	46	11	9	215
2016	128	30	41	11	1	211
2017	110	36	49	11	1	207
2018	107	47	51	0	1	206

APPENDIX B

Student Enrollment & Housing Data

Student Enrollment & Housing Data

- Student Enrollment Forecasting
 - Housing Unit Method
 - Grade Progression Ratio Method
- Alternative Solutions to School Overcrowding
- Student Enrollment Data: Current and Projected Enrollment
 - by School (Elementary, Middle, High, and Special/Alternative Education), School Years 2018-28
- Housing Units in Residential Development
 - by School (Elementary, Middle, and High)
- Historical and Projected Enrollment Data
- Student Enrollment Projections - Error Rate Analysis
- Portable Classrooms
- Various Charts and Graphs
- Geographic Areas – Map and Table

Student Enrollment Forecasting

Most forecasts share common features. They tend to be an extrapolation of the past, involve some level of judgment, and are inherently not perfect predictors of the future. These features contribute to why it's indispensable to continually evaluate the forecasting methods used and the accuracy of their projections.

The primary goal in the enrollment forecasting process is to reduce statistical error so that the projections can become better predictors of future student enrollments, resulting in the ability to place greater confidence in them when planning future capital improvements. The forecasts rely on spatial and aspatial data that are manipulated and processed by Geographic Information System (GIS) software and statistical software packages, respectively. The methods used to produce student enrollment forecasts in PWCS are discussed in greater detail and communicated through flow charts in the following pages.

Methodology

The student enrollment forecasts are calculated combining two widely-used techniques in projecting student enrollment that are commonly referred to as the **Housing-Unit Method** and the **Grade Progression Method**. One caveat is that judgmental adjustments, which are common in forecasting, are often used to fine-tune the enrollment forecasts. The combination of statistical methods was chosen for two primary reasons. First, the model produced by them is supported by industry best practices and scholarly literature. Second, it is relatively inexpensive to produce. Each primary method is now discussed more extensively.

Housing-Unit Method

The Housing-Unit Method establishes a relationship between housing units and student enrollment. The relationship is calculated for a specific geography in Prince William County (PWC) by dividing the number of students residing in the geographic region by the number of existing housing units. In Prince William County Schools (PWCS), the resulting value is referred to as a Student Generation Factor. It can be interpreted as the number of students on average that housing units generated in a specific region. Factors are calculated at varying geographies (e.g., county-wide, elementary school attendance area, and Planning Zone) and for each housing unit type (e.g., single-family detached, townhouse, and multifamily). For future years, the projected ratio of students per housing unit, in concert with moving these ratios forward in time via the Grade Progression Ratio Method, is multiplied by the number of predicted housing units by year to produce the forecasts of total students in PWCS. The amount of new housing growth is fairly consistent with housing forecasts used for projecting population in PWC for the Metropolitan Washington Council of Governments (COG). The spatial distribution of new housing throughout PWC is determined by two factors. First, residential projects in the inventory pipeline guide where residential development is most likely to occur. Second, locations where additional housing-unit density is permitted in accordance with current zoning are utilized to guide where future, new housing is most likely to be constructed. These processes described are similar in spirit to the Build-out Analysis produced by the Planning Office in PWC Government, but differs by only considering the current zoning’s maximum residential development potential or, in other words, the maximum number of housing units that could exist on the property without undergoing rezoning.

Grade Progression Ratio Method

The Grade Progression Ratio Method used in PWCS, is the weighted average of historical grade progression ratios. The calculated ratio for each grade level is multiplied by its corresponding grade level cohort for a particular year to project the subsequent year’s enrollment. An example below is provided to help explain the method.

Below is a table that tabulates the historical record of total sixth and seventh grade students for the current year (i.e., Year₍₀₎) and the previous three years. Beneath the table is Grade Progression Ratio Method used with the provided data. For the sake of simplicity, no weighting is included in the example calculation, although more recent years are weighted more significantly in the actual projections used in PWCS. Averaging progression ratios for multiple years in the progression ratio calculation lessens the effect of any given year on the forecast, effectively smoothing the historical data. The forecaster can adjust the number of years used to calculate the progression ratio with the intent of attempting to control for outliers and to include the previous years that are believed to most closely represent the years being forecasted.

Grade	Year ₍₋₃₎	Year ₍₋₂₎	Year ₍₋₁₎	Year ₍₀₎	Progression	Year ₍₊₁₎
6 th	3,888	4,066	4,348	4,581		
7 th	N/A	4,024	4,184	4,525	1.0350	4,741

1. **Progression Ratio** = $(7^{\text{th}}_{\text{Year}(-2)} + 7^{\text{th}}_{\text{Year}(-1)} + 7^{\text{th}}_{\text{Year}(0)}) / (6^{\text{th}}_{\text{Year}(-3)} + 6^{\text{th}}_{\text{Year}(-2)} + 6^{\text{th}}_{\text{Year}(-1)})$
 $7^{\text{th}}_{\text{Year}(0)}$ indicates the 7th grade cohort of Current Year.
2. **Progression Ratio** = $(4,024 + 4,184 + 4,525) / (3,888 + 4,066 + 4,348) = 1.0350$
3. **Forecasted 7th Year₍₊₁₎ Student Enrollment** = $4,581 \times 1.0350 = 4,741$

Student Enrollment Forecast Accuracy

The model used to project student enrollment in PWCS is effective, and with accurate data and correctly forecasted parameters, can provide reasonably accurate forecasts of future. Historically, it has yielded smaller errors at larger geographies. An average error of less than 1% has been associated with the Divisionwide one-year projections since the mid-1990s. Success at the school level, a relatively smaller geography, has varied by school. See charts on page 16 and 17 for historical error rates.

Student Enrollment Data Preparation



Elementary School
Level Data



Middle School
Level Data



High School
Level Data



Special School
Level Data



SMS Student Database - Extract Active
Students via SPSS Syntax to produce
the Official September 30th Enrollment



Import PWC Government
Shapefiles for Premise
Addresses, Parcels, and Roads

Import dataset into GIS



"Geocode" or assign each
student to a point on a map
based on the student's
residential address on file



Spatial join PZs and School
Assignments to the "Geocoded" student
point file in GIS to produce dataset

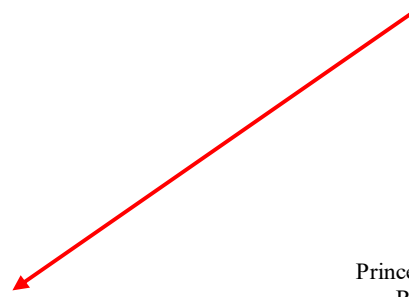
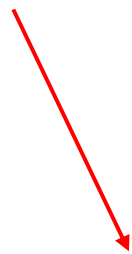
Analysis of Housing Unit Information



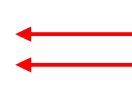
Prince William County Planning Office
Premise Points with Housing Unit Data



Prince William County Geographic Information System



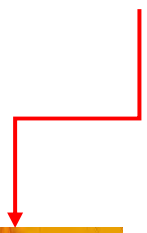
Prince William County Planning Office
Residential Development Plans



Residential Information
Geodatabase in GIS



Outside data vendors provide additional
information on pace of development (e.g.,
PWC Revenue Committee, COG Housing
Forecasts, Residential Development, etc.)



Current and 10-Year
Projection of Housing
Units by Unit Type and
Planning Zone



This allows us to
prepare for Student
Enrollment Forecasting
continued on Page 5

Student Enrollment Forecasting Preparation



Residential Construction
(Generates students from new housing units based on forecasted build rates)

County-Wide Projection
forecasts the number of students anticipated in PWCS for the next 10 years



SPSS Syntax

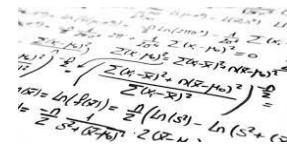
Calculate Current Student Generation Factors (SGF)
(Students per housing unit, by Unit Type, Planning Zone, and Grade)



Calculate Transfer Rates
(Percentage of students attending schools other than their geographically assigned school)



Progress student generation factor cohorts and transfer rates x-year forward



By Planning Zone:
Students (Grade X, Year Y) =
SGF_{Grade X-1 by Unit Type} * Units_{Year 0}
+ SGF_{Grade X by Unit Type} * Add'l Units_{Year 0 to Y}
* Transfer Rate_{Grade X}



Calculate new grade enrollments for each Planning Zone



Make "bottom-up" forecasts comply with "top-down" division-wide forecasts for improved accuracy

Allocate Planning Zones to Schools to create Enrollment Projections by School and Grade

Alternative Solutions to School Overcrowding

There are several general methods that have been considered to alleviate overcrowding in schools.

- Boundary changes – For the opening of new schools or to shift student populations
- Optimization of boundaries so all available space in the county will be used
- Placement of portable classrooms
- New construction
- Freezing transfers
- Program changes – Examples:
 - Shifting eighth grade to a high school with unused space;
 - Moving PK Special Education programs;
 - Increasing pupil/teacher ratio;
 - Split shift.
- Year-Round Schooling

The method chosen for relieving overcrowding at a given school is determined by several criteria. These criteria include continuity and quality of educational program; maintenance of continuous communities; transportation considerations; using centerline on divided highways when possible; and topographical features.

Student Enrollment Data: Current and Projected Enrollment

Elementary Schools

SY 2018-19 to SY 2028-29

Elementary School	Available Space			2018-19			2019-20			2023-24			2028-29		
	Program Capacity 2018-19 ¹	Program Capacity 2019-28 ²	Portable Classrooms	Students	+/-	% Util	Students	+/-	% Util	Students	+/-	% Util	Students	+/-	% Util
Alvey	857	838	0	660	197	77.0%	613	225	73.2%	633	205	75.6%	661	177	78.9%
Antietam	569	914	1	643	-74	113.0%	828	86	90.6%	845	69	92.5%	882	32	96.5%
Ashland	979	960	0	820	159	83.8%	800	160	83.3%	817	143	85.1%	863	97	89.9%
Bel Air	449	392	2	393	56	87.5%	386	6	98.5%	382	10	97.5%	399	-7	101.8%
Belmont	540	547	0	462	78	85.6%	506	41	92.5%	552	-5	101.0%	577	-30	105.5%
Bennett	847	828	0	668	179	78.9%	676	152	81.6%	723	105	87.3%	775	53	93.6%
Bristow Run	795	828	0	657	138	82.6%	645	183	77.9%	637	191	76.9%	667	161	80.6%
Buckland Mills	938	936	0	670	268	71.4%	649	287	69.3%	678	258	72.4%	740	196	79.1%
Cedar Point	874	838	0	541	333	61.9%	517	321	61.7%	538	300	64.2%	649	189	77.5%
Coles	469	368	3	408	61	87.0%	388	-20	105.5%	394	-26	107.1%	422	-54	114.7%
Covington-Harper	750	786	0	632	118	84.3%	679	107	86.4%	996	-210	126.8%	1,544	-758	196.4%
Dale City	347	362	4	430	-83	123.9%	428	-66	118.3%	438	-76	120.9%	458	-96	126.4%
Dumfries	419	409	4	420	-1	100.2%	420	-11	102.8%	418	-9	102.3%	635	-226	155.2%
Ellis	481	492	3	523	-42	108.7%	542	-50	110.1%	537	-45	109.1%	585	-93	118.9%
Enterprise	444	398	3	377	67	84.9%	367	31	92.1%	383	15	96.2%	400	-2	100.5%
Featherstone	425	418	3	489	-64	115.1%	493	-75	118.0%	511	-93	122.3%	534	-116	127.7%
Fitzgerald	776	764	2	814	-38	104.9%	831	-67	108.8%	935	-171	122.4%	1,020	-256	133.5%
Glenkirk	839	823	0	764	75	91.1%	749	74	91.0%	753	70	91.6%	787	36	95.6%
Gravelly	955	954	0	795	160	83.2%	797	157	83.6%	825	129	86.4%	883	71	92.6%
Haymarket	946	927	0	887	59	93.8%	909	18	98.0%	899	28	97.0%	1,035	-108	111.6%
Henderson	808	915	0	821	-13	101.6%	843	72	92.1%	842	73	92.0%	891	24	97.4%
Kerrydale	345	355	6	452	-107	131.0%	350	5	98.6%	339	16	95.5%	354	1	99.8%
Kilby	646	684	0	757	-111	117.2%	777	107	84.3%	585	99	85.6%	631	53	92.2%
King	431	430	0	423	8	98.1%	450	-20	104.7%	463	-33	107.6%	483	-53	112.4%
Lake Ridge	535	862	5	573	-38	107.1%	670	192	77.7%	681	181	79.0%	711	151	82.5%
Leesylvania	631	739	2	745	-114	118.1%	731	8	98.9%	734	5	99.3%	819	-80	110.8%
Loch Lomond	433	440	6	507	-74	117.1%	515	-75	117.1%	524	-84	119.0%	549	-109	124.8%
Marshall	770	738	0	665	105	86.4%	649	89	87.9%	671	67	91.0%	722	16	97.9%
Marumscow Hills	589	580	5	645	-56	109.5%	578	2	99.7%	649	-69	111.9%	693	-113	119.5%
McAuliffe	436	446	0	422	14	96.8%	415	31	92.9%	425	21	95.3%	444	2	99.5%
Minnieville	447	623	1	530	-83	118.6%	550	73	88.3%	527	96	84.6%	550	73	88.3%
Montclair	735	581	0	629	106	85.6%	647	-66	111.3%	653	-72	112.4%	700	-119	120.5%
Mountain View	722	738	0	541	181	74.9%	517	221	70.1%	535	203	72.5%	558	180	75.7%
Mullen	707	702	2	738	-31	104.4%	755	-53	107.6%	768	-66	109.3%	805	-103	114.7%
Neabsco	679	716	2	695	-16	102.4%	697	19	97.4%	703	13	98.2%	734	-18	102.6%
Nokesville School, The (ES)	659	651	0	624	35	94.7%	625	26	96.0%	684	-33	105.1%	825	-174	126.7%
Occoquan	498	498	7	640	-142	128.5%	649	-151	130.4%	669	-171	134.3%	713	-215	143.2%
Old Bridge	553	532	1	728	-175	131.6%	464	68	87.2%	467	65	87.7%	489	43	91.9%
Parks	853	851	0	697	156	81.7%	690	161	81.0%	648	203	76.1%	681	170	80.0%
Pattie	795	777	0	697	98	87.7%	706	71	90.8%	736	41	94.8%	774	3	99.7%
Penn	797	661	5	866	-69	108.7%	634	27	95.9%	692	-31	104.7%	728	-67	110.1%
Pennington (ES)	365	364	0	405	-40	111.0%	405	-41	111.3%	405	-41	111.3%	405	-41	111.3%
Piney Branch	965	946	0	806	159	83.5%	792	154	83.8%	812	134	85.9%	848	98	89.7%
Porter (ES)	375	356	0	419	-44	111.7%	420	-64	118.0%	420	-64	118.0%	420	-64	118.0%
Potomac View	529	529	10	649	-120	122.7%	529	0	100.0%	590	-61	111.5%	621	-92	117.3%
PW Parkway (Jenkins)	N/A	749	0	N/A	N/A	N/A	557	192	74.4%	564	185	75.3%	652	97	87.0%
River Oaks	633	622	2	651	-18	102.8%	653	-31	105.0%	672	-50	108.1%	702	-80	112.9%
Rockledge	522	522	5	626	-104	119.9%	524	-2	100.3%	558	-36	106.8%	586	-64	112.2%
Signal Hill	803	819	2	720	83	89.7%	702	117	85.7%	742	77	90.6%	823	-4	100.4%
Sinclair	682	662	0	735	-53	107.8%	731	-69	110.4%	720	-58	108.8%	752	-90	113.6%
Springwoods	593	920	7	664	-71	112.0%	893	27	97.0%	887	33	96.4%	927	-7	100.7%
Sudley	640	639	1	672	-32	105.0%	667	-28	104.4%	675	-36	105.7%	705	-66	110.3%
Swans Creek	653	653	1	672	-19	102.9%	671	-18	102.8%	691	-38	105.9%	742	-89	113.6%
Triangle	743	752	0	777	-34	104.6%	776	-24	103.2%	769	-17	102.3%	893	-141	118.7%
Tyler	558	574	0	461	97	82.6%	449	125	78.2%	464	110	80.8%	534	40	93.1%
Vaughan	607	586	3	606	1	99.8%	563	23	96.1%	557	29	95.0%	581	5	99.2%
Victory	935	891	0	647	288	69.2%	706	185	79.2%	771	120	86.5%	828	63	93.0%
West Gate	516	501	3	489	27	94.8%	487	14	97.3%	496	5	98.9%	518	-17	103.3%
Westridge	710	709	2	711	-1	100.1%	677	32	95.5%	707	2	99.7%	745	-36	105.0%
Williams	707	694	1	726	-19	102.7%	707	-13	101.9%	737	-43	106.1%	786	-92	113.2%
Wilson	997	820	0	880	117	88.3%	879	-59	107.2%	907	-87	110.6%	965	-145	117.7%
Wood	998	950	0	915	83	91.7%	899	51	94.6%	918	32	96.6%	960	-10	101.1%
Yorkshire	793	735	3	770	23	97.1%	772	-37	105.0%	854	-119	116.2%	901	-166	122.6%
Yung	1,041	839	0	661	380	63.5%	744	95	88.7%	790	49	94.2%	872	-33	103.9%
Total	42,130	43,133	107	40,110	2,020	95.2%	40,137	2,996	93.1%	41,595	1,538	96.4%	45,136	-2,003	104.6%

¹ Program Capacity on which available space is calculated for the 2018-19 school year.

² Program Capacity on which available space is calculated for the 2019-20 through 2028-29 school years. It reflects the 13-classroom additions at Antietam ES, Lake Ridge ES, and Springwoods ES, the 10-classroom addition at Minnieville ES, and the 4-classroom addition at Leesylvania ES opening in 2019-20. It also reflects the opening of the Prince William Parkway ES, now formally named John D. Jenkins ES.

Student Enrollment Data: Current and Projected Enrollment
 Elementary Schools – Additional Space to be Constructed
 SY 2018-19 to SY 2028-29

Elementary School	2018-19			2019-20			2023-24			2028-29		
	Students	+/-	% Util	Students	+/-	% Util	Students	+/-	% Util	Students	+/-	% Util
2019												
<i>Antietam Elementary Addition (13 room)</i>					329			329			329	
<i>Elementary School (East - PW Parkway Area)</i>					749			749			749	
<i>Lake Ridge Elementary Addition (13 room)</i>					329			329			329	
<i>Leesylvania Elementary Addition (4 room)</i>					83			83			83	
<i>Minnieville Elementary Addition (10 room)</i>					187			187			187	
<i>Springwoods Elementary Addition (13 room)</i>					329			329			329	
2022												
<i>Elementary School (West - Rosemont Lewis)</i>								696			696	
2023												
<i>Elementary School (Potomac Shores #2)</i>								750			750	
<i>Elementary (Occoquan/Woodbridge Area)</i>								657			657	
2025												
<i>Elementary School (Cherry Hill)</i>											751	
2026												
<i>Occoquan Replacement School</i>											357	
2027												
<i>Elementary School (Route 1 South Area)</i>											750	
2028												
<i>Elementary Addition (Mid-County Area) (8 room)</i>											168	
<i>Elementary Addition (Ferlazzo Area) (5 room)</i>											100	
<i>Elementary School (Yorkshire Area)</i>											758	
Sum of Additional Seats								2,103			4,987	
Totals (if new schools and additions were added)	40,110	2,020	95.2%	40,137	2,996	93.1%	41,595	3,641	92.0%	45,136	2,984	93.8%

Note: 2019 additional seats have been added in the totals on the previous page, which is why they are not counted in the additional seats section on this page.

Student Enrollment Data: Current and Projected Enrollment
Middle Schools
SY 2018-19 to SY 2028-29

Middle School	Available Space		2018-19			2019-20			2023-24			2028-29		
	Capacity	Portable Classrooms	Students	+/-	% Util	Students	+/-	% Util	Students	+/-	% Util	Students	+/-	% Util
Benton	1,464		1,433	31	97.9%	1,400	64	95.6%	1,215	249	83.0%	1,210	254	83.0%
Beville	1,191		1,061	130	89.1%	1,101	90	92.4%	1,098	93	92.0%	1,106	85	93.0%
Bull Run	1,233		1,194	39	96.8%	1,222	11	99.1%	1,135	98	92.0%	1,172	61	95.0%
Gainesville	1,233	7	1,422	-189	115.3%	1,446	-213	117.3%	1,420	-187	115.0%	1,463	-230	119.0%
Graham Park	867	8	1,019	-152	117.5%	1,006	-139	116.1%	1,070	-203	123.0%	1,279	-412	148.0%
Hampton	982	2	1,046	-64	106.5%	1,073	-91	109.3%	1,084	-102	110.0%	1,150	-168	117.0%
Lake Ridge	1,464		1,381	83	94.3%	1,435	29	98.0%	1,390	74	95.0%	1,406	58	96.0%
Lynn	1,170	4	1,195	-25	102.1%	1,327	-157	113.4%	1,415	-245	121.0%	1,513	-343	129.0%
Marsteller	1,233	5	1,303	-70	105.7%	1,268	-35	102.9%	1,142	91	93.0%	1,199	34	97.0%
Nokesville School, The (MS)	439		380	59	86.6%	367	72	83.5%	369	70	84.0%	432	7	98.0%
Parkside	1,453		1,411	42	97.1%	1,519	-66	104.6%	1,548	-95	107.0%	1,594	-141	110.0%
Pennington (MS)	243		246	-3	101.2%	243	0	100.0%	243	0	100.0%	243	0	100.0%
Porter (MS)	252		262	-10	104.0%	252	0	100.0%	252	0	100.0%	252	0	100.0%
Potomac	1,464		1,249	215	85.3%	1,283	181	87.7%	1,480	-16	101.0%	1,671	-207	114.0%
Reagan	1,233	5	1,389	-156	112.7%	1,429	-196	115.9%	1,294	-61	105.0%	1,378	-145	112.0%
Rippon	1,390		1,303	87	93.7%	1,372	18	98.7%	1,543	-153	111.0%	1,628	-238	117.0%
Saunders	1,212		1,201	11	99.1%	1,205	7	99.4%	1,077	135	89.0%	1,102	110	91.0%
Stonewall	1,003 ¹	7	1,167	-164	116.4%	1,186	174	87.2%	1,311	49	96.4%	1,331	29	97.9%
	1,360 ²													
Woodbridge	1,066	9	1,335	-269	125.2%	1,321	-255	123.9%	1,296	-230	122.0%	1,351	-285	127.0%
Total	20,592 ¹	47	20,997	-405	102.0%	21,456	-507	102.4%	21,383	-434	102.1%	22,480	-1,531	107.3%
	20,949 ²													
<i>Middle School (East - Potomac Shores, 2021)</i>														
<i>Bull Run Middle School Addition (11 room, 2022)</i>														
<i>Gainesville Middle School Addition (11 room, 2022)</i>														
<i>Marsteller Middle School Addition (11 room, 2022)</i>														
<i>Middle School Addition TBD (24 room, 2028)</i>														
Sum of Additional Seats														
Total	20,592 ¹	47	20,997	-405	102.0%	21,456	-507	102.4%	21,383	1,723	92.5%	22,480	1,130	95.2%
	20,949 ²													

Note:

¹ Capacity on which available space is calculated for the 2018-19 school year.

² Capacity on which available space is calculated for the 2019-20 through 2028-29 school years. It reflects the classroom addition opening for the 2019-20 school year.

Student Enrollment Data: Current and Projected Enrollment
High Schools
SY 2018-19 to SY 2028-29

High School	Available Space		2018-19			2019-20			2023-24			2028-29		
	Capacity	Portable Classrooms	Students	+/-	% Util	Students	+/-	% Util	Students	+/-	% Util	Students	+/-	% Util
Battlefield	2,053	18	3,006	-953	146.4%	3,052	-999	148.7%	3,058	-1,005	148.9%	2,965	-912	144.4%
Brentsville	1,110		1,001	109	90.2%	992	118	89.3%	1,061	49	95.6%	1,091	19	98.3%
Colgan	2,053		2,542	-489	123.8%	2,622	-569	127.7%	2,552	-499	124.3%	2,219	-166	108.1%
Forest Park	2,053		2,197	-144	107.0%	2,293	-240	111.7%	2,318	-265	112.9%	2,107	-54	102.6%
Freedom	2,053	6	2,159	-106	105.2%	2,123	-70	103.4%	2,566	-513	125.0%	3,060	-1,007	149.0%
Gar-Field	2,839		2,311	528	81.4%	2,207	632	77.7%	2,280	559	80.3%	2,827	12	99.6%
Hylton	2,053		2,269	-216	110.5%	2,231	-178	108.7%	2,145	-92	104.5%	1,612	441	78.5%
Osborn Park	2,430		2,357	73	97.0%	2,510	-80	103.3%	2,862	-432	117.8%	1,854	576	76.3%
Patriot	2,053	20	2,678	-625	130.5%	2,712	-659	132.1%	2,669	-616	130.0%	2,671	-618	130.1%
Potomac	2,357		1,913	445	81.1%	1,880	477	79.8%	2,209	148	93.7%	3,192	-835	135.4%
Stonewall Jackson	2,409	7	2,475	-66	102.7%	2,644	-235	109.8%	3,081	-672	127.9%	3,663	-1,254	152.1%
Woodbridge	2,734		2,703	31	98.9%	2,715	19	99.3%	3,184	-450	116.4%	3,046	-312	111.4%
Total	26,197	51	27,610	-1,413	105.4%	27,980	-1,783	106.8%	29,985	-3,788	114.5%	30,306	-4,109	115.7%
<i>13th High School - (West 2021)</i>									2,557			2,557		
<i>14th High School - (Mid-County 2024)</i>												2,557		
<i>Sum of Additional Seats</i>									2,557			5,114		
Total	26,197	51	27,610	-1,413	105.4%	27,980	-1,783	106.8%	29,985	-1,231	104.3%	30,306	1,005	96.8%

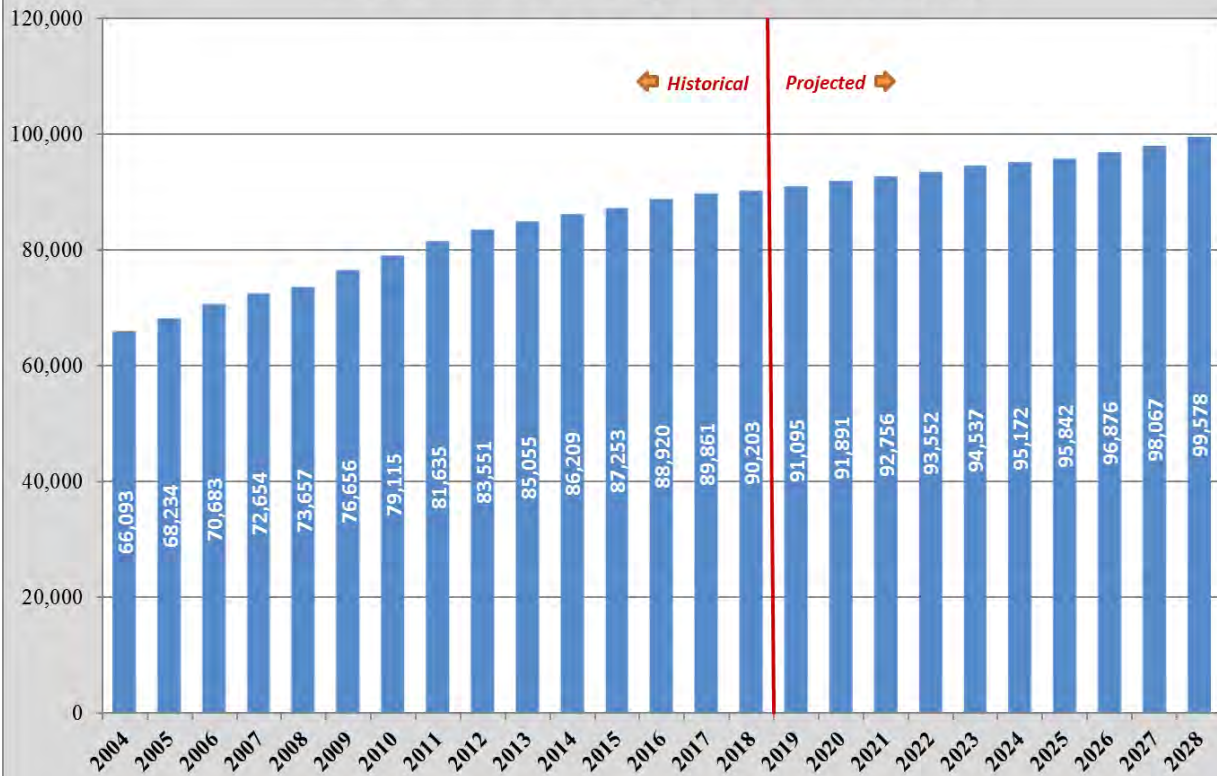
Student Enrollment Data: Current Enrollment
Special Education and Alternative Schools
SY 2018-19

Special Education and Alternative School	2018-19	
	Portable Classrooms	Students
Pre-K Programs		
Pre-School Child Find		110
School Based Pre-K		444
Woodbine SE	1	51
Independence Nontraditional		
PACE (East)		85
New Directions Alt.		460
New Dominion Alt.		41
PACE (West)		78
Special Ed. Private Facility		142
TJHS Regional Magnet		75
Total	1	1,486

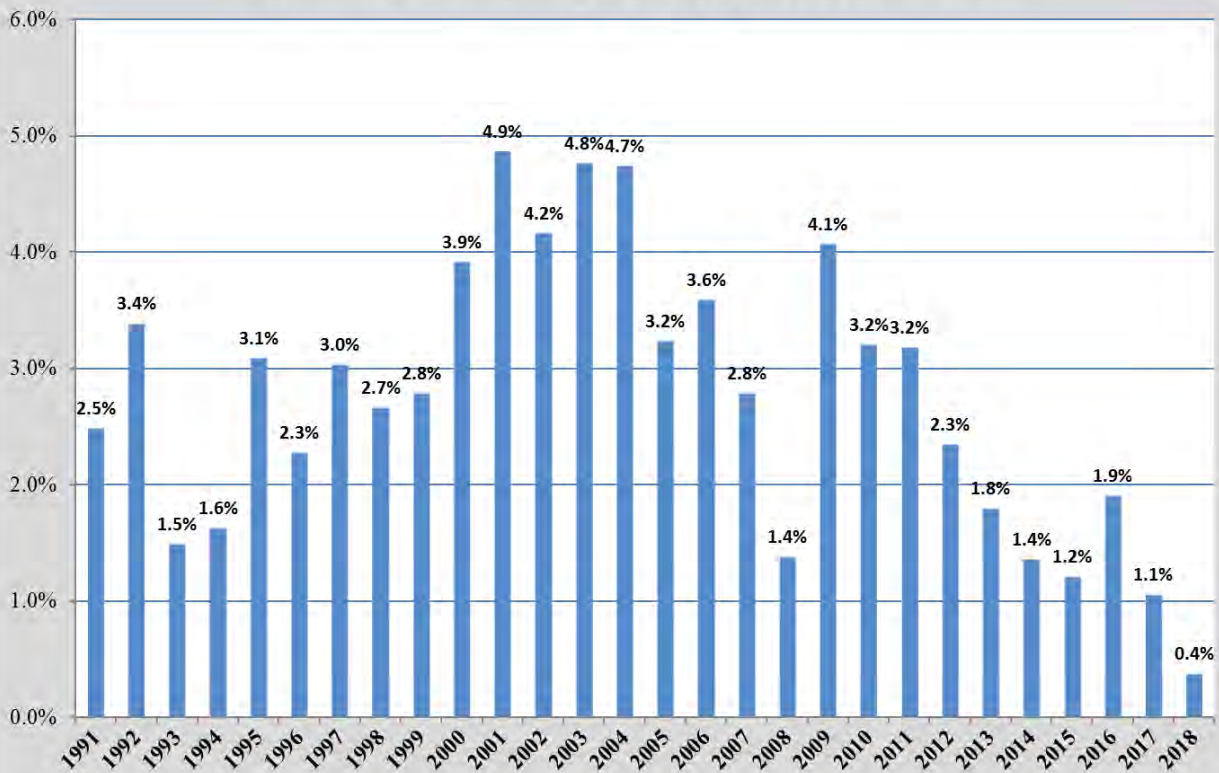
Student Enrollment Data: Historical and Projected 1966-2028

Year	School Type				Total	Annual Change	
	Elementary	Middle	High	Special Education		Number	Percentage
1966	11,361	5,242	4,511	133	21,247		
1967	11,782	5,843	4,991	83	22,699	1,452	6.8%
1968	13,083	6,488	5,641	97	25,309	2,610	11.5%
1969	14,266	7,164	6,496	97	28,023	2,714	10.7%
1970	15,377	7,873	7,008	106	30,364	2,341	8.4%
1971	15,794	8,368	8,053	107	32,322	1,958	6.4%
1972	15,975	8,738	8,741	107	33,561	1,239	3.8%
1973	16,583	9,498	9,464	80	35,625	2,064	6.1%
1974	19,462	9,865	10,338	148	39,813	4,188	11.8%
1975	19,538	10,261	10,800	201	40,800	987	2.5%
1976	18,693	9,799	10,277	238	39,007	-1,793	-4.4%
1977	16,626	9,041	10,463	309	36,439	-2,568	-6.6%
1978	15,378	8,466	10,729	273	34,846	-1,593	-4.4%
1979	16,166	8,344	10,918	286	35,714	868	2.5%
1980	15,385	8,465	10,993	310	35,153	-561	-1.6%
1981	15,429	8,757	11,031	367	35,584	431	1.2%
1982	15,141	8,775	10,927	382	35,225	-359	-1.0%
1983	15,334	8,701	11,128	401	35,564	339	1.0%
1984	15,598	8,438	11,464	383	35,883	319	0.9%
1985	16,326	8,273	11,844	447	36,890	1,007	2.8%
1986	17,130	8,414	11,850	526	37,920	1,030	2.8%
1987	18,143	8,460	12,010	611	39,224	1,304	3.4%
1988	19,334	8,730	11,883	703	40,650	1,426	3.6%
1989	20,130	9,060	11,652	692	41,534	884	2.2%
1990	20,702	9,320	11,638	686	42,346	812	2.0%
1991	20,984	9,861	11,846	709	43,400	1,054	2.5%
1992	21,768	10,212	12,178	712	44,870	1,470	3.4%
1993	21,605	10,654	12,501	779	45,539	669	1.5%
1994	21,826	10,733	12,822	900	46,281	742	1.6%
1995	22,473	11,085	13,329	825	47,712	1,431	3.1%
1996	22,886	11,327	13,828	760	48,801	1,089	2.3%
1997	23,529	11,636	14,366	751	50,282	1,481	3.0%
1998	24,044	11,744	14,839	994	51,621	1,339	2.7%
1999	24,690	12,212	15,292	868	53,062	1,441	2.8%
2000	25,653	12,774	16,079	633	55,139	2,077	3.9%
2001	26,814	13,445	16,881	683	57,823	2,684	4.9%
2002	27,717	14,256	17,558	698	60,229	2,406	4.2%
2003	28,820	15,035	18,525	719	63,099	2,870	4.8%
2004	30,101	15,580	19,652	760	66,093	2,994	4.7%
2005	31,286	15,623	20,448	877	68,234	2,141	3.2%
2006	32,704	15,748	21,228	1,003	70,683	2,449	3.6%
2007	33,858	16,040	21,792	964	72,654	1,971	2.8%
2008	34,428	16,273	21,930	1,027	73,657	1,003	1.4%
2009	36,055	17,034	22,328	1,239	76,656	2,999	4.1%
2010	37,261	17,700	22,857	1,298	79,115	2,459	3.2%
2011	38,436	18,351	23,500	1,348	81,635	2,520	3.2%
2012	39,269	18,902	24,015	1,365	83,551	1,916	2.3%
2013	39,538	19,473	24,665	1,379	85,055	1,504	1.8%
2014	39,920	19,703	25,249	1,337	86,209	1,154	1.4%
2015	40,070	20,004	25,861	1,319	87,253	1,045	1.2%
2016	40,569	20,095	26,923	1,333	88,920	1,667	1.9%
2017	40,482	20,713	27,261	1,405	89,861	941	1.1%
2018	40,110	20,997	27,610	1,486	90,203	343	0.4%
2019	40,152	21,463	27,980	1,501	91,095	893	1.0%
2020	40,421	21,495	28,462	1,514	91,891	796	0.9%
2021	40,767	21,279	29,184	1,526	92,756	865	0.9%
2022	41,253	21,223	29,535	1,541	93,552	795	0.9%
2023	41,607	21,389	29,985	1,556	94,537	985	1.1%
2024	42,206	21,531	29,865	1,571	95,172	636	0.7%
2025	42,860	21,718	29,677	1,586	95,842	669	0.7%
2026	43,572	21,767	29,935	1,601	96,876	1,034	1.1%
2027	44,334	22,089	30,026	1,617	98,067	1,191	1.2%
2028	45,152	22,489	30,305	1,632	99,578	1,511	1.5%

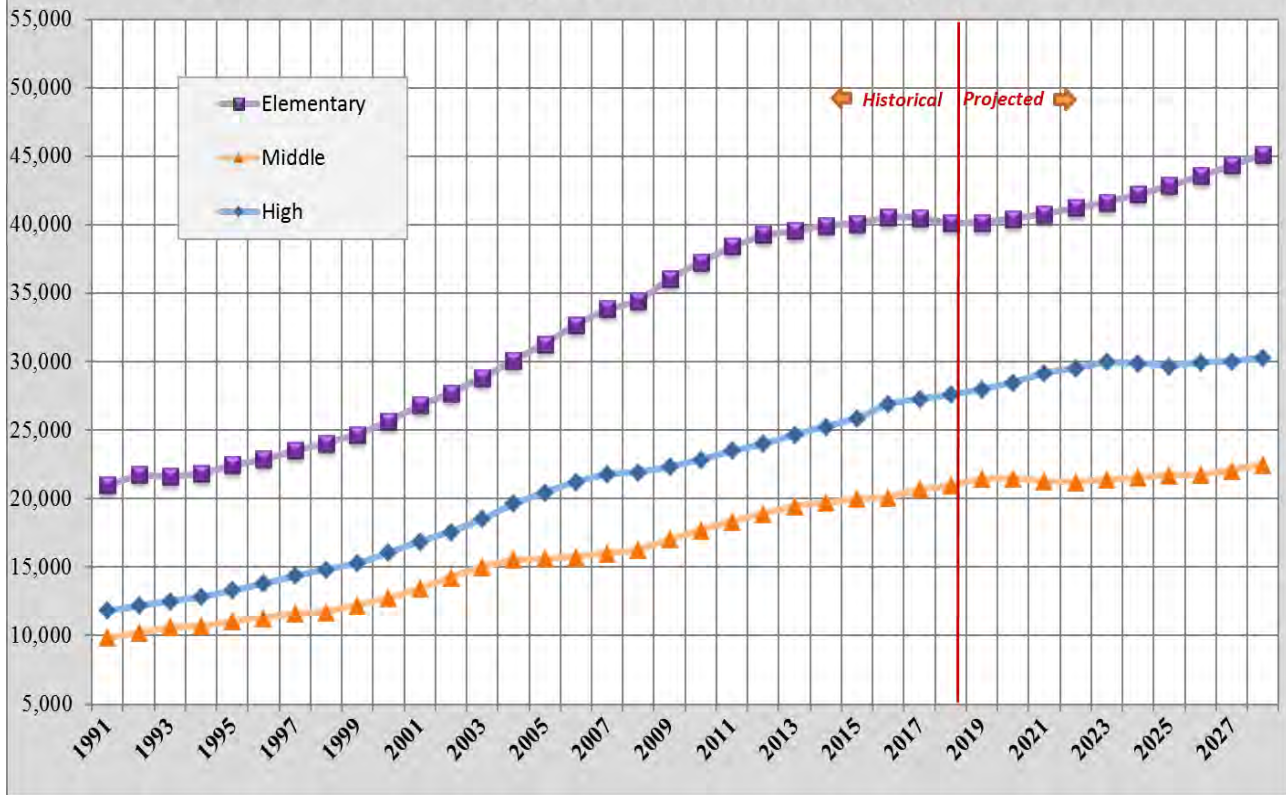
Prince William County Public Schools Historical and Projected Enrollment



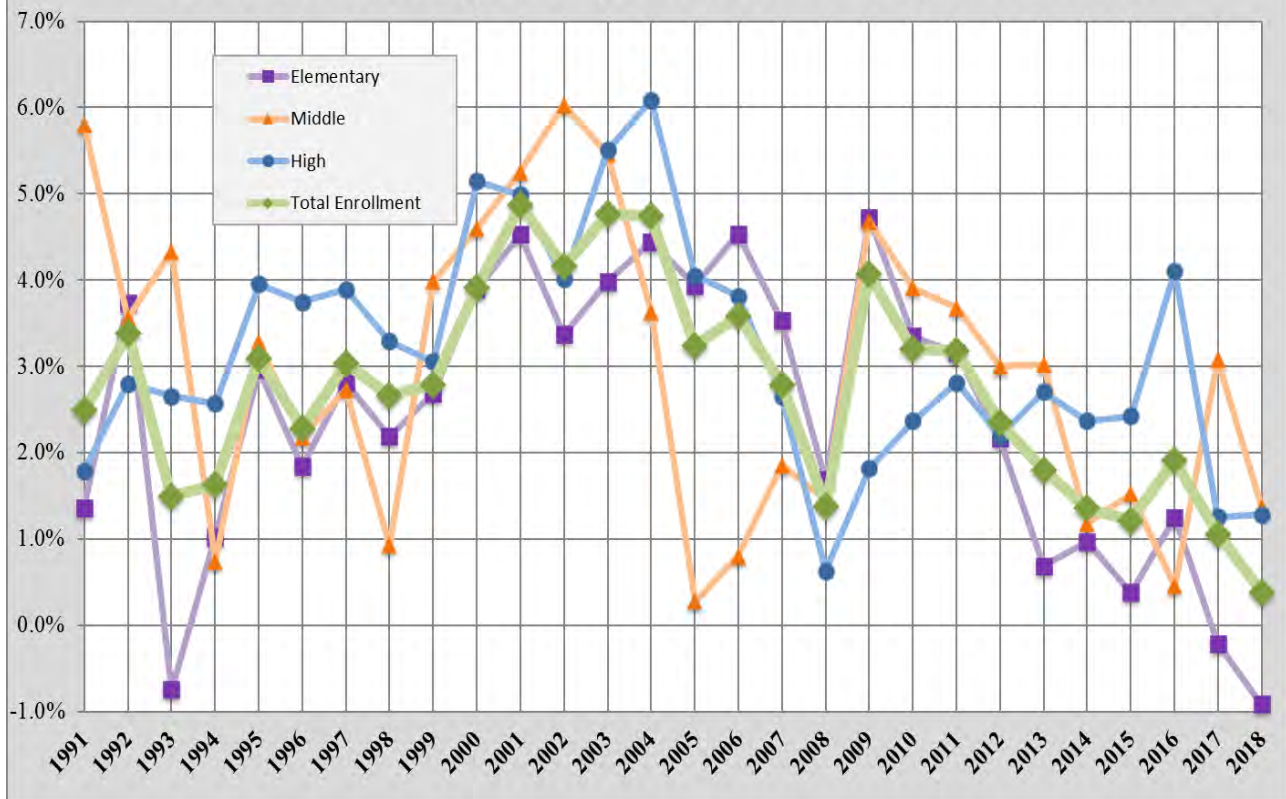
Prince William County Public Schools Annual Percentage Change in Enrollment



Prince William County Public Schools Historical and Projected Enrollment by School Level

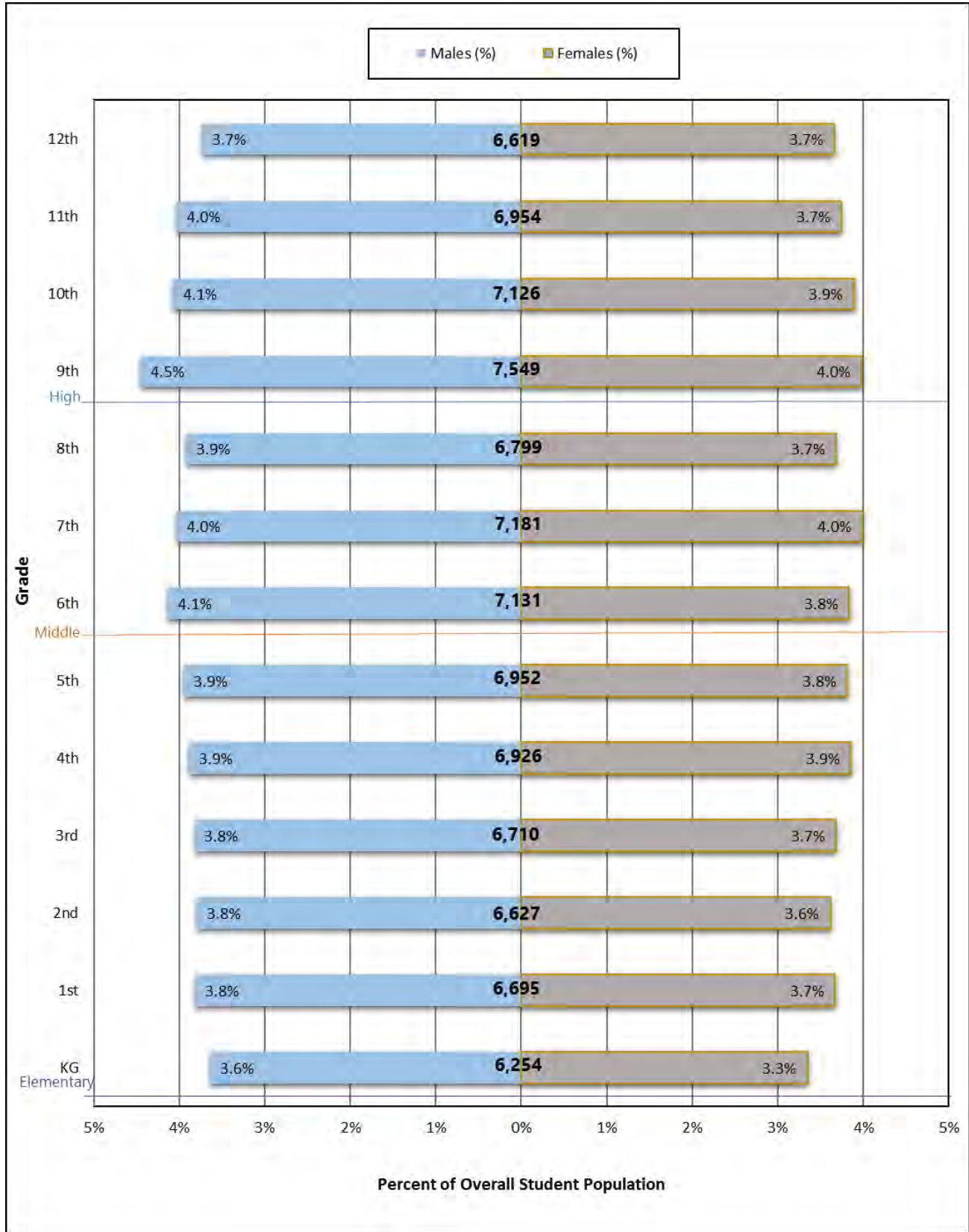


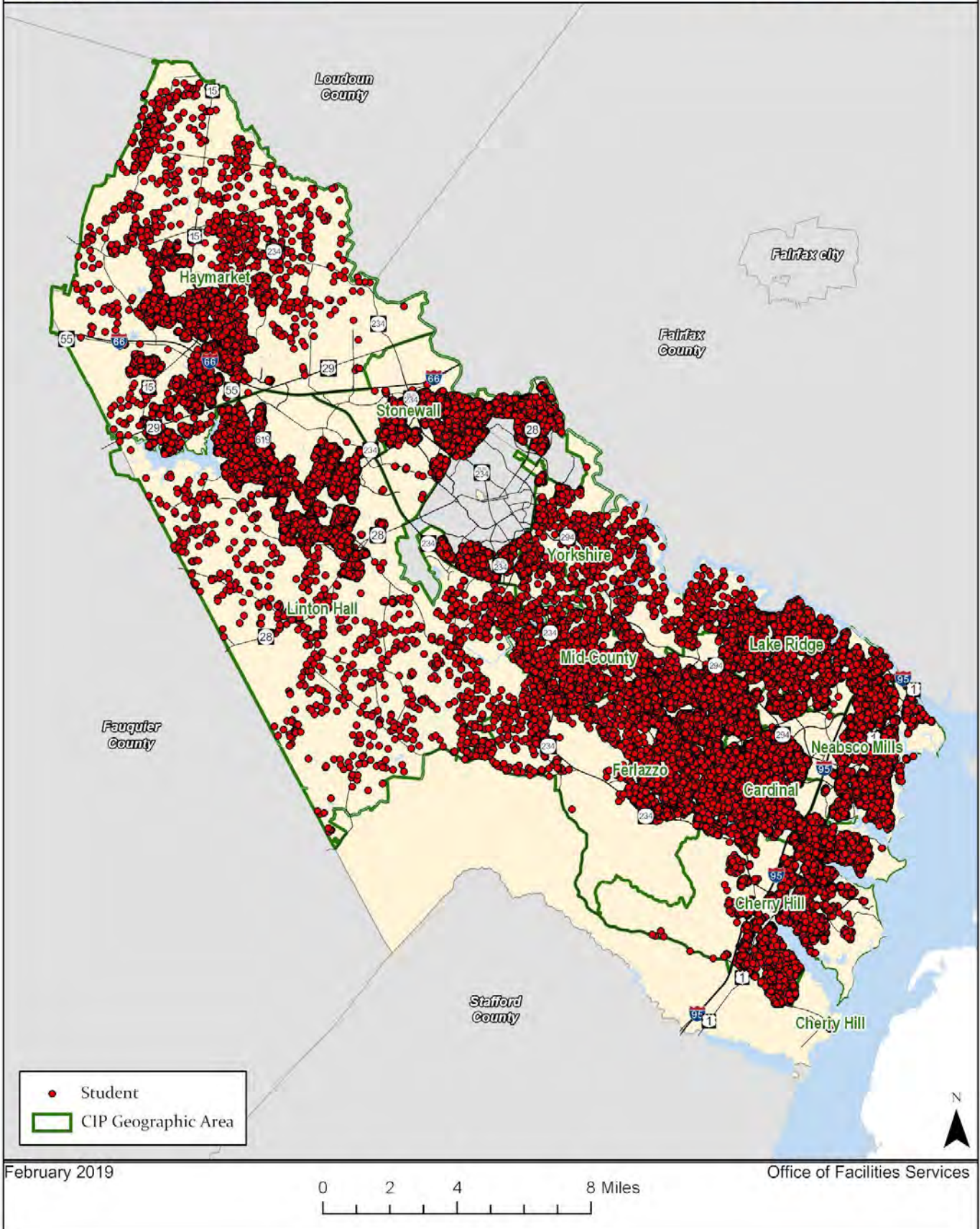
Prince William County Public Schools Annual Percentage Change in Enrollment by School Level



Student Enrollment by Grade and Gender

By Grade and Gender 2018-19



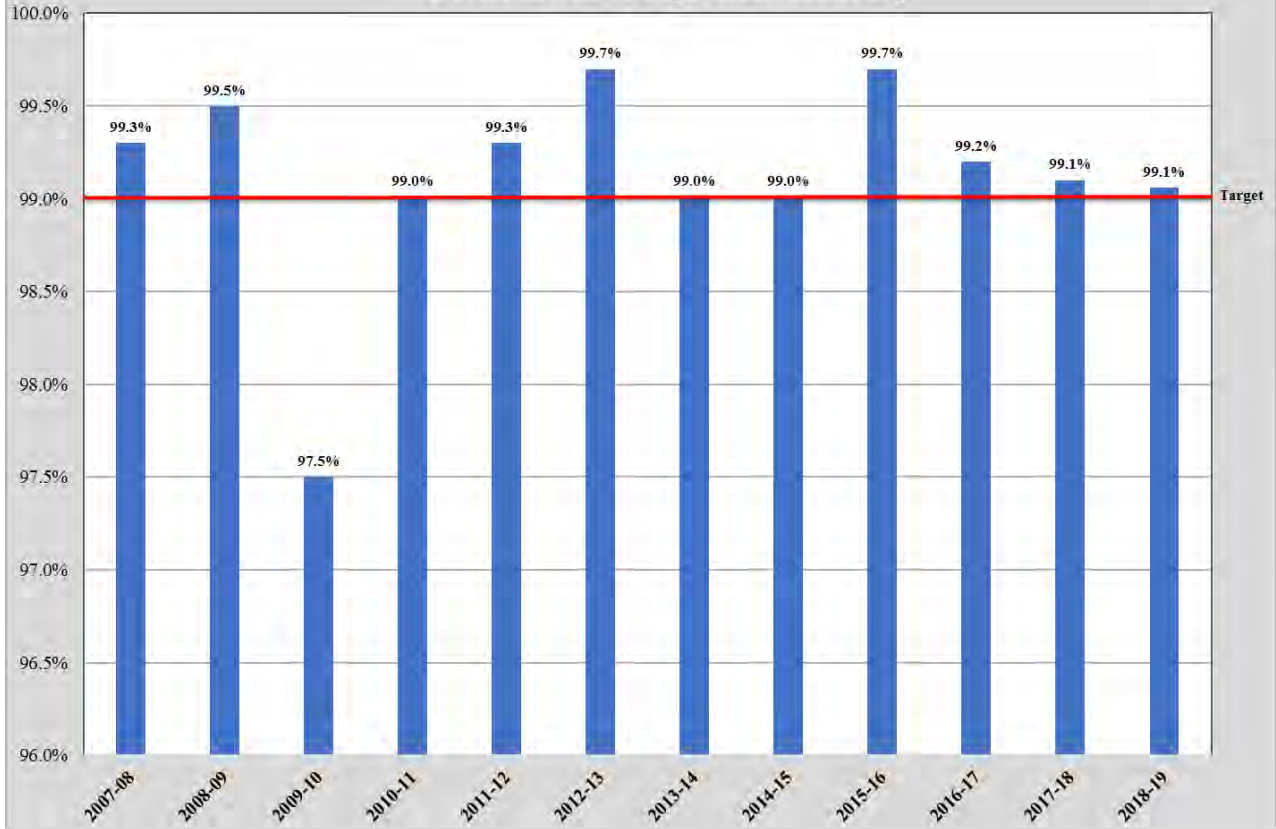


Student Enrollment Projections Error Rate Analysis

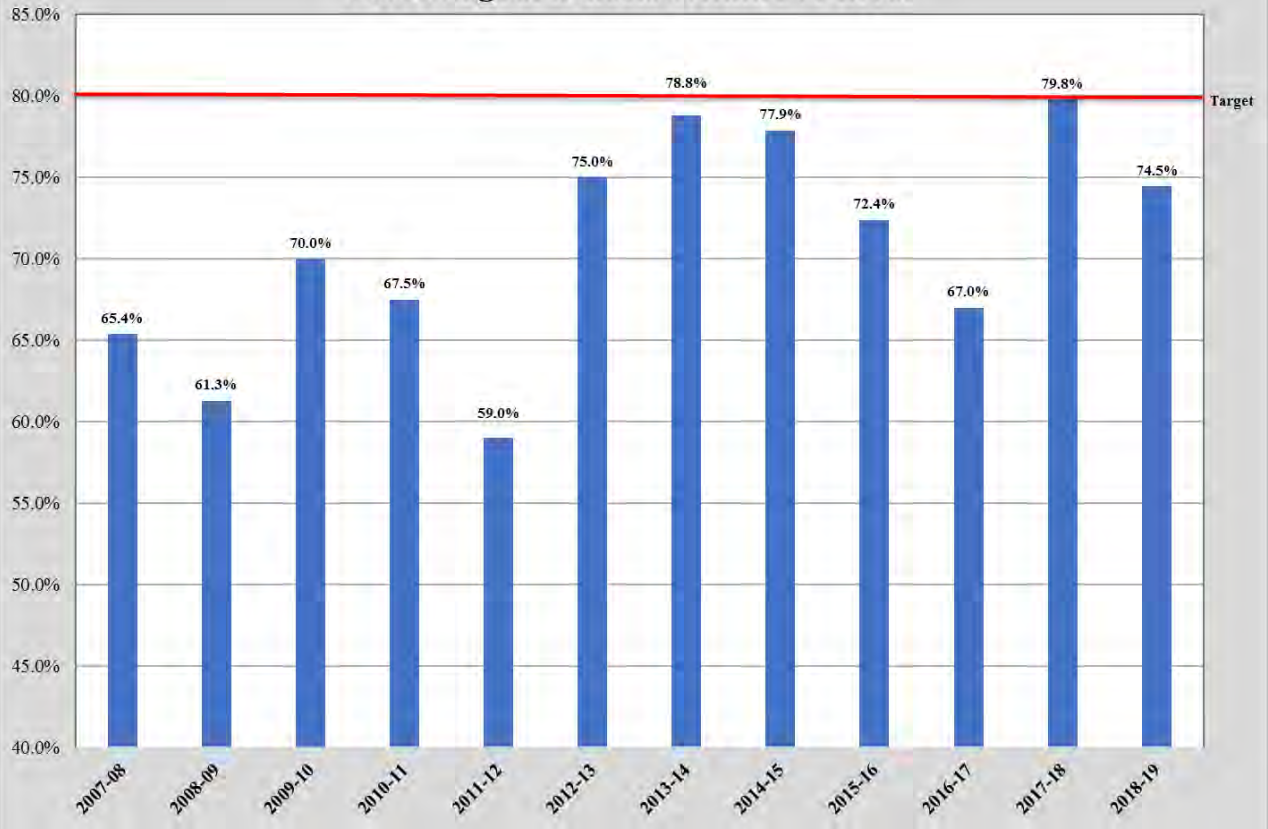
School Year	Actual Student Enrollment	Student Enrollment Projections									
		One Year Before			Two Years Before		Four Years Before		Five Years Before		
		Projection	Difference	% Error *	Projection	% Error *	Projection	% Error *	Projection	% Error *	
1984-85	35,864	36,046	182	-0.50%	35,215	1.84%	35,002	2.46%	34,672	3.44%	
1985-86	36,836	36,250	(586)	1.62%	35,228	4.56%	35,570	3.56%	35,408	4.03%	
1986-87	37,825	37,568	(257)	0.68%	36,713	3.03%	35,484	6.60%	35,977	5.14%	
1987-88	39,106	38,830	(276)	0.71%	37,418	4.51%	37,056	5.53%	35,844	9.10%	
1988-89	40,463	40,236	(227)	0.56%	39,586	2.22%	37,995	6.50%	37,669	7.42%	
1989-90	41,673	42,059	386	-0.92%	41,511	0.39%	40,369	3.23%	38,836	7.31%	
1990-91	42,176	42,268	92	-0.22%	42,984	-1.88%	42,565	-0.91%	41,163	2.46%	
1991-92	43,400	42,769	(631)	1.48%	45,230	-4.05%	44,223	-1.86%	43,656	-0.59%	
1992-93	44,868	44,697	(171)	0.38%	45,156	-0.64%	47,149	-4.84%	45,497	-1.38%	
1993-94	45,539	45,762	223	-0.49%	45,618	-0.17%	46,839	-2.78%	47,980	-5.09%	
1994-95	46,281	46,436	155	-0.33%	48,523	-4.62%	47,551	-2.67%	48,645	-4.86%	
1995-96	47,712	47,162	(550)	1.17%	47,255	0.97%	50,589	-5.69%	49,543	-3.70%	
1996-97	48,041	47,991	(50)	0.10%	46,928	2.37%	49,765	-3.46%	50,738	-5.32%	
1997-98	49,531	48,939	(592)	1.21%	49,033	1.02%	54,650	-9.37%	52,475	-5.61%	
1998-99	50,627	50,785	158	-0.31%	49,865	1.53%	48,731	3.89%	50,746	-0.23%	
1999-00	53,062	52,546	(516)	0.98%	53,102	-0.08%	52,567	0.94%	51,330	3.37%	
2000-01	55,139	54,269	(870)	1.60%	53,352	3.35%	53,038	3.96%	53,831	2.43%	
2001-02	57,823	57,026	(797)	1.40%	55,763	3.69%	54,788	5.54%	54,930	5.27%	
2002-03	60,229	59,916	(313)	0.52%	58,829	2.38%	55,688	8.15%	57,231	5.24%	
2003-04	63,109	62,391	(718)	1.15%	61,962	1.85%	58,059	8.70%	57,541	9.68%	
2004-05	66,093	65,721	(372)	0.57%	64,321	2.75%	62,185	6.28%	59,639	10.82%	
2005-06	68,234	68,988	754	-1.09%	68,181	0.08%	64,709	5.45%	63,717	7.09%	
2006-07	70,683	70,211	(472)	0.67%	71,511	-1.16%	67,804	4.25%	66,393	6.46%	
2007-08	72,654	72,187	(467)	0.65%	71,866	1.10%	71,555	1.54%	69,488	4.56%	
2008-09	73,657	73,321	(336)	0.46%	73,592	0.09%	75,914	-2.97%	74,270	-0.83%	
2009-10	76,656	74,736	(1,920)	2.57%	75,393	1.68%	74,840	2.43%	77,888	-1.58%	
2010-11	79,115	78,308	(807)	1.03%	75,996	4.10%	75,226	5.17%	75,433	4.88%	
2011-12	81,635	81,070	(565)	0.70%	79,866	2.21%	77,238	5.69%	76,766	6.34%	
2012-13	83,551	83,837	286	-0.34%	82,941	0.74%	79,079	5.66%	80,203	4.17%	
2013-14	85,055	85,926	871	-1.01%	86,191	-1.32%	83,659	1.67%	80,801	5.26%	
2014-15	86,209	87,108	899	-1.03%	88,420	-2.50%	86,614	-0.47%	85,436	0.90%	
2015-16	87,253	87,500	247	-0.28%	89,458	-2.46%	90,898	-4.01%	88,440	-1.34%	
2016-17	88,920	88,216	(704)	0.80%	88,777	0.16%	92,957	-4.34%	93,026	-4.41%	
2017-18	89,861	90,636	775	-0.86%	89,381	0.54%	93,460	-3.85%	94,793	-5.20%	
2018-19	90,203	91,054	851	-0.93%	92,282	-2.25%	91,496	-1.41%	95,615	-5.66%	
(MPE) Mean Percentage Error				0.36%		0.74%		1.39%		1.99%	
(MAPE) Mean Absolute Percentage Error				0.84%		1.95%		4.17%		4.59%	
10-Year (MPE) Mean Percentage Error				0.06%		0.09%		0.65%		0.34%	
10-Year (MAPE) Mean Absolute Percentage Error				0.96%		1.80%		3.47%		3.84%	

*A negative forecast error indicates that the projection was greater than the actual value.

Prince William County Public Schools
Divisionwide Projection Accuracy



Prince William County Public Schools
Percentage of Schools Within 5% Error



Housing Units in Residential Development
By Elementary School Attendance Area and Stage of Development
September 2018

Elementary School	Active				Planned				Rezoning Submitted				Total
	SF	TH	MF	Total	SF	TH	MF	Total	SF	TH	MF	Total	
Alvey	16			16						71		71	87
Ashland	65			65	4			4					69
Belmont			310	310	38	187		225			1,522	1,522	2,057
Bennett	39	117		156	80	112		192					348
Bristow Run					6			6	34	39		73	79
Buckland Mills		69	11	80	71	106		177	100	130		230	487
Cedar Point					272			272					272
Coles	19			19	37			37	18		205	223	279
Covington-Harper	530	274		804	291	680	1,550	2,521			170	170	3,495
Dale City					4			4					4
Dumfries	5		81	86	785	217		1,002					1,088
Ellis						12		12	270	438	1,220	1,928	1,940
Featherstone					16			16					16
Fitzgerald		12	241	253	17	386	500	903	18			18	1,174
Gravely	202			202	92			92					294
Haymarket		17	158	175	236			236		79	36	115	526
Henderson					41			41					41
Kilby					5		148	153		175	150	325	478
King	84			84					5			5	89
Leesylvania					23		550	573					573
Loch Lomond					34			34					34
Marshall					89			89	34			34	123
Marumscro Hills					81		262	343					343
Minnieville						18		18			144	144	162
Montclair					66			66					66
Mountain View	11			11					230			230	241
Mullen							20	20					20
Neabsco													
Nokesville School, The	148			148	563			563	462			462	1,173
Occoquan					111			111					111
Old Bridge					7			7					7
Parks					11			11	10			10	21
Pattie	48			48	10	16		26					74
Penn	131	12		143	15	100		115	12			12	270
Piney Branch			8	8							80	80	88
Potomac View					122			122					122
PW Parkway					161		306	467	17			17	484
River Oaks										112		112	112
Rockledge					98			98					98
Signal Hill	160		54	214	143	104		247	159	160	190	509	970
Sinclair			2	2		7		7					9
Springwoods					7			7					7
Swans Creek			50	50	72		73	145	16		135	151	346
Triangle	33	17		50	235	14	85	334			59	59	443
Tyler		40	22	62	24	94	167	285					347
Vaughan			26	26						25		25	51
Victory			512	512	64			64					576
Westridge					30			30					30
Williams					50			50			86	86	136
Wilson	33			33	39	30	163	232					265
Wood	12			12						75		75	87
Yorkshire			404	404	149			149	12			12	565
Yung	198	255		453	17			17	551	1,650	1,500	3,701	4,171
Total	1,734	813	1,879	4,426	4,216	2,083	3,824	10,123	1,948	2,954	5,497	10,399	24,948

Note:

Active = Rezoning approved by Board of County Supervisors and site development permit issued
Planned = Rezoning approved by Board of County Supervisors and proposed plans submitted
Rezoning Submitted = rezoning application submitted, CPA request submitted or initiated (if applicable), or no recent progress has occurred
Schools without additional residential development within their respective attendance areas are omitted

Housing Units in Residential Development
By Middle School Attendance Area and Stage of Development
September 2018

Middle School	Active				Planned				Rezoning Submitted				Total
	SF	TH	MF	Total	SF	TH	MF	Total	SF	TH	MF	Total	
Benton	215	12		227	210			210	64		205	269	706
Beville	84			84	11	100		111	5			5	200
Bull Run	188	295	22	505	34	94	167	295	230	450	700	1,380	2,180
Gainesville	38		520	558	23			23	551	1,200	880	2,631	3,212
Graham Park	86	17	81	184	1,030	247	85	1,362			59	59	1,605
Hampton					5	48	163	216					216
Lynn			336	336	186	187	148	521		200	1,672	1,872	2,729
Marsteller	12			12	336		20	356	34	552	1,220	1,806	2,174
Nokesville School, The	148			148	563			563	462			462	1,173
Parkside	199	117	458	774	406	228		634	441	160	190	791	2,199
Potomac	530	274	50	854	432	680	1,623	2,735	16	112	391	519	4,108
Reagan	201	86	169	456	389	106		495	100	280	36	416	1,367
Rippon		12	241	253	167	386	1,106	1,659	18			18	1,930
Saunders	33			33	77			77	10			10	120
Stonewall			2	2		7		7					9
Woodbridge					347		512	859	17		144	161	1,020
Total	1,734	813	1,879	4,426	4,216	2,083	3,824	10,123	1,948	2,954	5,497	10,399	24,948

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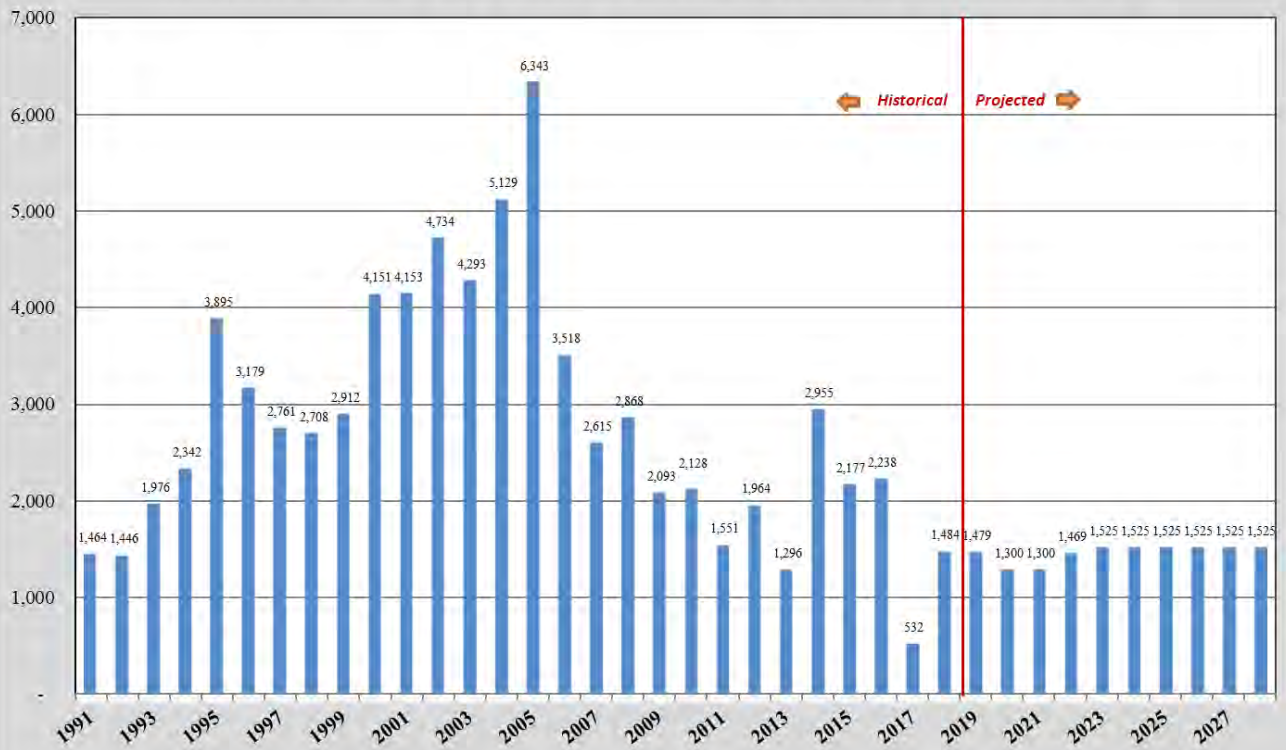
Housing Units in Residential Development
By High School Attendance Area and Stage of Development
September 2018

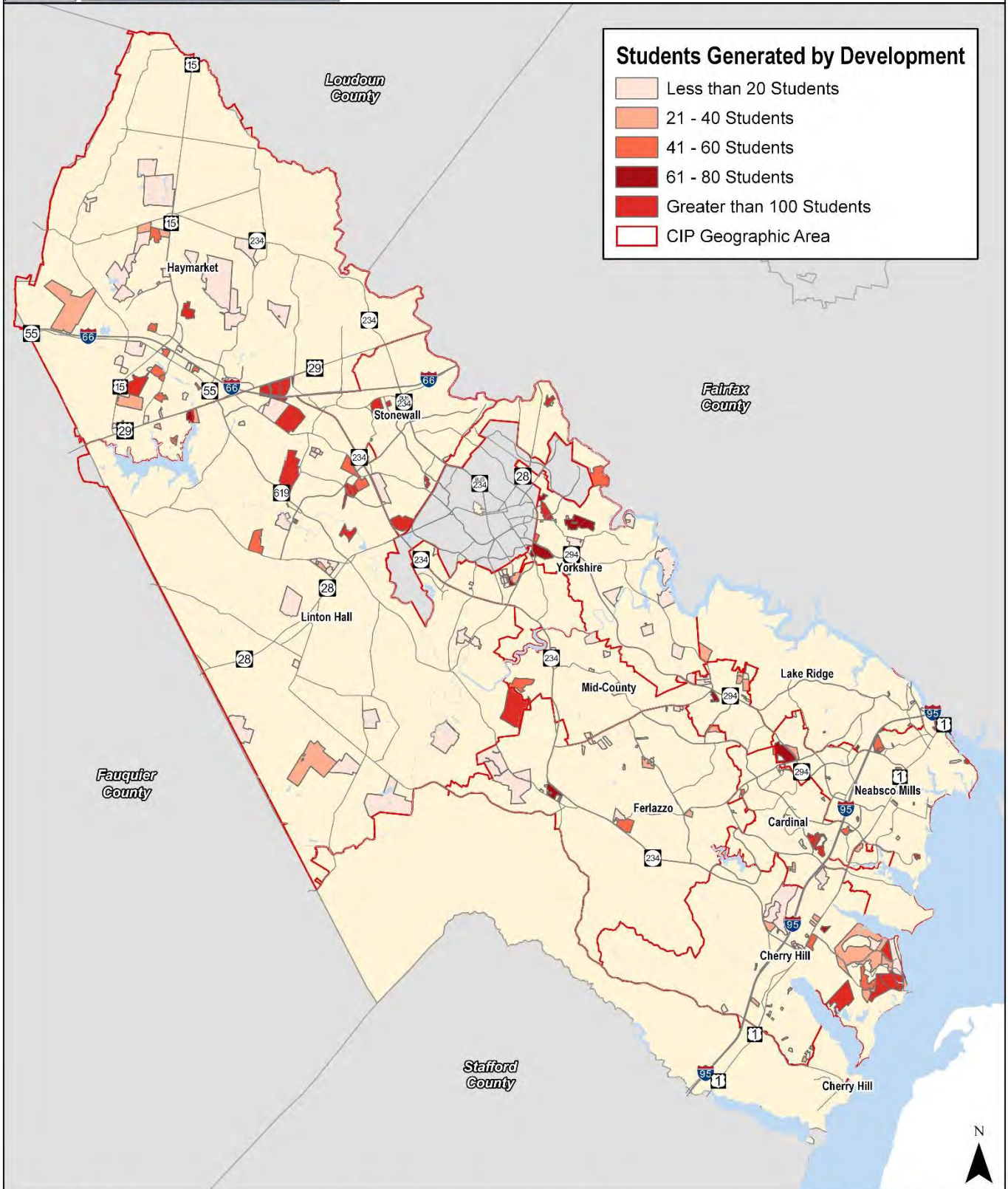
High School	Active				Planned				Rezoning Submitted				Total
	SF	TH	MF	Total	SF	TH	MF	Total	SF	TH	MF	Total	
Battlefield	229	82	180	491	423	94	167	684	330	600	736	1,666	2,841
Brentsville	148			148	872			872	462			462	1,482
Colgan	263	12		275	200	100		300	57		205	262	837
Forest Park	53	6	81	140	840	244	85	1,169			59	59	1,368
Freedom		12	577	589	258	573	1,460	2,291	18	25	1,522	1,565	4,445
Gar-Field				-	189	48	253	490	17		144	161	651
Hylton	69			69	64			64	10			10	143
Osborn Park	199	117	458	774	367	216		583	183	160	190	533	1,890
Patriot	12	44	11	67	66	106		172	34	244	80	358	597
Potomac	563	285	50	898	665	683	1,623	2,971	16	112	391	519	4,388
Stonewall Jackson	198	255	522	975	38	19	20	77	821	1,638	2,020	4,479	5,531
Woodbridge				-	234		216	450		175	150	325	775
Total	1,734	813	1,879	4,426	4,216	2,083	3,824	10,123	1,948	2,954	5,497	10,399	24,948

Note:

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Prince William County Historical and Projected Annual Housing Unit Change



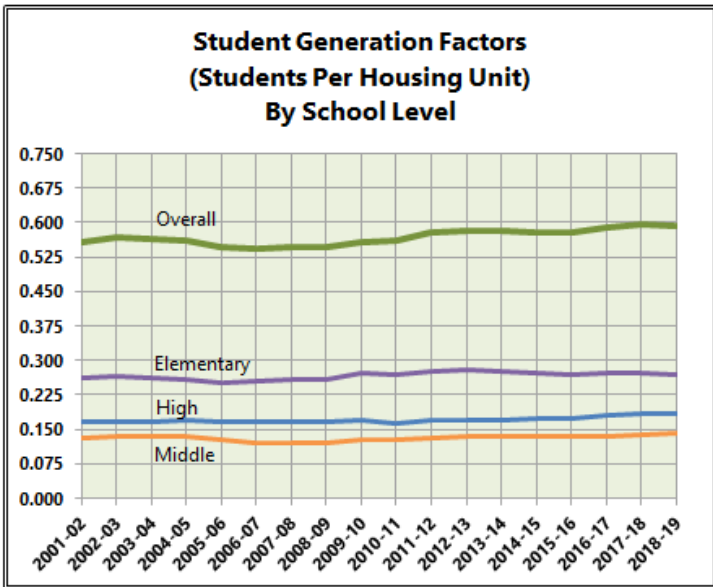
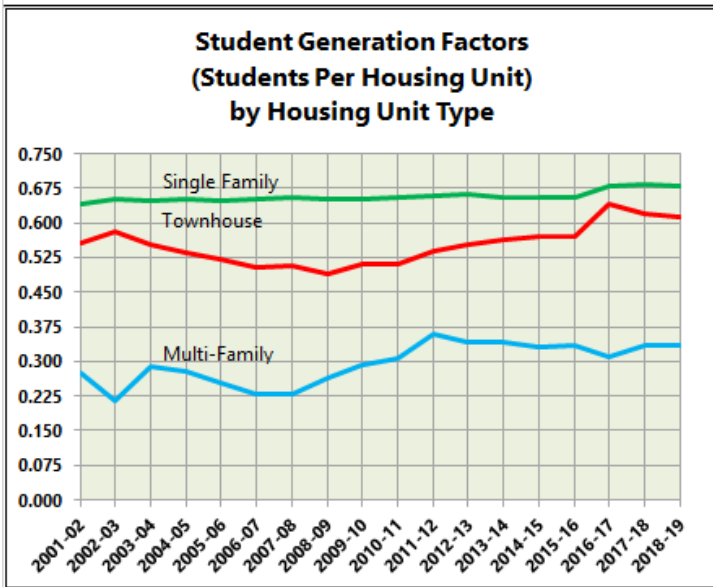


February 2019

0 2 4 8 Miles

Office of Facilities Services

Student Generation Factors By School Level and Housing Unit Type



Historical Data

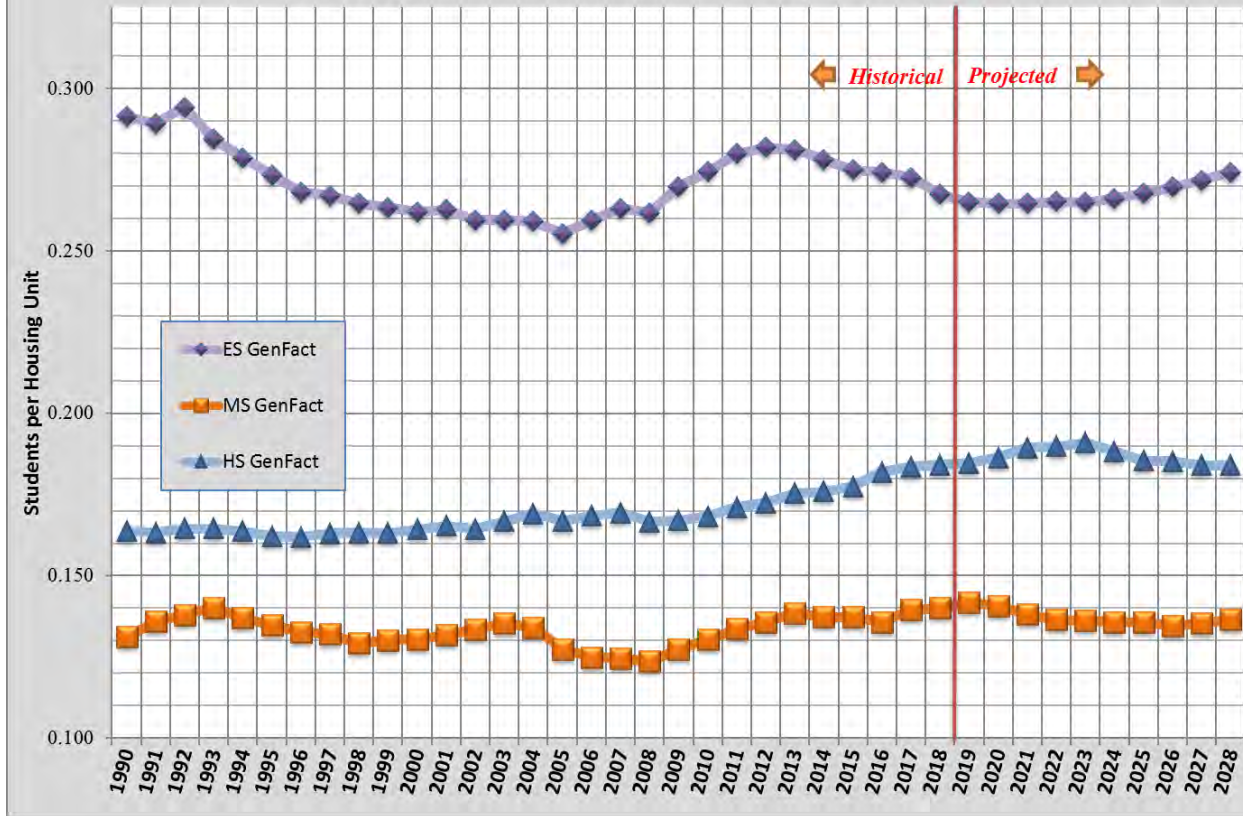
Year	School Type	Unit Type			Total
		Single Family	Townhouse	Multi-Family	
2018-19	Elementary	0.292	0.288	0.175	0.268
	Middle	0.163	0.144	0.075	0.140
	High	0.224	0.179	0.085	0.185
	Total	0.680	0.611	0.335	0.592
2010-11	Elementary	0.301	0.258	0.167	0.268
	Middle	0.152	0.111	0.067	0.127
	High	0.202	0.139	0.072	0.164
	Total	0.655	0.509	0.306	0.560
2016-17	Elementary	0.300	0.313	0.163	0.273
	Middle	0.159	0.145	0.064	0.135
	High	0.220	0.184	0.082	0.181
	Total	0.679	0.642¹	0.309¹	0.590
2008-09	Elementary	0.298	0.245	0.142	0.258
	Middle	0.148	0.107	0.055	0.122
	High	0.206	0.139	0.069	0.166
	Total	0.652	0.491	0.265	0.546
2014-15	Elementary	0.294	0.285	0.176	0.272
	Middle	0.156	0.128	0.070	0.134
	High	0.206	0.155	0.085	0.172
	Total	0.656	0.569	0.331	0.578
2006-07	Elementary	0.294	0.250	0.122	0.254
	Middle	0.148	0.111	0.048	0.122
	High	0.208	0.143	0.058	0.166
	Total	0.650	0.504	0.228	0.542
2012-13	Elementary	0.302	0.287	0.184	0.279
	Middle	0.156	0.120	0.075	0.133
	High	0.205	0.147	0.083	0.169
	Total	0.662	0.554	0.342	0.582
2004-05	Elementary	0.290	0.257	0.150	0.258
	Middle	0.157	0.128	0.062	0.134
	High	0.206	0.151	0.065	0.169
	Total	0.652	0.536	0.278	0.561

Note: 1) The 'Student Generation Factor' is a mathematical representation of the relationship between housing units in Prince William County and the number of students enrolled in Prince William County Public Schools on September 30 of each year. In other words, it is the number of enrolled students per total number of housing units by type.

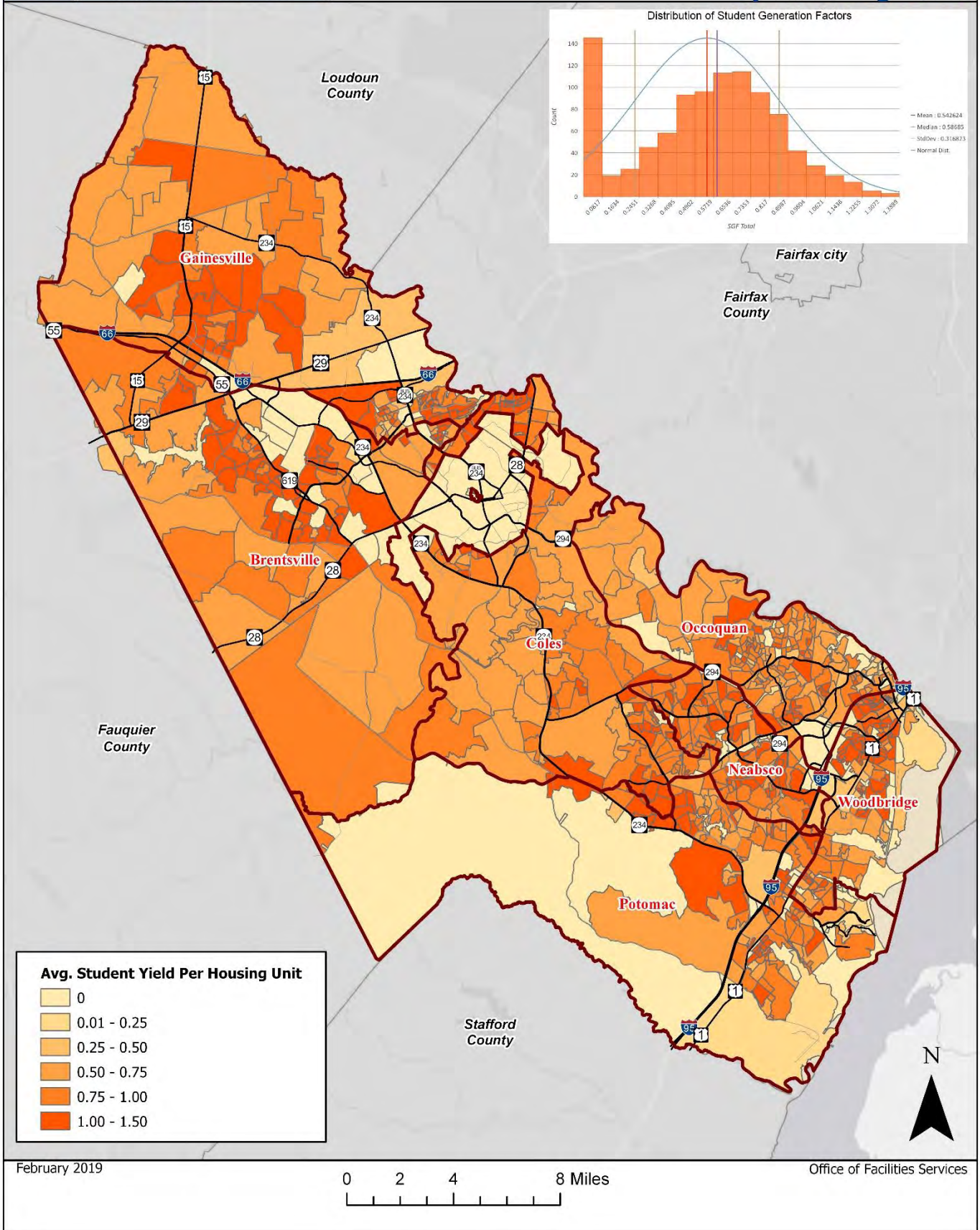
2) Numbers are rounded up to the nearest thousandth; thus totals, may be affected because of rounding.

¹ In 2016-17, approximately 7,000 condo-style townhouses and 2-over-2 units were reclassified from townhouse to multi-family, thus contributing to a notable increase in student yields of townhouse units and a decrease in student yields of multi-family units.

Prince William County Public Schools
Student Generation Factors by School Level



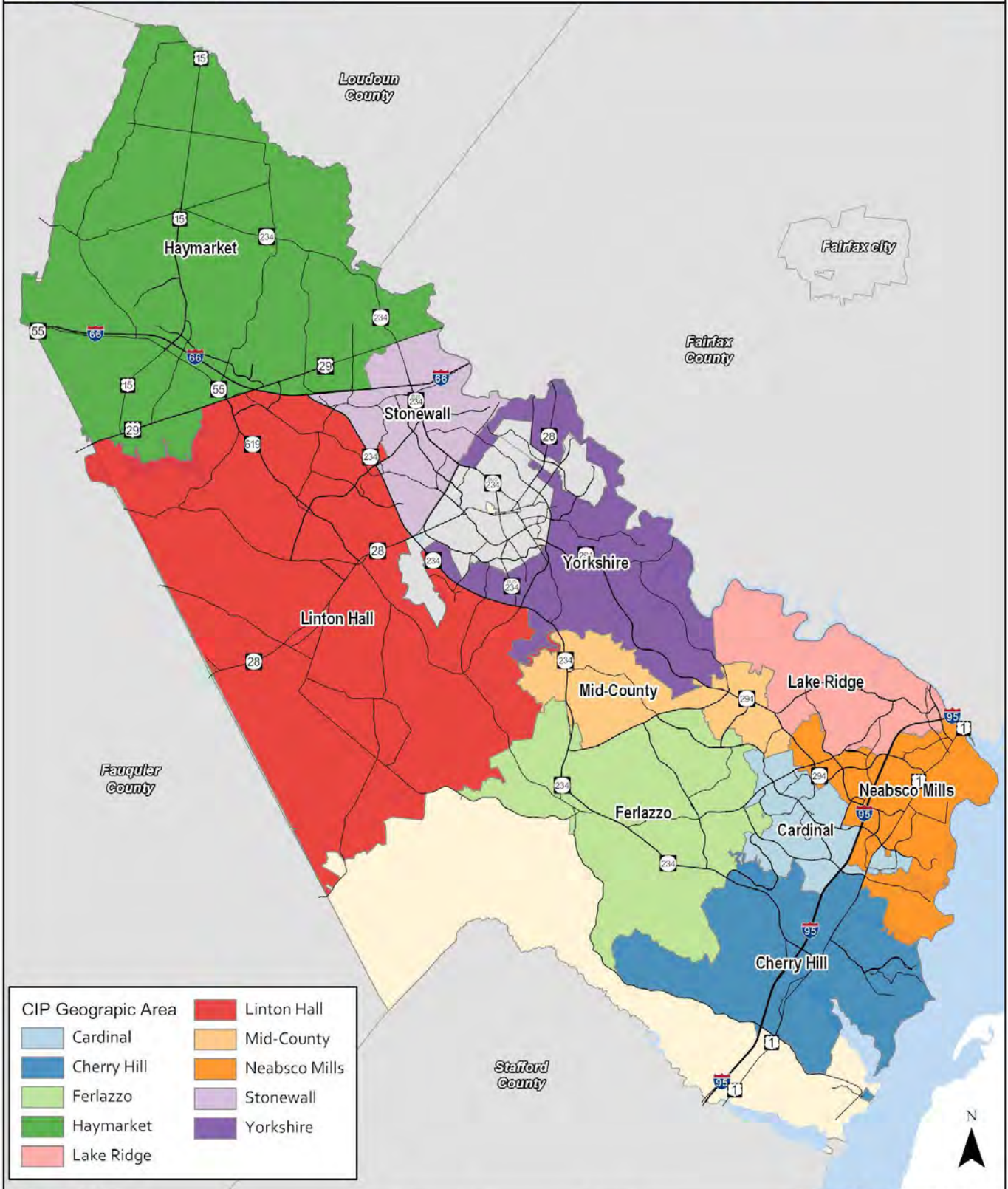
2018-19 Student Generation Factor by Planning Zone



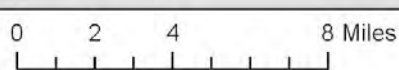
Elementary Schools
By CIP Geographic Areas

Geographic Area	Schools
Cardinal Area	Bel Air ES
	Dale City ES
	Fitzgerald ES
	Henderson ES
	Minnieville ES
	Neabsco ES
Cherry Hill Area	Covington-Harper ES
	Dumfries ES
	Pattie ES
	River Oaks ES
	Swans Creek ES
	Triangle ES
	Williams ES
Ferlazzo Area	Ashland ES
	Coles ES
	Enterprise ES
	King ES
	McAuliffe ES
	Montclair ES
	Parks ES
	Wilson ES
Haymarket Area	Alvey ES
	Buckland Mills ES
	Gravelly ES
	Haymarket ES
	Mountain View ES
	Tyler ES
Lake Ridge Area	Antietam ES
	Lake Ridge ES
	Occoquan ES
	Old Bridge ES
	PW Parkway (Jenkins)
	Rockledge ES
	Springwoods ES
Westridge ES	

Geographic Area	Schools
Linton Hall Area	Bristow Run ES
	Cedar Point ES
	Ellis ES
	Glenkirk ES
	Nokesville School, The
	Piney Branch ES
	Victory ES
	Wood ES
Yung ES	
Mid-County Area	Kerrydale ES
	Marshall ES
	Penn ES
Neabsco Mills / Northern Route 1	Belmont ES
	Featherstone ES
	Kilby ES
	Leesylvania ES
	Marumsc Hills ES
	Potomac View ES
Vaughan ES	
Stonewall Area	Mullen ES
	Sinclair ES
	Sudley ES
	West Gate ES
Yorkshire Area	Bennett ES
	Loch Lomond ES
	Signal Hill ES
	Yorkshire ES



February 2019



Office of Facilities Services

Fall Membership By Virginia School Division

Division Name	Division Membership, PK- Grade 12						Change 2013 to 2018			
	2018-19 ¹	2017-18	2016-17	2015-16	2014-15	2013-14	Number	Rank in Virginia	Percent	Rank in Virginia
Alexandria City Public Schools	15,968	15,802	15,418	14,857	14,359	13,723	2,245	6	16.4%	3
Arlington County Public Schools	27,434	26,975	26,176	25,365	24,561	23,500	3,934	4	16.7%	2
Charlottesville City Public Schools	4,561	4,529	4,478	4,382	4,356	4,340	221	22	5.1%	16
Chesapeake City Public Schools	40,898	40,656	40,192	39,944	39,715	39,750	1,148	11	2.9%	25
Chesterfield County Public Schools	61,608	60,976	60,103	59,705	59,754	59,214	2,394	5	4.0%	20
Culpeper County Public Schools	8,235	8,210	8,204	8,135	8,079	8,083	152	25	1.9%	34
Fairfax County Public Schools	187,830	188,591	187,510	185,856	185,563	183,438	4,392	3	2.4%	29
Falls Church City Public Schools	2,621	2,680	2,672	2,519	2,465	2,426	195	24	8.0%	10
Fauquier County Public Schools	11,189	11,144	11,078	11,155	11,167	11,147	42	36	0.4%	43
Fredericksburg City Public Schools	3,710	3,617	3,581	3,532	3,466	3,457	253	20	7.3%	12
Harrisonburg City Public Schools	6,440	6,301	6,188	5,924	5,635	5,392	1,048	9	19.4%	1
Henrico County Public Schools	51,523	51,625	51,425	51,534	50,972	50,569	954	11	1.9%	33
Loudoun County Public Schools	82,238	80,965	78,713	76,251	73,438	70,844	11,394	1	16.1%	4
Manassas City Public Schools	7,723	7,820	7,713	7,605	7,476	7,242	481	17	6.6%	13
Manassas Park City Public Schools	3,724	3,723	3,588	3,443	3,359	3,216	508	14	15.8%	5
Prince William County Public Schools	90,876	90,595	89,378	87,823	86,664	85,476	5,400	2	6.3%	15
Spotsylvania County Public Schools	23,683	23,808	23,617	23,731	23,887	23,838	-155	84	-0.7%	52
Stafford County Public Schools	29,485	29,113	28,679	28,098	27,807	27,461	2,024	7	7.4%	11
Virginia Beach City Public Schools	68,624	68,986	69,085	69,777	70,121	70,556	-1,932	131	-2.7%	68
State Totals	1,290,513	1,293,049	1,288,481	1,284,680	1,280,978	1,274,265	16,248		1.3%	

Source: Virginia Department of Education, Fall Membership Report.

Note: Excluded from the September 30 Fall Membership count are special education preschool pupils, pupils in hospitals, clinics or detention homes, and local programs, such as vocational and alternative education centers (i.e., centers or schools that receive, but do not officially enroll students).

¹ Starting in the 2018-19 School Year the Virginia Department of Education changed their Fall Membership Report. The report no longer includes Post-Graduate students from their enrollment data in order to standardize reporting. Our data from 2013 through 2017 still include Post-Graduate students.

APPENDIX C

Identified School Sites

Identified Capital Improvement Sites

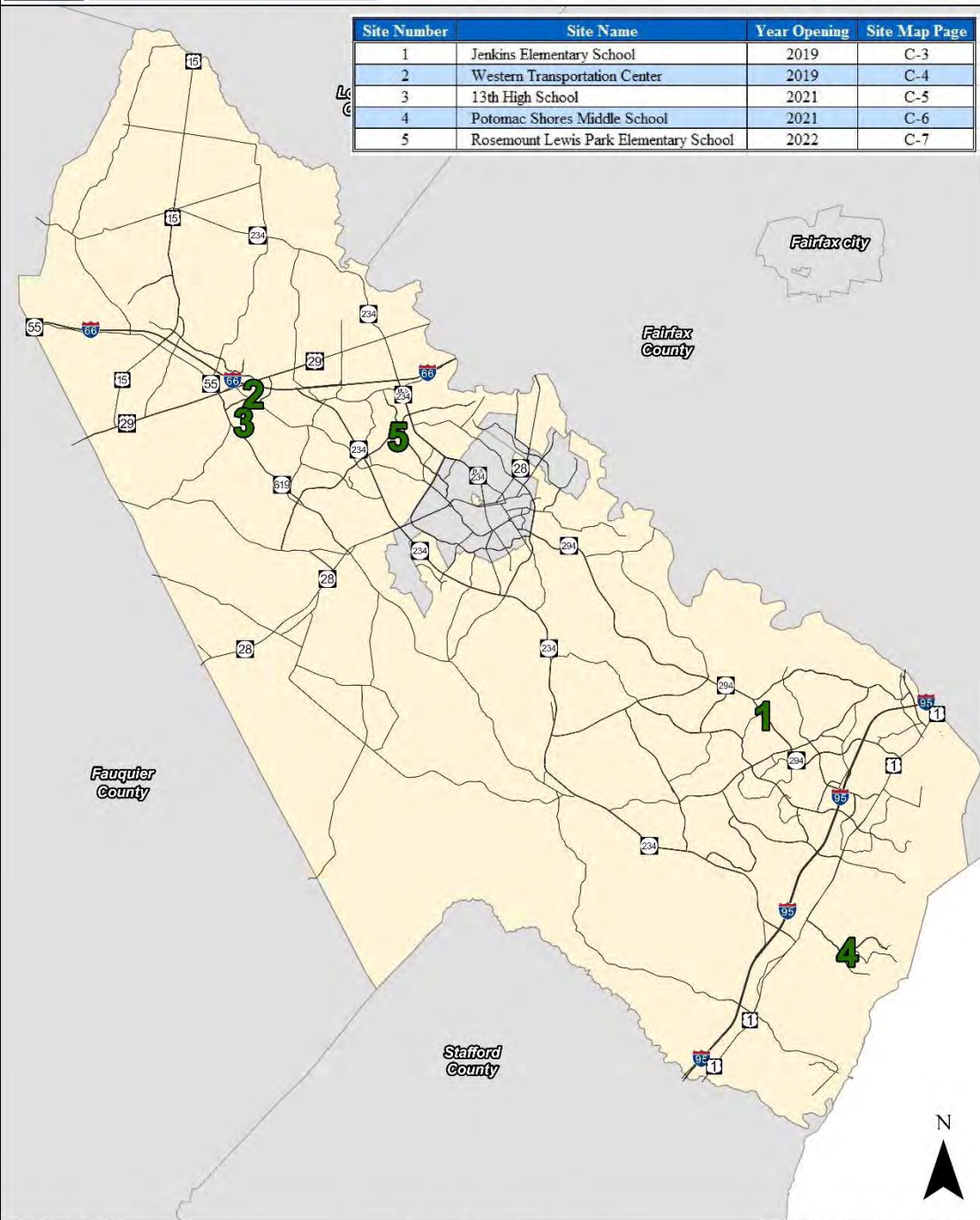
- Overall Map of Sites Identified in the Capital Improvements Program
 - John D. Jenkins Elementary School (2019)
 - Western Transportation Center (2019)
 - Potomac Shores Middle School (2021)
 - 13th High School (2021)
 - Rosemount Lewis Park Elementary School (2022)

Capital Improvement Site Maps

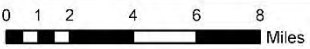
Appendix C details the Capital Improvement sites that have been acquired by the School Division. The year the facilities are scheduled to open at the identified site is shown on the site map and the overall map (2)

New School Facilities Identified in the Capital Improvements Program (CIP)

Site Number	Site Name	Year Opening	Site Map Page
1	Jenkins Elementary School	2019	C-3
2	Western Transportation Center	2019	C-4
3	13th High School	2021	C-5
4	Potomac Shores Middle School	2021	C-6
5	Rosemount Lewis Park Elementary School	2022	C-7



February 2019



Office of Facilities Services

John D. Jenkins Elementary School (2019)

Project Description

Address: 4060 Prince William Parkway, Woodbridge

Magisterial District: Occoquan

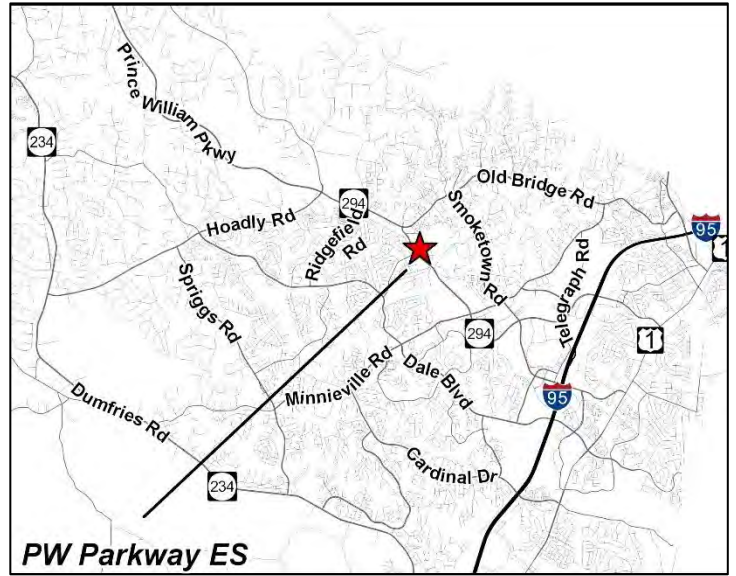
Acreage: 17.06 acres, including 2.12 acres of Chinn Park Property transferred by the County for a soccer field

Project Budget: \$32,685,000

Funding Source: Virginia Public School Authority Bond (VPSA) FY17, FY18, FY19

Architect: Moseley Architects

Contractor: Dustin Construction



School Details

Square Feet: 100,000

Educational Programs: Grade K-5, 38 Classrooms, 7 resource rooms, 3 fine arts rooms, science and computer lab, media center, gym/cafeteria, clinic, administration area, and activity room.

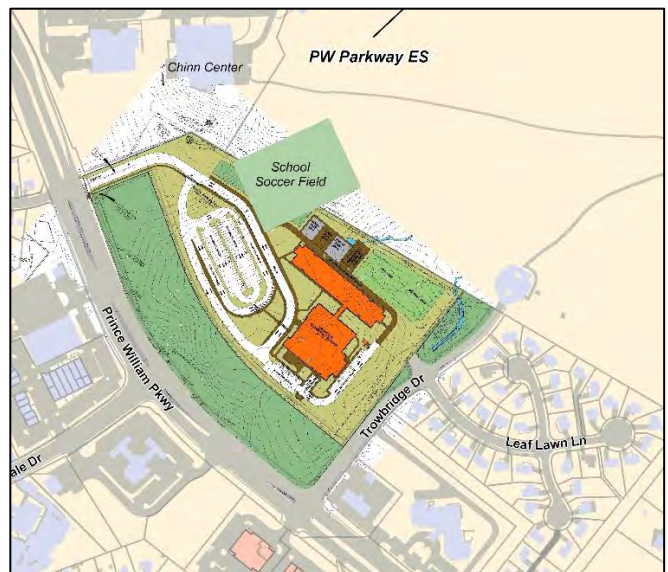
Project Schedule

Public Facility Review Approval: February 15, 2017

Contract Awarded: February 2018

Construction Start: Spring 2018

Scheduled Completion: September 2019



Western Transportation Facility (2019)

Project Description

Address: 5728 Wellington Road, Gainesville

Magisterial District: Brentsville

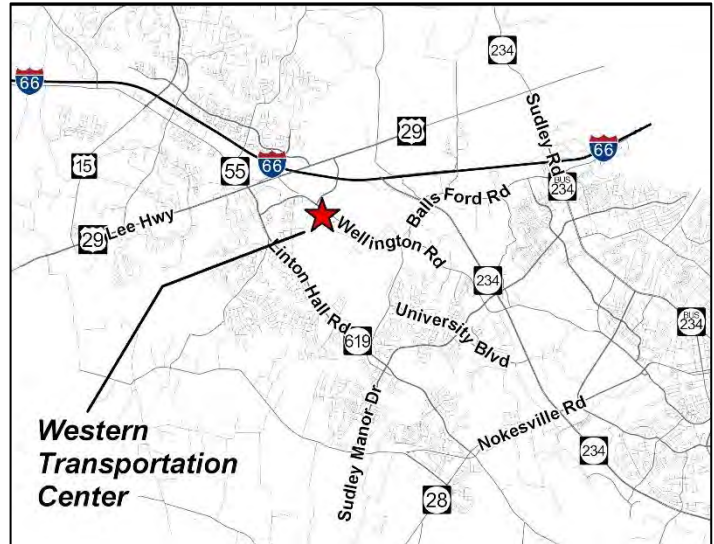
Acreage: 16.7 acres

Project Budget: \$12,500,000

Funding Source: Virginia Public School Authority Bond (VPSA) FY17, FY18, FY19

Architect: Moseley Architects

Contractor: Taft Construction Inc.



School Details

Square Feet: 15,860

Buildings/Lot: Maintenance building with 6 bus service bays and supporting office space, a bus washing facility, a refueling facility, and paved parking for 174 buses and 226 cars. Approx. 18 employees on site.

Project Schedule

Public Facility Review Approval: October 2016

Contract Awarded: June 2018

Construction Start: March 2018

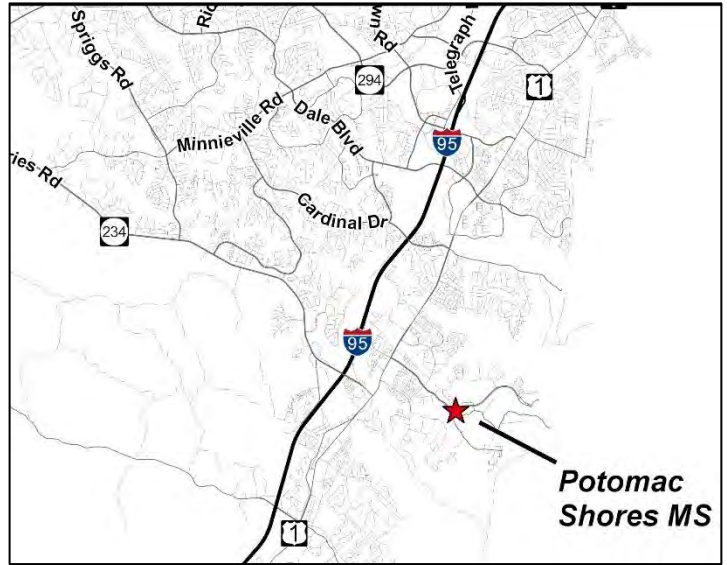
Scheduled Completion: September 2019



Potomac Shores Middle School (2021)

Project Description

Address:	17851 Woods View Drive, Dumfries
Magisterial District:	Potomac
Acreage:	52.52
Project Budget:	\$64,119,000
Funding Source:	Virginia Public School Authority Bond (VPSA) FY19, FY20, FY21
Architect:	Moseley Architects
Contractor:	V. F. Pavone

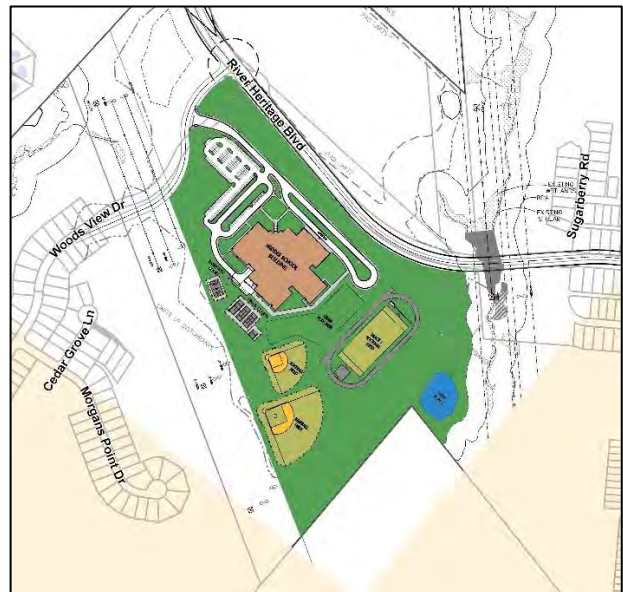
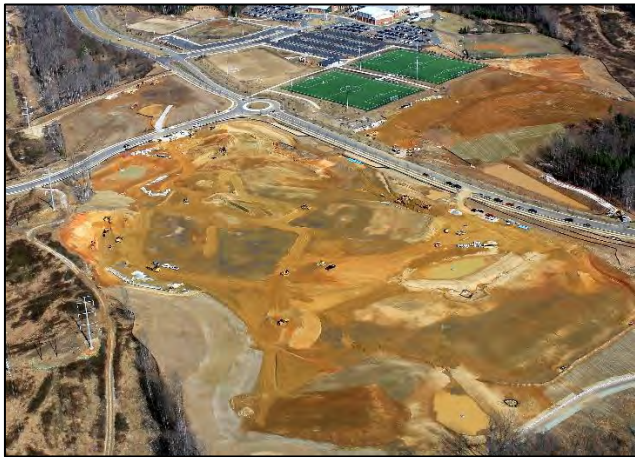


School Details

Square Feet:	197,954
Educational Programs:	Grade 6-8, 3-story academic grade house arrangement; academic classrooms, art and CTE rooms, labs, maker spaces, group activity rooms, auditorium (800 seats), cafeteria, gymnasium, administrative area, clinic, stadium and sports fields.

Project Schedule

Public Facility Review Approval:	Proffered Site
Contract Awarded:	November 7, 2018
Construction Start:	February 2019
Scheduled Completion:	September 2021



13th High School (2021)

Project Description

Address: 13150 University Boulevard, Gainesville

Magisterial District: Brentsville

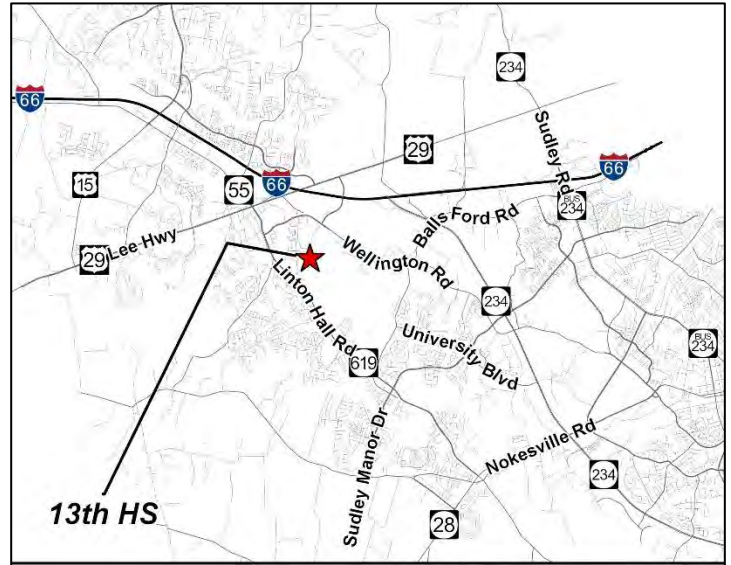
Acreage: 83.52

Project Budget: \$127,400,000

Funding Source: Virginia Public School Authority Bond (VPSA) FY17, FY18, FY19, FY20, FY21

Architect: Moseley Architects

Contractor: Dustin Construction Inc.



School Details

Square Feet: 334,885

Educational Programs: Grades 9-12, academic classrooms, fine arts rooms, science and computer labs, media center, vocational shops, auditorium (1,221 seats), stadium with artificial turf, competition and auxiliary sports fields, tennis courts, green roof, administrative area, clinic. Pedestrian connectivity from Gainesville MS to HS.

Project Schedule

Public Facility Review Approval: June 21, 2017

Contract Awarded: November 28, 2018

Construction Start: February 2019

Scheduled Completion: September 2021



Rosemount Lewis Park Elementary School (2022)

Project Description

Address: 11000 Crestwood Drive and 8200 Ashton Ave. Manassas

Magisterial District: Brentsville

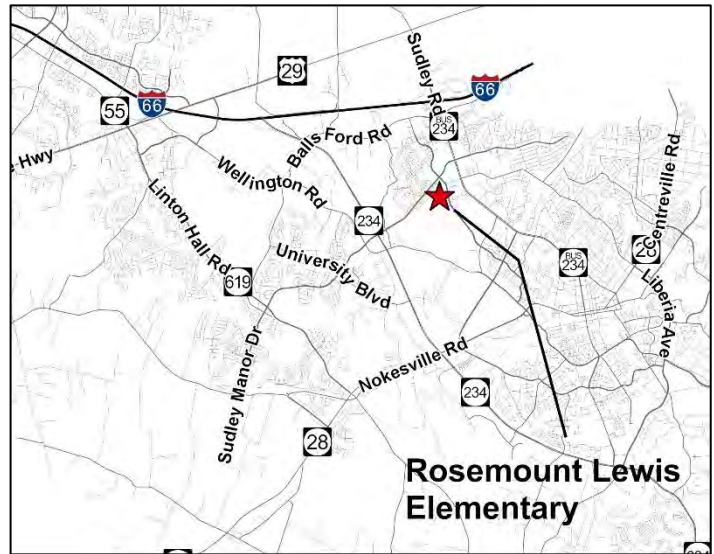
Acreage: 19.58

Project Budget: \$36,980,000

Funding Source: Virginia Public School Authority Bond (VPSA) FY20, FY21, FY22

Architect: TBD

Contractor: TBD



School Details

Square Feet: 100,000 multi-story

Grade K-5, classrooms, resource rooms, fine arts rooms, science and computer labs, media center, gym/cafeteria, activity room, administration area, and clinic.

Educational Programs:

Project Schedule

Public Facility Review Approval: June 2019 (Schedule)

Contract Awarded: TBD

Construction Start: TBD

Scheduled Completion: September 2022



School Construction Financial Data

School Construction Financial Data

- School Construction Projects by Types of Expenditures
- Report of Bond Expenditures
- Commonwealth of Virginia Comparative School Construction Cost Data
 - New Elementary Schools
 - New Middle Schools
 - New High Schools
- Elementary School Construction Cost Comparatives

School Construction Projects by Types of Expenditures

School Construction Projects Types of Expenditures FY2012 to FY2019

PWCS Project Name	Opening Date	CIP Construction Project Budget	Construction Expenditures						Total Project Costs Outside of Construction Contract	Total Construction Expenditures	Operating Fund / Start Up Costs ⁷	Site Acquisition Costs ⁸	Total Project Costs
			Construction Contract Bid ¹	Project Costs Outside of Construction Contract									
				Construction Contract Change Order Costs ²	Temporary Employees ³	Engineering Services ⁴	Furnishings & Equipment ⁵	Other Non-Construction Contract Costs ⁶					
13th High School	Sep-21	\$ 127,400,000	\$ 108,500,000	\$ -	\$ -	\$ 4,874,137	\$ -	\$ 1,045,343	\$ 5,919,480	\$ 114,419,480		\$ 16,565,582	
Potomac Shores Middle	Sep-21	\$ 64,119,000	\$ 52,474,000	\$ -	\$ 48,065	\$ 2,419,025	\$ -	\$ 554,784	\$ 3,021,874	\$ 55,495,874		\$ -	
Western Transportation Center	Sep-19	\$ 12,500,000	\$ 11,677,000	\$ 623,196	\$ 105,391	\$ 811,578	\$ -	\$ 328,952	\$ 1,869,117	\$ 13,546,117			
Parkway Elementary	Sep-19	\$ 32,686,000	\$ 27,209,000	\$ 569,571	\$ 58,816	\$ 1,374,190	\$ 12,446	\$ 629,108	\$ 2,644,131	\$ 29,853,131		\$ 8,027,397	
Independence Non-Traditional	Sep-18	\$ 35,850,000	\$ 27,180,000	\$ 1,458,528	\$ 180,077	\$ 2,112,436	\$ 2,389,738	\$ 2,537,642	\$ 8,678,422	\$ 35,858,422		\$ -	
Covington-Harper Elementary	Sep-17	\$ 29,374,000	\$ 20,831,000	\$ (15,314)	\$ 21,731	\$ 1,155,231	\$ 1,785,236	\$ 536,680	\$ 3,483,564	\$ 24,314,564	\$ 434,000	\$ -	
Kilby Elementary Replacement	Sep-17	\$ 31,476,000	\$ 21,888,000	\$ 86,297	\$ 222,608	\$ 1,371,454	\$ 1,580,106	\$ 1,197,695	\$ 4,458,160	\$ 26,346,160	\$ -	\$ 135,398	
Wilson Elementary	Sep-16	\$ 28,534,000	\$ 20,753,000	\$ (16,905)	\$ 63,671	\$ 1,205,054	\$ 1,579,018	\$ 886,040	\$ 3,716,878	\$ 24,469,878	\$ 425,000	\$ -	\$ 24,894,878
Maintenance Facility	Sep-16	\$ 11,444,000	\$ 8,074,000	\$ 37,561	\$ 130,361	\$ 1,321,210	\$ 322,155	\$ 524,956	\$ 2,336,244	\$ 10,410,244	\$ -	\$ -	\$ 10,410,244
Colgan High School	Sep-16	\$ 110,943,000	\$ 97,907,000	\$ 145,919	\$ 521,568	\$ 5,126,308	\$ 4,776,207	\$ (6,686,098)	\$ 3,883,904	\$ 101,790,904	\$ 1,988,547	\$ 8,785,796	\$ 112,565,247
Yung Elementary	Sep-15	\$ 25,987,000	\$ 20,286,000	\$ 54,809	\$ 197,660	\$ 1,004,729	\$ 1,412,402	\$ 770,928	\$ 3,440,527	\$ 23,726,527	\$ 419,000	\$ 3,345,844	\$ 27,491,371
Haymarket Elementary	Sep-14	\$ 27,663,000	\$ 18,788,000	\$ (262,583)	\$ 135,764	\$ 1,133,312	\$ 1,120,361	\$ 994,640	\$ 3,121,494	\$ 21,909,494	\$ 339,295	\$ 16,679	\$ 22,265,468
Nokesville School, The	Sep-14	\$ 31,000,000	\$ 28,402,000	\$ 174,854	\$ 124,920	\$ 2,252,698	\$ 1,363,551	\$ 2,213,724	\$ 6,129,747	\$ 34,531,747	\$ 230,000	\$ 236,665	\$ 34,998,412
PACE West Special	Sep-12	\$ 11,526,000	\$ 7,698,000	\$ 265,453	\$ 156,019	\$ 753,631	\$ 644,474	\$ 882,705	\$ 2,702,282	\$ 10,400,282	\$ -	\$ 93,537	\$ 10,493,819
Reagan Middle	Sep-12	\$ 26,382,000	\$ 18,914,000	\$ 196,592	\$ 188,871	\$ 1,017,882	\$ 2,178,833	\$ 1,442,048	\$ 5,024,226	\$ 23,938,226	\$ 719,000	\$ 4,261	\$ 24,661,487

¹ Construction contract to build the facility; may include site preparation work, road improvements, and other construction items as specified in the bid documents

² Change orders include errors and omissions, charges initiated by the owner, inspection outcomes, school-based staff generated changes, and unanticipated site conditions

³ On-site construction project managers, custodial services

⁴ Architectural and Engineering Services, traffic analyses, environmental analyses, archeological studies

⁵ Outfitting costs for desks, smart-boards, office furniture, computers, servers, athletic and PE equipment, lab equipment, and other equipment that is not part of the physical structure of the building

⁶ Utility Fees, easements, traffic signalization, inspection services, stormwater fees, wetlands mitigation and monitoring, erosion controls, and other unclassified expenses

⁷ Expendable Equipment and Materials to include: instructional supplies, office supplies, instruction kits, textbooks, library books, glassware, P.E. equipment, uniforms for athletics / music programs, etc., as well as the salaries of the principal and bookkeeper during the initial startup period

⁸ Purchase of properties, easements, rights of way, and associated settlement and title fees

Bond Expenditure Data

Bond Issuance: Virginia Public School Authority 2018 (V18A)

Bond Issuance	Project Name	Func	Anticipated /Estimated Cost in CIP	Adjustments - Year 1	Adjustments - Year 2	Resulting Project Amount
			Original Bond Disbursement			
V18A	Division Wide - REVENUE	0370	\$ -	\$ 2,082,800		\$ 2,082,800
V18A	Division Wide - SITE ACQUISITION	0370	\$ -	\$ 1,825,409		\$ 1,825,409
V18A	Special Needs Facility	043K	\$ -	\$ 2,390,798		\$ 2,390,798
V18A	Western Bus Facility	043M	\$ 10,000,000	\$ -		\$ 10,000,000
V18A	New Alternative Education School	201Z	\$ 3,000,000	\$ (3,000,000)		\$ -
V18A	Ann Ludwig - ELL Relocation from Ann Ludwig	209B	\$ -	\$ 80,000		\$ 80,000
V18A	Minnieville Elementary School Addition (10 rooms)	303M	\$ 11,043,000	\$ (1,980,000)		\$ 9,063,000
V18A	Pattie Elementary School Addition (10 rooms) - Consolidation / Building Renovation @ Washington-Reid	313D		\$ 800,000		\$ 800,000
V18A	Lake Ridge Elementary School Addition (13 rooms)	318C	\$ 9,284,000	\$ (3,000,000)		\$ 6,284,000
V18A	Elementary School East - PW Parkway	319A	\$ 27,685,000	\$ (7,500,000)		\$ 20,185,000
V18A	Springwoods Elementary School Addition (13 rooms)	332D	\$ 10,184,000	\$ (1,300,000)		\$ 8,884,000
V18A	Antietam Elementary School Addition (13 rooms)	376C	\$ 8,784,000	\$ (2,893,000)		\$ 5,891,000
V18A	Marshall Elementary School - Renewal (Funding Phase 1a)	379F	\$ 3,945,000	\$ 675,222		\$ 4,620,222
V18A	Montclair Elementary School - Renewal (Funding Phase 1a)	380D	\$ 2,000,000	\$ 465,000		\$ 2,465,000
V18A	Mountain View Elementary School - Renovation	381F	\$ -	\$ 425,000		\$ 425,000
V18A	Old Bridge Elementary School - Renewal	382D	\$ -	\$ 19,841		\$ 19,841
V18A	Leesylvania Elementary School - Renewal (Funding Phase 1)	383E	\$ 13,485,000	\$ (2,033,838)		\$ 11,451,162
V18A	Potomac Shores Middle School	414A	\$ 622,000	\$ (440,107)		\$ 181,893
V18A	Stonewall Middle School Addition (17 rooms)	448K	\$ 14,630,000	\$ (2,225,000)		\$ 12,405,000
V18A	Parkside Middle School - Roof Repl Partial	450M	\$ -	\$ 337,000		\$ 337,000
V18A	Fred Lynn Middle School - Roof Replacement	452K	\$ -	\$ 400,000		\$ 400,000
V18A	Rippon Middle School - Fenestration Improvements	459M	\$ -	\$ 1,041,317		\$ 1,041,317
V18A	Lake Ridge Middle School Addition (13 rooms)	472E	\$ -	\$ 45,052		\$ 45,052
V18A	Beville Middle School - Renewal	478C	\$ -	\$ 85,500		\$ 85,500
V18A	Benton Middle School - Music Room Addition	488F	\$ -	\$ 1,485		\$ 1,485
V18A	Woodbridge High School - Turf Fields	506Q	\$ -	\$ 1,825,500		\$ 1,825,500
V18A	Woodbridge High School - Aux Gym Addition	506S	\$ -	\$ 98,475		\$ 98,475
V18A	13th High School (West)	513A	\$ 8,000,000	\$ (600,000)		\$ 7,400,000
V18A	Freedom High School - Turf Fields	530E	\$ -	\$ 203,266		\$ 203,266
V18A	Stonewall High School - Turf Fields	568S	\$ -	\$ 1,731,798		\$ 1,731,798
V18A	Gar-Field High School - Aux Gym Addition	569U	\$ -	\$ 351,561		\$ 351,561
V18A	Hylton High School - Renewal	571M	\$ -	\$ 1,289,816		\$ 1,289,816
V18A	Independent Hill Complex - Site Improvements	603F	\$ -	\$ 10,723,034		\$ 10,723,034
V18A	Independent Hill New Maintenance Facility	603H	\$ -	\$ 601,633		\$ 601,633
V18A	HVAC Equipment & Controls	HVAC	\$ -	\$ 1,350,437		\$ 1,350,437
Total			\$ 122,662,000	\$ 3,878,000	\$ -	\$ 126,540,000

Bond Issuance:
Virginia Public School Authority 2017 (V17A)

Bond Issuance	Project Name	Func	Anticipated /Estimated Cost in CIP	Adjustments - Year 1	Adjustments - Year 2	Resulting Project Amount
			Original Bond Disbursement			
V17A	Division Wide - Site Acquisition	0370	\$ -	\$ 15,611,270	\$(15,043,494)	\$ 567,776
V17A	Special Needs Transportation Center @ New Dominion	043K	\$ 1,700,000	\$ 270,257	\$ (1,299,999)	\$ 670,258
V17A	Western Bus Facility - New Construction A&E	043M	\$ 1,500,000	\$ 1,850,000	\$ 825,224	\$ 4,175,224
V17A	Alternative Education School - New Construction	201Z	\$ 25,850,000	\$(11,138,578)	\$ 986,723	\$ 15,698,145
V17A	Ann Ludwig - ELL Relocation from Ann Ludwig	209B	\$ -	\$ -	\$ 1,096,824	\$ 1,096,824
V17A	Woodbine PreSchool - Roof Replacement	219A	\$ -	\$ -	\$ 141,032	\$ 141,032
V17A	Minnieville Elementary School - Addition	303M	\$ -	\$ -	\$ 1,231,580	\$ 1,231,580
V17A	Potomac Shores ES site - Building, New	309A	\$ -	\$ -	\$ 30,000	\$ 30,000
V17A	Pattie Elementary School - Addition (10 rooms)	313D	\$ 8,300,000	\$ (3,570,000)	\$ (102,955)	\$ 4,627,045
V17A	Lake Ridge Elementary School - Addition (13 rooms)	318C	\$ 600,000	\$ 75,000	\$ 1,800,027	\$ 2,475,027
V17A	Elementary School East (PW Parkway) - New Construction	319A	\$ 2,000,000	\$ 7,250,000	\$ 828,342	\$ 10,078,342
V17A	Springwoods Elementary School - Addition (13 rooms)	332D	\$ 600,000	\$ 45,000	\$ 112,114	\$ 757,114
V17A	Westridge Elementary School - Renewal (Funding Phase	374C	\$ 98,000	\$ -	\$ (95,363)	\$ 2,637
V17A	River Oaks Elementary School - Renewal (Funding Phase 1)	375C	\$ 6,000,000	\$ -	\$ (175,000)	\$ 5,825,000
V17A	Antietam Elementary School - Renewal	376B	\$ -	\$ -	\$ 232,786	\$ 232,786
V17A	Antietam Elementary School - Addition (13 rooms) A&E	376C	\$ 600,000	\$ 85,000	\$ -	\$ 685,000
V17A	Montclair Elementary School - Renewal	380D	\$ -	\$ -	\$ 3,000,000	\$ 3,000,000
V17A	Mountain View Elementary School - Renovation	381F	\$ -	\$ -	\$ 431,445	\$ 431,445
V17A	Old Bridge Elementary School - Renewal	382D	\$ -	\$ -	\$ 4,616,512	\$ 4,616,512
V17A	Leesylvania Elementary School - Addition (4 rooms) A&E	383E	\$ 500,000	\$ 615,000	\$ 63,824	\$ 1,178,824
V17A	Middle School at Potomac Shores - New Construction	414A	\$ 2,000,000	\$ 1,195,924	\$ (1,000,000)	\$ 2,195,924
V17A	Saunders Middle School - Renewal (Funding Phase 2)	438F	\$ 2,600,000	\$ -	\$ (839,957)	\$ 1,760,043
V17A	Stonewall Middle School - Addition (17 rooms) A&E	448K	\$ 1,000,000	\$ -	\$ 54,409	\$ 1,054,409
V17A	Fred Lynn Middle School - Roof Replacement	452K	\$ -	\$ -	\$ 564,896	\$ 564,896
V17A	Rippon Middle School - Fenestration Improvement	459M	\$ -	\$ -	\$ 2,521,326	\$ 2,521,326
V17A	Lake Ridge Middle School - Renewal/Addition (13 rooms)	472E	\$ 13,037,000	\$ (4,350,000)	\$ (812,547)	\$ 7,874,453
V17A	Benton MS - Music Room Addition	488F	\$ -	\$ 3,200,000	\$ (100,000)	\$ 3,100,000
V17A	Woodbridge High School - Aux Gym Addition	506S	\$ -	\$ -	\$ 224,097	\$ 224,097
V17A	13th High School (West) - New Construction A&E	513A	\$ 3,000,000	\$ 239,635	\$ 600,000	\$ 3,839,635
V17A	Site Acquisition Funding	517A	\$ 14,000,000	\$(14,000,000)	\$ -	\$ -
V17A	Freedom HS - Turf Fields	530E	\$ -	\$ 1,849,177	\$ (300,000)	\$ 1,549,177
V17A	Gar-Field High School - Aux Gym Addition	569U	\$ -	\$ -	\$ 355,354	\$ 355,354
V17A	Independent Hill Complex - New Maintenance Facility	603H	\$ -	\$ 572,315	\$ 252,800	\$ 825,115
Total			\$ 83,385,000	\$ (200,000)	\$ 200,000	\$ 83,385,000

**Bond Issuance:
Virginia Public School Authority 2016 (V16A)**

Bond Issuance	Project Name	Func	Anticipated /Estimated Cost in CIP	Adjustments - Year 1	Adjustments - Year 2	Resulting Project Amount
			Original Bond Disbursement			
V16A	Kilby Elementary School Replacement	344B	\$ 24,476,000	\$ (5,000,000)	\$ (4,040,588)	\$ 15,435,412
V16A	Elementary School (Potomac Shores)	309A	\$ 27,374,000	\$ (8,800,000)	\$ (3,630,240)	\$ 14,943,760
V16A	Belmont Elementary Addition (10 rooms)	360G	\$ 8,267,000		\$ (584,686)	\$ 7,682,314
V16A	Henderson Elementary School Addition (10 rooms)	333E	\$ 8,918,000		\$ (2,008,170)	\$ 6,909,830
V16A	Neabsco Elementary School Addition (8 rooms)	370D	\$ 7,504,000		\$ (2,134,171)	\$ 5,369,829
V16A	13th High School -- Site Acquisition Funds	513A	\$ 13,500,000		\$(13,500,000)	\$ -
V16A	Elementary School - Site Acquisition Funds	319A	\$ 2,000,000	\$ (2,000,000)	\$ -	\$ -
V16A	Antietam Elementary School - Renewal	376B	\$ 5,000,000	\$ 2,800,000	\$ 310,970	\$ 8,110,970
V16A	McAuliffe Elementary School - Renewal	373C	\$ 5,000,000	\$ 2,120,000	\$ 746,118	\$ 7,866,118
V16A	Mullen Elementary School - Renewal	377D	\$ 5,000,000	\$ 880,000	\$ (247,629)	\$ 5,632,371
V16A	Westridge Elementary School - Renewal	374C	\$ 5,000,000	\$ 1,000,000	\$ 124,039	\$ 6,124,039
V16A	Lake Ridge Middle School - Renewal	472E	\$ 5,000,000		\$ (5,000,000)	\$ -
V16A	Saunders Middle School - Renewal	438F	\$ 6,175,000	\$ 5,800,000	\$ (3,584)	\$ 11,971,416
V16A	Lake Ridge Middle School Addition (13 rooms) - A&E	472E	\$ 1,000,000	\$ 1,200,000	\$ 6,859,162	\$ 9,059,162
V16A	PACE East Replacement/Multi-Space - A&E and initial construction	201Z	\$ 5,000,000		\$ 7,905,330	\$ 12,905,330
V16A	Pattie Elementary School Addition (10 rooms) - Consolidation / Building Renovation @ Washington-Reid - A&E	313D	\$ 900,000		\$ -	\$ 900,000
V16A	Special Needs Transportation Center @ New Dominion - A&E	043K	\$ 300,000		\$ (270,257)	\$ 29,743
V16A	Middle School (Potomac Shores) - A&E	414A	\$ 3,000,000		\$ (1,195,924)	\$ 1,804,076
V16A	13th High School (West) - A&E	513A	\$ 2,000,000	\$ 1,000	\$ (239,635)	\$ 1,761,365
V16A	Division Wide - Site Acquisition	0370	\$ -	\$ 2,000,000	\$ 11,888,730	\$ 13,888,730
V16A	Minnieville ES - Activity Room	303J	\$ -		\$ 1,598,080	\$ 1,598,080
V16A	Minnieville ES - Addition	303M	\$ -		\$ 101,196	\$ 101,196
V16A	Dale City ES - Activity Room	361H	\$ -		\$ 1,451,995	\$ 1,451,995
V16A	Marshall ES - Renewal	379F	\$ -		\$ 362,770	\$ 362,770
V16A	Montclair ES - Renewal	380D	\$ -		\$ 316,426	\$ 316,426
V16A	Old Bridge ES - Renewal/Addition	382D	\$ -		\$ 484,567	\$ 484,567
V16A	Freedom HS - Turf Fields	530E	\$ -		\$ 700,823	\$ 700,823
V16A	Independent Hill Complex - New Maintenance Facility	603H	\$ -		\$ 4,678	\$ 4,678
Total			\$ 135,414,000	\$ 1,000	\$ -	\$ 135,415,000

Bond Issuance:
Virginia Public School Authority 2015 (V15A)

Bond Issuance	Project Name	Func	Anticipated /Estimated Cost in CIP	Adjustments - Year 1	Adjustments - Year 2	Resulting Project Amount
			Original Bond Disbursement			
V15A	12th High School	501A	\$ 49,971,500		\$ (5,822,119)	\$ 44,149,381
V15A	Elementary School - Ferlazzo	306A	\$ 27,534,000	\$ (1,000,000)	\$ (10,500,000)	\$ 16,034,000
V15A	Independent Hill Maintenance Facility	603H	\$ 10,000,000			\$ 10,000,000
V15A	Rippon Middle Addition	459K	\$ 7,110,000			\$ 7,110,000
V15A	Kilby ES Replacement	344B	\$ 6,000,000			\$ 6,000,000
V15A	PACE East Replacement	201Z	\$ 2,000,000		\$ 5,200,000	\$ 7,200,000
V15A	Elementary School - Potomac Shores - A/E	309A	\$ 2,000,000			\$ 2,000,000
V15A	Henderson ES - Addition A/E	333E	\$ 400,000			\$ 400,000
V15A	Belmont ES Addition - A/E	360G	\$ 400,000			\$ 400,000
V15A	Neabsco ES Addition - A/E	370D	\$ 400,000			\$ 400,000
V15A	Site Acquisition	0370		\$ 1,000,000		\$ 1,000,000
V15A	Henderson ES Addition - A/E	333D			\$ 1,332,206	\$ 1,332,206
V15A	King ES - Renewal	316D			\$ 1,919,055	\$ 1,919,055
V15A	Lake Ridge ES - Renewal	318B			\$ 1,500,000	\$ 1,500,000
V15A	Occoquan ES - HVAC	326G			\$ 290,187	\$ 290,187
V15A	Springwoods ES - Renewal	332C			\$ 1,500,000	\$ 1,500,000
V15A	Featherstone ES - RoofRepl	345F			\$ 258,278	\$ 258,278
V15A	Tyler ES - Activity Room	363F			\$ 1,000,000	\$ 1,000,000
V15A	McAuliffe ES - Renewal	373C			\$ 391,117	\$ 391,117
V15A	Antietam ES - Renewal	376B			\$ 389,318	\$ 389,318
V15A	Mullen ES - Renewal	377D			\$ 321,453	\$ 321,453
V15A	Marshall ES - HVAC	379E			\$ 260,063	\$ 260,063
V15A	Saunders MS - Renewal	438F			\$ 438,992	\$ 438,992
V15A	Hylton HS - Roof	571H			\$ 1,521,450	\$ 1,521,450
Total			\$ 105,815,500	\$ -	\$ -	\$ 105,815,500

Bond Issuance:
Virginia Public School Authority 2014 (V14A)

Bond Issuance	Project Name	Anticipated /Estimated Cost in CIP	Adjustments - Year 1	Adjustments - Year 2	Resulting Project Amount
		Original Bond Disbursement			
V14A	Elementary School - Devlin Road	\$ 25,937,000		\$ (300,000)	\$ 25,637,000
V14A	Featherstone Elementary Addition (6 rooms)	\$ 8,531,000			\$ 8,531,000
V14A	12th High School/IHS (Mid-County)	\$ 49,971,500	\$ (3,000,000)		\$ 46,971,500
V14A	Elementary School/IHS (East - Ferlazzo)	\$ 2,000,000	\$ (850,000)		\$ 1,150,000
V14A	Rippon Middle Addition/IHS East (9 rooms)	\$ 350,000			\$ 350,000
V14A	Maintenance Facility	\$ 1,444,000			\$ 1,444,000
V14A	Kilby Elementary School Replacement	\$ 1,000,000			\$ 1,000,000
V14A	Kerrydale ES - Activity Room	\$ -	\$ 1,500,000	\$ -	\$ 1,500,000
V14A	Enterprise ES - Activity Room	\$ -	\$ 1,500,000	\$ -	\$ 1,500,000
V14A	Potomac Shores MS - site	\$ -	\$ 850,000	\$ -	\$ 850,000
V14A	Dale City ES - Activity Room	\$ -		\$ 150,000	\$ 150,000
V14A	Minnieville ES - Activity Room	\$ -		\$ 150,000	\$ 150,000
Total		\$ 89,233,500	\$ -	\$ -	\$ 89,233,500

**Bond Issuance:
Virginia Public School Authority 2013 (V13A)**

Bond Issuance	Project Name	Anticipated /Estimated Cost in CIP	Adjustments - Year 1	Adjustments - Year 2	Resulting Project Amount
		Original Bond Disbursement			
V13A	Nokesville School, The - Building, New	\$ 11,000,000			\$ 11,000,000
V13A	Haymarket ES - Building, New	\$ 27,663,000	\$ (1,320,000)	\$ (3,454,000)	\$ 22,889,000
V13A	Dumfries ES - Renewal	\$ 3,825,000		\$ 684,000	\$ 4,509,000
V13A	River Oaks ES - Addition	\$ 5,913,000	\$ 700,000	\$ (470,000)	\$ 6,143,000
V13A	Parkside MS - Addition	\$ 10,559,000			\$ 10,559,000
V13A	12th HS Site - Building, New	\$ 8,000,000	\$ 570,000	\$ 3,000,000	\$ 11,570,000
V13A	Featherstone ES - A/E, Addition	\$ 300,000	\$ 50,000		\$ 350,000
V13A	Kerrydale ES - Activity Room	\$ -	\$ -	\$ 80,000	\$ 80,000
V13A	Enterprise ES - Activity Room	\$ -	\$ -	\$ 80,000	\$ 80,000
V13A	Tyler ES - Activity Room	\$ -	\$ -	\$ 80,000	\$ 80,000
Total		\$ 67,260,000	\$ -	\$ -	\$ 67,260,000

**Bond Issuance:
Virginia Public School Authority 2012 (V12A)**

Bond Issuance	Project Name	Anticipated /Estimated Cost in CIP	Adjustments - Year 1	Adjustments - Year 2	Resulting Project Amount
		Original Bond Disbursement			
V12A	Potomac HS - Renewal/Addition	\$ 7,655,000	\$ 500,000		\$ 8,155,000
V12A	Pattie ES - Renewal	\$ 3,806,000	\$ (36,000)	\$ (100,000)	\$ 3,670,000
V12A	Loch Lomond ES - Addition	\$ 5,950,000	\$ 871,000	\$ (350,000)	\$ 6,471,000
V12A	Mullen ES - Addition	\$ 5,700,000	\$ 302,000	\$ (600,000)	\$ 5,402,000
V12A	Nokesville K-8 - Building, New	\$ 14,000,000	\$ 3,630,000		\$ 17,630,000
V12A	Penn ES - Addition	\$ 5,817,000	\$ (971,000)	\$ (550,000)	\$ 4,296,000
V12A	River Oaks ES - A/E, Addition	\$ 300,000	\$ 36,000	\$ (26,000)	\$ 310,000
V12A	Sinclair ES - Addition	\$ 6,260,000	\$ (33,000)		\$ 6,227,000
V12A	Sudley ES - Addition	\$ 6,100,000	\$ (118,000)	\$ (174,000)	\$ 5,808,000
V12A	West Gate ES - Addition	\$ 3,140,000	\$ 1,002,000		\$ 4,142,000
V12A	Benton MS - Addition	\$ 7,247,000	\$ (2,635,000)		\$ 4,612,000
V12A	Parkside MS - A/E, Addition	\$ 500,000			\$ 500,000
V12A	Potomac MS - Addition	\$ 7,770,000	\$ (2,548,000)		\$ 5,222,000
V12A	12th site - A/E	\$ 3,000,000			\$ 3,000,000
V12A	Loch Lomond ES - Renewal, A/E			\$ 350,000	\$ 350,000
V12A	Henderson ES - Renewal, A/E			\$ 350,000	\$ 350,000
V12A	King ES - Renewal, A/E			\$ 350,000	\$ 350,000
V12A	Lake Ridge ES - Renewal, A/E			\$ 350,000	\$ 350,000
V12A	Springwoods ES - Renewal, A/E			\$ 350,000	\$ 350,000
V12A	Devlin Road ES - Building, New, A/E			\$ 50,000	\$ 50,000
Total		\$ 77,245,000	\$ -	\$ -	\$ 77,245,000

**Bond Issuance:
Virginia Public School Authority 2011 (V11A)**

Bond Issuance	Project Name	Anticipated /Estimated Cost in CIP	Adjustments - Year 1	Adjustments - Year 2	Resulting Project Amount
		Original Bond Disbursement			
V11A	A&E Mullen, Sinclair, Sudley, West Gate, Loch Lomond	\$ 1,500,000	\$ 100,000		\$ 1,600,000
V11A	Bus Parking (Gar-Field HS)	\$ 1,009,000			\$ 1,009,000
V11A	PACE West SE	\$ 8,026,000		\$ (20,000)	\$ 8,006,000
V11A	Piney Branch Elementary	\$ 5,000,000	\$ (1,750,000)	\$ (730,000)	\$ 2,520,000
V11A	Potomac HS Addition	\$ 7,655,000			\$ 7,655,000
V11A	Reagan Middle	\$ 12,150,000		\$ (1,900,000)	\$ 10,250,000
V11A	Swans Creek	\$ 4,765,000	\$ (450,000)	\$ (1,365,925)	\$ 2,949,075
V11A	T. Clay Wood Elementary	\$ 4,000,000	\$ (450,000)	\$ (850,000)	\$ 2,700,000
V11A	Westridge ES Addition	\$ 4,130,000	\$ 450,000		\$ 4,580,000
V11A	Nokesville K-8 School (A&E)		\$ 500,000	\$ (203,053)	\$ 296,947
V11A	Penn Elementary School Addition (A&E)		\$ 350,000		\$ 350,000
V11A	Benton Middle School Addition (A&E)		\$ 450,000		\$ 450,000
V11A	Potomac Middle School Addition (A&E)		\$ 350,000		\$ 350,000
V11A	Parkside Middle School Addition (A&E)		\$ 450,000	\$ (65,075)	\$ 384,925
V11A	Devlin Road Elementary Site (A&E)			\$ 750,000	\$ 750,000
V11A	Haymarket Drive ES Site (A&E)			\$ 100,000	\$ 100,000
V11A	Occoquan ES Activity Room (A&E)			\$ 100,000	\$ 100,000
V11A	Dumfries ES Renewal (A&E)			\$ 300,000	\$ 300,000
V11A	Potomac HS Renewal / Addition			\$ 2,931,000	\$ 2,931,000
V11A	Occoquan ES Activity Room			\$ 953,053	\$ 953,053
	Total	\$ 48,235,000	\$ -	\$ -	\$ 48,235,000

**Bond Issuance:
Virginia Public School Authority 2010 (V10A)**

Bond Issuance	Project Name	Anticipated /Estimated Cost in CIP	Adjustments - Year 1	Adjustments - Year 2	Resulting Project Amount
		Original Bond Disbursement			
V10A	Linton Hall Road Elementary	\$ 16,224,000	\$ (200,000)	\$ (100,000)	\$ 15,924,000
V10A	Patriot High School	\$ 37,285,000		\$ (500,000)	\$ 36,785,000
V10A	Reagan Middle	\$ 14,232,000	\$ (500,000)	\$ 46,960	\$ 13,778,960
V10A	T. Clay Wood Elementary	\$ 14,494,000	\$ (200,000)	\$ (350,000)	\$ 13,944,000
V10A	Haymarket Drive Elementary (A&E)		\$ 900,000	\$ (141,275)	\$ 758,725
V10A	Patriot High School (A&E)			\$ 44,315	\$ 44,315
V10A	Potomac High School - Renewal/Addition			\$ 1,000,000	\$ 1,000,000
	Total	\$ 82,235,000	\$ -	\$ -	\$ 82,235,000

Commonwealth of Virginia
Comparative School Construction Data

New Elementary Schools
2012-13 through 2018-19

Year	Name	Grades	Division	Contract Award Date	Maximum Operating Capacity	Building Cost	Site Cost	Total ² Cost	Total Sq Ft	Total Cost/ Sq Ft	Building Only Cost/Sq Ft	Total Cost/ Pupil
2018-19	Alice West Fleet Elementary	PK-5	Arlington County (007)	May-18	784	\$41,550,000	\$17,700,000	\$59,250,000	212,245	\$279.16	\$195.76	\$75,574
	New Harrowgate Elementary	K-5	Chesterfield County (021)	Feb-19	794	\$20,062,340	\$2,620,916	\$22,683,256	95,944	\$236.42	\$209.10	\$28,568
	Northwest County ES - McNair Site	4-6	Fairfax County (029)	Jan-19	750	\$22,080,000	\$5,000,000	\$27,080,000	105,652	\$256.31	\$208.99	\$36,107
	Twelfth Elementary School	K-5	Frederick County (034)	Sep-18	648	\$20,993,928	\$2,543,885	\$23,537,813	84,375	\$278.97	\$248.82	\$36,324
2017-18	Great Bridge Primary Repl	PK-2	Chesapeake City	Oct-17	636	\$14,841,235	\$3,509,765	\$18,351,000	90,936	\$201.80	\$163.21	\$28,854
	New Enon Elementary	K-5	Chesterfield County	May-17	794	\$17,963,384	\$3,157,635	\$21,121,019	91,276	\$231.40	\$196.80	\$26,601
	New Beulah Elementary	K-5	Chesterfield County	Apr-17	940	\$18,897,528	\$5,402,472	\$24,300,000	99,921	\$243.19	\$189.12	\$25,851
	Camp Allen Elementary Repl	PK-5	Norfolk City	Mar-16	645	\$21,639,187	\$2,998,327	\$24,637,514	97,492	\$252.71	\$221.96	\$38,198
	Parkway Elementary	K-5	Prince William County	Feb-18	860	\$19,624,164	\$7,584,836	\$27,209,000	100,264	\$271.37	\$195.72	\$31,638
	Fallon Park Elementary	PK-5	Roanoke City	Jan-18	930	\$18,810,000	\$2,830,000	\$21,640,000	112,616	\$192.16	\$167.03	\$23,269
	New Moncure Elementary	PK-5	Stafford County	Jul-16	984	\$24,097,476	\$4,150,000	\$28,247,476	108,794	\$259.64	\$221.50	\$28,707
2016-17	Colonial Beach	PK-7	Colonial Beach	Jul-16	442	\$7,160,934	\$766,066	\$7,927,000	50,079	\$158.29	\$142.99	\$17,934
	Fort Belvoir Elementary School II	PK-6	Fairfax County	Apr-15	576	\$17,330,700	\$4,840,320	\$22,171,020	95,341	\$232.54	\$181.78	\$38,491
	New Harrisonburg Elementary	K-5	Harrisonburg City	Mar-16	916	\$21,414,376	\$4,496,390	\$25,910,766	103,703	\$249.86	\$206.50	\$28,287
	Meadow View Elementary	PK-5	Henry County	Jul-16	776	\$19,691,800	\$963,900	\$20,655,700	96,000	\$215.16	\$205.12	\$26,618
	Loudoun Elementary-ES 28	K-5	Loudoun County	Feb-17	988	\$24,310,000	\$4,000,000	\$28,310,000	136,200	\$207.86	\$178.49	\$28,654
	Covington-Harper ES	K-5	Prince William County	Mar-16	889	\$16,646,000	\$4,185,000	\$20,831,000	101,246	\$205.75	\$164.41	\$23,432
	Northern Suffolk Elementary (Bowser Repl)	PK-5	Suffolk City	Jun-16	984	\$18,190,000	\$2,630,000	\$20,820,000	114,881	\$181.23	\$158.34	\$21,159
2015-16	Hugh Cassell Elementary	PK-5	Augusta County	Dec-15	930	\$15,462,984	\$3,016,691	\$18,479,675	94,500	\$195.55	\$163.63	\$19,871
	Riverheads Elementary	PK-5	Augusta County	Dec-15	930	\$16,593,846	\$2,339,205	\$18,933,051	94,500	\$200.35	\$175.60	\$20,358
	Bowling Elementary	PK-5	Norfolk City	Dec-14	780	\$15,898,428	\$2,474,221	\$18,372,649	101,060	\$181.80	\$157.32	\$23,555
	New Ocean View Elementary Repl	K-5	Norfolk City	Dec-14	808	\$15,577,911	\$3,059,275	\$18,637,186	92,286	\$201.95	\$168.80	\$23,066
	New Larchmont Elementary Repl	K-5	Norfolk City	Dec-14	778	\$15,823,153	\$3,221,874	\$19,045,027	92,655	\$205.55	\$170.77	\$24,479
	Martin Luther King Pre-K	PK	Richmond City	Jun-14	260	\$4,879,986	\$454,818	\$5,334,804	22,097	\$241.43	\$220.84	\$20,518
2014-15	New Lexington Elementary	PK-5	Lexington City	Aug-14	480	\$12,500,000	\$1,605,000	\$14,105,000	53,804	\$262.16	\$232.32	\$29,385
	ES-27	K-5	Loudoun County	Apr-15	1,012	\$18,903,548	\$4,491,800	\$23,395,348	105,757	\$221.22	\$178.75	\$23,118
	Baldwin Elementary/Int	PK-6	Manassas City	Mar-15	1,019	\$29,746,448	\$2,839,553	\$32,586,001	139,114	\$234.24	\$213.83	\$31,978
	Magruder Elementary Repl	K-5	Newport News City	Jul-14	916	\$20,371,304	\$2,444,695	\$22,815,999	97,612	\$233.74	\$208.70	\$24,908
	Wilson Elementary	K-5	Prince William County	Mar-15	921	\$16,753,000	\$4,000,000	\$20,753,000	106,354	\$195.13	\$157.52	\$22,533
	Kilby Elementary Repl	K-5	Prince William County	Apr-15	876	\$15,506,000	\$6,382,000	\$21,888,000	98,615	\$221.95	\$157.24	\$24,986
	John Kerr Elementary	PK-5	Winchester City	Apr-14	853	\$15,030,000	\$1,565,000	\$16,595,000	94,000	\$176.54	\$159.89	\$19,455
2013-14	Arlington Elementary No.1	PK-5	Arlington County	Mar-14	684	\$28,199,928	\$4,105,880	\$32,305,808	97,588	\$331.04	\$288.97	\$47,231
	Yung Elementary	K-5	Prince William County	Dec-13	905	\$16,186,000	\$4,100,000	\$20,286,000	107,273	\$189.11	\$150.89	\$22,415
2012-13	Haymarket Elementary	K-5	Prince William County	Feb-13	868	\$14,396,000	\$4,392,000	\$18,788,000	99,135	\$189.52	\$145.22	\$21,645
	South Salem	K-5	Salem City	Apr-12	600	\$13,235,950	\$1,667,250	\$14,903,200	90,913	\$163.93	\$145.59	\$24,839
	New Elementary ³	PK-5	Smyth County	Nov-11	603	\$11,122,199	\$4,078,016	\$15,200,215	83,717	\$181.57	\$132.85	\$25,208

* The final report for 2018-19 will be generated after June 30, 2019.

1 - Division operating capacity may differ from SOL maximum capacity. Pre-kindergarten classrooms counted at 16 students, grades K-3 classrooms counted at 24:1, grades 4-5 classrooms counted at 25:1.

2 - Usually includes construction, site development, water system, sewage disposal, built-in equipment and demolition. A & E fees, value engineering, construction management fees, cost of site, loose equipment, and furniture are excluded.

3 - Site cost include \$270,000 for egress road and \$924,000 for off site utilities.

4 - Excludes cost of community center, and includes cost for the demolition of the existing building.

5 - Includes cost of demolition of old school building.

6 - Site cost includes \$135,000 for demolition of existing school and abatement work.

7 - Includes on-site sewage treatment plant and on-site water system.

8 - Site cost was split proportionally with new middle school being built on same site.

9 - Includes \$321,690 for off-site sewer, force main and pump station.

10 - Includes off-site developer cost for \$1,931,290 which is in the general contract.

New Middle Schools 2008-09 through 2018-19

Year	Name	Grades	Division	Contract Award Date	Maximum ¹ Operating Capacity	Building Cost	Site Cost	Total ² Cost	Total Sq Ft	Total Cost/ Sq Ft	Building Only Cost/Sq Ft	Total Cost/ Pupil
2018-19	Manchester Middle School	6-8	Chesterfield County (021)	Oct-18	1,108	\$35,293,004	\$4,683,944	\$39,976,948	139,011	\$287.58	\$253.89	\$36,080
	Potomac Shores Middle School	6-8	Prince William County (07)	Nov-18	1,491	\$45,474,000	\$7,000,000	\$52,474,000	197,954	\$265.08	\$229.72	\$35,194
	Pulaski County Middle School	6-8	Pulaski County (077)	Oct-18	1,091	\$33,868,896	\$6,887,094	\$40,755,990	164,900	\$247.16	\$205.39	\$37,357
	Princess Anne Middle School Replacement	6-8	Virginia Beach City (128)	Jun-18	1,516	\$57,680,024	\$7,147,194	\$64,827,218	257,784	\$251.48	\$223.75	\$42,762
2017-18	<i>No Projects Reported</i>											
2016-17	New Bedford Middle	6-8	Bedford County	Nov-16	754	\$23,098,130	\$5,701,235	\$28,799,365	123,822	\$232.59	\$186.54	\$38,195
	MS-7	6-8	Loudoun County	Feb-17	1,354	\$44,126,500	\$6,938,500	\$51,065,000	185,251	\$275.65	\$238.20	\$37,714
	Northern Suffolk Middle	6-8	Suffolk City	Jun-16	779	\$22,460,000	\$2,715,000	\$25,175,000	125,220	\$201.05	\$179.36	\$32,317
	James Blair Middle	6-8	Williamsburg James City	Sep-16	605	\$20,137,000	\$1,877,735	\$22,014,735	110,871	\$198.56	\$181.63	\$36,388
	Academies of Loudoun	9-12	Loudoun County	Oct-15	1,250	\$77,000,000	\$9,500,000	\$86,500,000	319,000	\$271.16	\$241.38	\$69,200
	Independence Nontraditional	1-12	Prince William County	Jun-16	480	\$23,383,520	\$3,796,418	\$27,179,938	122,659	\$221.59	\$190.64	\$56,625
Dayton Learning Center	6-12	Rockingham County	Feb-17	180	\$4,095,912	\$727,388	\$4,823,300	19,544	\$246.79	\$209.57	\$26,796	
2015-16	MS-9	6-8	Loudoun County	Aug-15	1,354	\$40,081,400	\$9,262,600	\$49,344,000	184,593	\$267.31	\$217.13	\$36,443
	Happy Creek Middle	6-8	Warren County	Jul-15	915	\$27,878,940	\$5,041,310	\$32,920,250	158,457	\$207.76	\$175.94	\$35,978
	Campestella STEM School	K-8	Norfolk City	Dec-14	1,151	\$27,017,178	\$2,815,912	\$29,833,090	181,489	\$164.38	\$148.86	\$25,919
2014-15	Frederick County Middle	6-8	Frederick County	Nov-15	921	\$35,592,328	\$5,907,672	\$41,500,000	186,163	\$222.92	\$191.19	\$45,060
	New Page Middle	6-8	Gloucester County	Sep-15	738	\$18,931,000	\$3,922,763	\$22,853,763	118,237	\$193.29	\$160.11	\$30,967
	Old Donation Center & Kemps Landing Magnet	2-8	Virginia Beach City	May-14	1,375	\$45,448,808	\$5,124,278	\$50,573,086	225,785	\$223.99	\$201.29	\$36,780
2013-14	Jefferson-Houston	PK-8	Alexandria City	Jun-13	805	\$31,961,348	\$4,695,397	\$36,656,745	124,500	\$294.43	\$256.72	\$45,536
2012-13	Trailside	6-8	Loudoun Co	Jun-12	1,154	\$26,874,012	\$3,221,898	\$30,095,910	175,064	\$171.91	\$153.51	\$26,080
	Martin Luther King ³	6-8	Richmond City	Apr-12	847	\$27,306,636	\$2,835,518	\$30,142,154	149,600	\$201.48	\$182.53	\$35,587
2011-12	Nokesville K-8 School	K-8	Prince William County	Jun-12	924	\$22,602,000	\$5,800,000	\$28,402,000	141,832	\$200.25	\$159.36	\$30,738
2010-11	<i>No Projects Reported</i>											
2009-10	Ronald Reagan Middle	6-8	Prince William County	Feb-10	1,102	\$15,265,478	\$3,648,522	\$18,914,000	133,480	\$141.70	\$114.37	\$17,163
	South County	6-8	Fairfax Co	Mar-10	1,172	\$19,293,100	\$2,656,900	\$21,950,000	176,021	\$124.70	\$109.61	\$18,729
	J. Michael Lunsford	6-8	Loudoun Co	Jan-10	1,351	\$24,145,000	\$4,281,000	\$28,426,000	177,880	\$159.80	\$135.74	\$21,041
2008-09	West Area ⁴	6-8	Henrico Co	Aug-08	1,000	\$19,715,150	\$3,500,000	\$23,215,150	120,024	\$193.42	\$164.26	\$23,215
	4th Middle School ⁵	6-8	Williamsburg/JC Co	Nov-09	830	\$26,031,431	\$3,822,350	\$29,853,781	145,458	\$205.24	\$178.96	\$35,968
	Great Neck ⁶	6-8	Va Beach City	Jul-09	1,212	\$28,706,998	\$6,320,002	\$35,027,000	223,260	\$156.89	\$128.58	\$28,900
	Orange ⁷	6-8	Orange Co	Feb-09	1,295	\$24,947,000	\$5,460,000	\$30,407,000	169,320	\$179.58	\$147.34	\$23,480

* The final report for 2018-19 will be generated after June 30, 2019.

1 - Division operating capacity may differ from SOL maximum capacity. State SOL capacity based on a pupil teacher ratio of 25:1 in core classrooms.

2 - Usually includes construction, site development, water system, sewage disposal, built-in equipment and demolition. A&E fees, value engineering, construction management fees, cost of site, loose

3 - Cost include \$400,000 for site and building demolition, and a 2,835 square foot auxiliary gym.

4 - Building cost includes technology system and storage shed. Site cost includes \$185,000 traffic signal.

5 - Site cost split proportionally with new elementary school being built on the same site.

6 - Site cost includes \$611,420 for demolition of existing middle school building and asbestos abatement.

7 - Site cost includes \$2,060,000 for water, sewer, watertank, and road widening.

New High Schools 2008-09 through 2018-19

Year	Name	Grades	Division	Contract Award Date	Maximum ¹ Operating Capacity	Building Cost	Site Cost	Total ² Cost	Total Sq Ft	Total Cost/ Sq Ft	Building Only Cost/Sq Ft	Total Cost/ Pupil
2018-19	Lightridge High School (HS-9)	9-12	Loudoun County	Jul-18	1,903	\$87,875,296	\$22,330,000	\$110,205,296	305,133	\$361.17	\$287.99	\$57,911
	13th High School	9-12	Prince William County	Nov-18	2,601	\$85,500,000	\$23,000,000	\$108,500,000	334,885	\$323.99	\$255.31	\$41,715
2017-18	<i>No Projects Reported</i>											
2016-17	<i>No Projects Reported</i>											
2015-16	<i>No Projects Reported</i>											
2014-15	New Heritage High	9-12	Lynchburg City	Apr-14	1,452	\$42,544,428	\$20,879,572	\$63,424,000	266,151	\$238.30	\$159.85	\$43,680
	Union High School	9-12	Wise County	Nov-11	863	\$23,562,210	\$943,772	\$24,505,982	126,508	\$193.71	\$186.25	\$28,396
	Central High School	9-12	Wise County	Nov-11	863	\$25,082,622	\$411,396	\$25,494,018	126,508	\$201.52	\$198.27	\$29,541
2013-14	Louisa County High School	9-12	Louisa County	Jul-13	2,011	\$46,473,432	\$2,059,570	\$48,533,002	272,834	\$177.88	\$170.34	\$24,134
	Colgan High School	9-12	Prince William County	Dec-13	2,053	\$70,481,000	\$19,000,000	\$89,481,000	425,176	\$210.46	\$165.77	\$43,585
	New Huguenot High School	9-12	Richmond City	Jun-12	1,574	\$51,991,220	\$10,283,262	\$62,274,482	253,821	\$245.35	\$204.83	\$39,564
	Stafford High School Repl	9-12	Stafford County	Jun-13	2,102	\$50,715,200	\$9,106,800	\$59,822,000	281,653	\$212.40	\$180.06	\$28,460
2012-13	HS-6 at Loudoun Valley Estates II	9-12	Loudoun County	Feb-13	1,949	\$56,548,276	\$6,971,776	\$63,520,052	283,422	\$224.12	\$199.53	\$32,591
	Blacksburg High School	9-12	Montgomery County	Jul-11	1,650	\$47,258,625	\$7,621,578	\$54,880,203	293,286	\$187.12	\$161.13	\$33,261
	New Auburn High School	9-12	Montgomery County	Jul-11	853	\$27,985,261	\$4,261,737	\$32,246,998	180,940	\$178.22	\$154.67	\$37,804
2011-12	Kellum Replacement ³	9-12	Va Beach City	Aug-11	2,000	\$58,909,096	\$15,013,694	\$73,922,790	350,952	\$210.64	\$167.86	\$36,961
2010-11	Wakefield	9-12	Arlington County	May-11	2,173	\$77,389,376	\$11,000,623	\$88,389,999	382,102	\$231.33	\$202.54	\$40,676
	NEW Clarke County	9-12	Clarke County	Jul-10	884	\$19,550,000	\$3,750,000	\$23,300,000	162,050	\$143.78	\$120.64	\$26,357
	John Champe ⁴	9-12	Loudoun County	Jan-11	1,955	\$40,996,000	\$19,766,000	\$60,762,000	275,574	\$220.49	\$148.77	\$31,080
2009-10	<i>No Projects Reported</i>											
2008-09	Henrico #1 ⁵	9-12	Henrico County	Oct-08	1,868	\$50,700,000	\$7,133,623	\$57,833,623	255,000	\$226.80	\$198.83	\$30,960
	Tuscarora ⁶	9-12	Loudoun County	Dec-08	1,895	\$45,071,040	\$11,000,000	\$56,071,040	279,426	\$200.67	\$161.30	\$29,589
	Woodgrove ⁷	9-12	Loudoun County	Jan-09	1,651	\$44,375,000	\$9,500,000	\$53,875,000	251,915	\$213.86	\$176.15	\$32,632
	Fluvanna ⁸	9-12	Fluvanna County	Mar-09	1,633	\$44,379,363	\$12,486,637	\$56,866,000	314,389	\$180.88	\$141.16	\$34,823
	Patriot High School	9-12	Prince William County	Jan-09	2,053	\$58,655,600	\$12,043,400	\$70,699,000	312,067	\$226.55	\$187.96	\$34,437

* The final report for 2018-19 will be generated after June 30, 2019.

1 - Division operating capacity may differ from SOL maximum capacity. State operating capacity is generally based on a pupil teacher ratio of 25:1 in all program areas, at 90 percent.

2 - Usually includes construction, site development, water system, sewage disposal, built-in equipment and demolition. A&E fees, value engineering, construction management fees, cost of site, loose equipment, and furniture are excluded.

3 - Project cost includes required road widening, new turning lanes, football stadium, track, play fields, and other outside practice facilities.

4 - \$3,250,000 for required off-site road improvements.

5 - Total cost includes fieldhouse at \$1,480,000 and terrazzo flooring at \$300,500.

6 - Heavy grading, rock removal, as well as environmental issues increased site cost.

7 - On-site water and sewer systems were additional site costs.

8 - The base high school capacity is 1,633 students. The building includes spaces for career, technical and vocational programs for 100 additional students and core support facilities were sized for an additional 250 students.

Elementary School Construction Cost Data

Prince William County Schools 2003-04 through 2018-19

Elementary School	Building Square Footage	School Construction Contract			Building Cost		Site Cost	
		Bid Date	Bid Contract Total	Contract Cost Per Sq Ft	Bldg Cost Total	Bldg Cost Per Sq Ft	Site Cost Total	Site Cost Per Sq Ft
Parkway Elementary	100,264	Feb-18	\$27,209,000	\$271.37	\$19,624,164	\$195.72	\$7,584,836	\$75.65
Covington-Harper	101,528	Feb-16	\$20,831,000	\$205.17	\$15,981,000	\$157.40	\$4,850,000	\$47.77
Kilby ES Repl.	98,976	Mar-15	\$21,888,000	\$221.14	\$15,788,000	\$159.51	\$6,100,000	\$61.63
Wilson	106,854	Feb-15	\$20,753,000	\$194.22	\$16,753,000	\$156.78	\$4,000,000	\$37.43
Yung	107,273	Dec-13	\$20,286,000	\$189.11	\$16,186,000	\$150.89	\$4,100,000	\$38.22
Haymarket ⁵	99,135	Jan-13	\$18,788,000	\$189.52	\$14,396,000	\$145.22	\$4,392,000	\$44.30
Wood ⁴	104,958	Feb-10	\$13,859,000	\$132.04	\$12,437,000	\$118.50	\$1,422,000	\$13.55
Piney Branch	104,958	Feb-10	\$15,799,000	\$150.53	\$12,999,000	\$123.85	\$2,800,000	\$26.68
Triangle	103,679	Feb-08	\$19,769,000	\$190.68	\$16,169,000	\$155.95	\$3,600,000	\$34.72
Yorkshire	106,614	Jun-07	\$18,863,000	\$176.93	\$16,292,000	\$152.81	\$2,571,000	\$24.12
Gravelly	95,074	Feb-07	\$17,250,000	\$181.44	\$15,449,000	\$162.49	\$1,801,000	\$18.94
Fitzgerald ³	106,170	Feb-07	\$17,580,000	\$165.58	\$15,880,000	\$149.57	\$1,700,000	\$16.01
Buckland Mills	89,911	Feb-05	\$12,765,000	\$141.97	\$10,245,000	\$113.95	\$2,520,000	\$28.03
Parks	83,084	Feb-05	\$12,277,000	\$147.77	\$9,622,000	\$115.81	\$2,655,000	\$31.96
Glenkirk	83,084	Feb-04	\$11,711,000	\$140.95	\$8,364,000	\$100.67	\$3,347,000	\$40.28
Victory ²	89,911	Feb-04	\$11,380,000	\$126.57	\$9,505,000	\$105.72	\$1,875,000	\$20.85
Williams ¹	83,084	Feb-03	\$10,570,000	\$127.22	\$8,061,000	\$97.02	\$2,509,000	\$30.20
Ellis	76,724	Feb-03	\$8,869,000	\$115.60	\$7,638,000	\$99.55	\$1,231,000	\$16.04
Porter	71,245	Feb-03	\$8,945,000	\$125.55	\$7,338,000	\$103.00	\$1,607,000	\$22.56

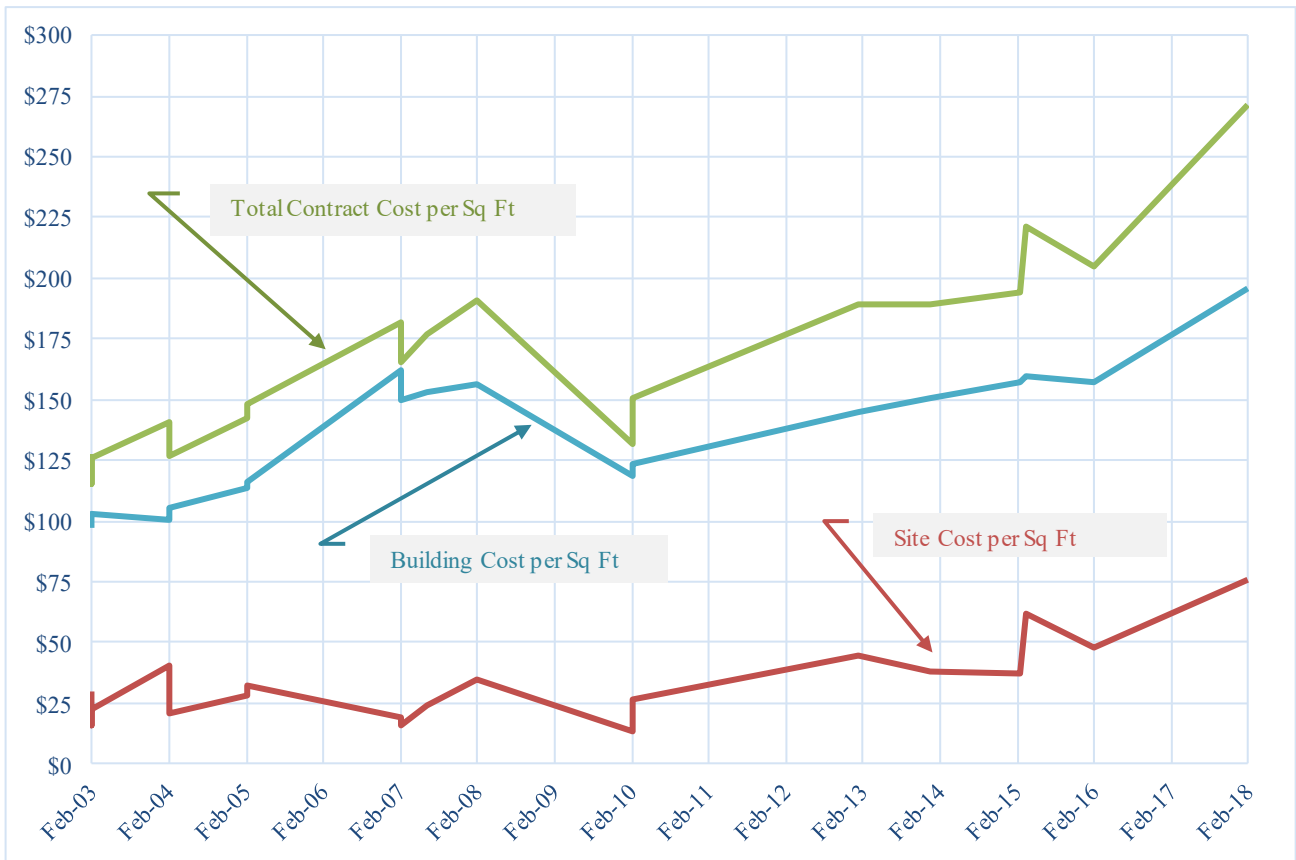
1 Actual bid was \$ 12.57 million. Approximately \$ 2.0 million is for site work associated with adjacent middle school. For project comparison purposes bid amount and site sq. ft. amounts have been adjusted accordingly.

2 This site was pre-graded by the developer, value approximately \$ 1.2 million. For project comparison purposes add 13.35 to project sq. ft. cost and to site sq. ft. cost.

3 This site was pre-graded by the developer, value approximately \$ 700K. For project comparison purposes add \$ 6.59 to project sq. ft. cost and to site sq. ft. cost.

4 This site was pre-graded which included partial utilities infrastructure and bus loop as part of the adjacent high school project, value approximately \$ 650K. For project comparison purposes add \$ 6.19 to project sq. ft. cost and to site sq. ft. cost.

Prince William County Schools
Elementary School Construction Cost Per Square Foot
 2003-04 through 2018-19



APPENDIX E

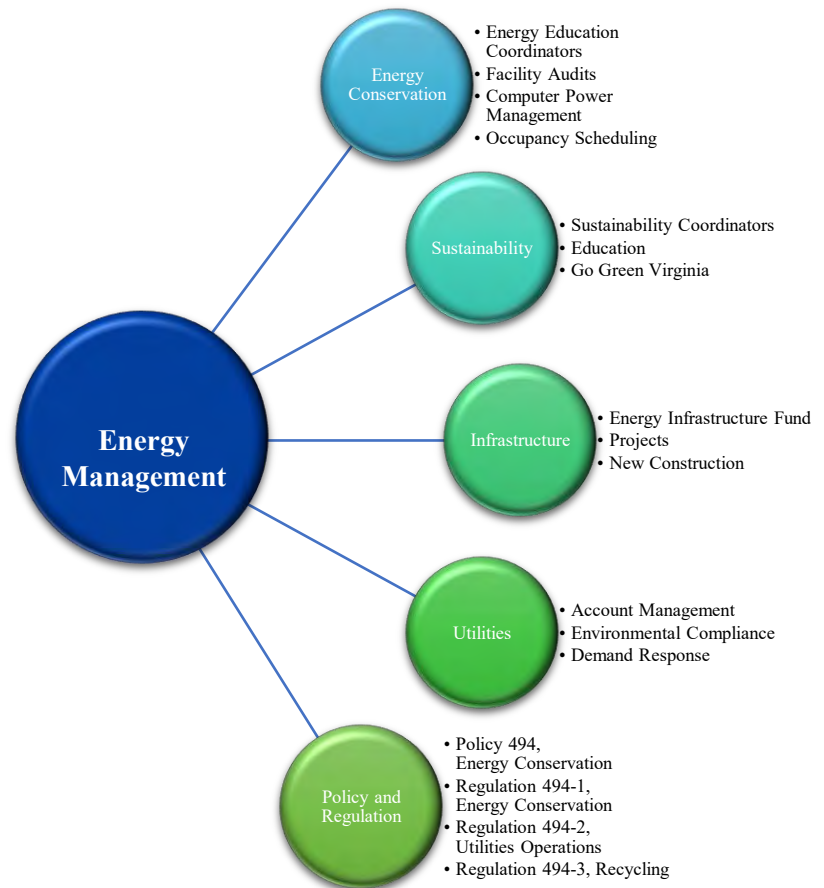
Energy Management

Energy Management

Energy Management in Prince William County Public Schools (PWCS) utilizes a multifaceted approach to energy stewardship and conservation. Policy 494 states that the School Board embraces energy conservation and believes it to be their responsibility to conserve energy and natural resources. Support and program oversight are the responsibility of the Office of Facilities Services. However, each school or facility has designated a site administrator who will be accountable for energy conservation and sustainability practices.

Implementation of the energy conservation and sustainability program shall be through a team led by the Office of Facilities Services' Administrative Coordinator, Energy Management, and Energy Education Coordinator(s), in accordance with Regulation 494-1. All decisions related to the implementation of this policy shall be firmly grounded in common sense.

Accurate records of energy consumption and cost will be maintained by the Office of Facilities Services for each site to provide verifiable performance results on the goals and progress of the energy conservation program.



Energy Conservation

Energy Education Coordinators

Energy Education Coordinators work to establish accountability for energy consumption at every level in the organization. These individuals are responsible for developing and monitoring the organization's energy management program, under School Board approved policies and regulations that are intended to reduce utility consumption.

Basic areas of responsibility include: administration and recordkeeping, accountability, reporting, program implementation, promoting organizational staff and student involvement, and validating energy management system compliance to the energy policy and guidelines. Energy Education Coordinators use EnergyCAP software to monitor energy usage trends.

The role of the Energy Education Coordinators is instrumental in the success of the energy conservation program and helping retain funds where they are most important – in the classroom.

Facility Audits

Sites within PWCS will be visited by an Energy Education Coordinator regularly. Audits conducted during the normal school week will assess the ability of staff to interpret and apply Policy 494 and Regulation 494-1. Audits will primarily be conducted after hours and during periods of low occupancy. Each site will also be reviewed during holiday periods, Code Red, and Code Green closings as well as extended shutdown periods such as the winter break, spring break, and summer vacation.

Computer Power Management

Computer Power Management refers to the mechanism for controlling the power use of personal computer hardware. In Prince William County Public Schools, this is done through globally deployed policy using software to implement and monitor computer energy consumption and cost. An established schedule of machine and monitor sleep settings as well as automated remote shutdown is enforced.

Facility Occupancy Scheduling

Facility use and scheduling is a critical component of energy management in PWCS. Each facility is assessed for its occupancy and use patterns to identify periods of inactivity and low usage. Mechanical systems are then programmed through automated building control systems to reduce mechanical operation and therefore energy consumption during periods of low usage. Schedules are reviewed regularly with site based administrators and adjusted for seasonal patterns and system performance. School locations conducting events scheduled before or after normal school hours are required to enter these activities into “FacilityDirect” software.

Per Regulation 494-1, “Energy Conservation”, HVAC settings will revert to those designated for an unoccupied state after hours, during weekends and on holidays. If heating or air conditioning is needed for a scheduled activity, staff is required to check the HVAC box to indicate as such in the request. Failure to do so will result in no available HVAC service. Events are entered no later than a week in advance, so that the service can be scheduled in a timely manner.

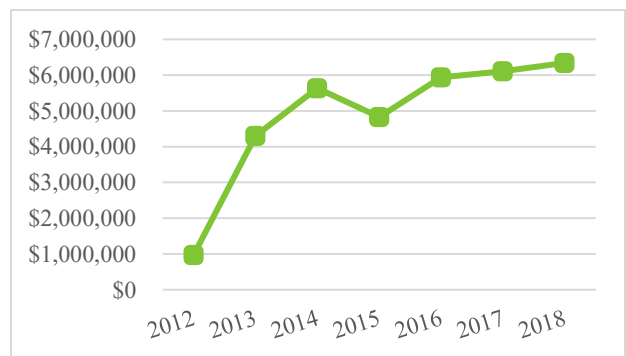
Energy Conservation Savings

July 2012 – December 2018

Period	Month	Savings		Period Totals
		\$	%	
Fast Track 2012	July - December	\$974,122	9.10%	\$974,122
Performance 2013	January - December	\$4,303,899	18.90%	\$4,303,899
Performance 2014	January - December	\$5,630,770	23.10%	\$5,630,770
Performance 2015	January - December	\$4,827,772	19.30%	\$4,827,772
Performance 2016	January - December	\$5,940,086	24.00%	\$5,940,086
Performance 2017	January - December	\$6,102,639	23.90%	\$6,102,639
3rd Performance Quarter FY2018	January	\$459,399	19.90%	\$1,540,142
	February	\$482,610	22.20%	
	March	\$598,133	27.70%	
4th Performance Quarter FY2018	April	\$510,758	25.10%	\$1,530,532
	May	\$450,117	20.50%	
	June	\$569,656	26.20%	
1st Performance Quarter FY2019	July	\$684,707	31.20%	\$1,426,820
	August	\$444,349	19.10%	
	September	\$297,764	13.00%	
2nd Performance Quarter FY2019	October	\$548,894	24.30%	\$1,842,427
	November	\$696,382	30.30%	
	December	\$597,151	28.30%	
Total Program Savings		\$34,119,208	22.56%	

Annual Energy Cost Avoidance

July 2012 – December 2018



Sustainability Coordinators

Sustainability is the dedicated effort of an organization, working together, to reduce the use of finite resources. By evaluating everything from the materials used in the construction of our new schools and renovations, to enhanced storm water management, sustainable purchasing, energy efficiency, and environmental literacy in the classroom, we as a group can decrease the negative impact our activities have on our world, starting today.

The role of a Sustainability Coordinator is not an intense one, but it is very important. Sustainability Coordinators function as ambassadors on behalf of the Energy Management division, conveying our collective message of environmental leadership to each individual site. Each coordinator will be encouraged to create opportunities for discussions about sustainability and energy conservation. The Office of Facilities Services will provide tools for the development of a sustainable culture within each school. Volunteers requiring recertification points could potentially earn up to 5 hours for participation as a site based Sustainability Coordinator.

Education

The Office of Facilities Services incorporates education for students and staff into the overall strategic plan for the School Division. Energy Management staff support the development and implementation of Project Learning Tree (PLT) GreenSchools! modules that focus on Energy, Water, Waste and Recycling, and Environmental Quality. In 2018, Energy Management staff began offering a new certificate program, Green Classroom Professional (GCP). This certificate program is intended for educators, staff, custodians, and facilities personnel. Both courses are registered in the PWCS online Professional Learning Catalog.

PLT GreenSchools! investigations bolster science, technology, engineering, and math (STEM) education while promoting sustainable schools. They provide students with opportunities to actively engage in scientific inquiry as they solve real-world environmental issues at their school. PLT GreenSchools! is a program of the American Forest Foundation, in partnership with the 50-state PLT network, the U.S. Forest Service, the Corporation for National and Community Service, and many other national, state, and local partners. This program is the foundation for the annual Energy Challenge where participating schools can earn up to \$2,000 annually for their efforts - \$1,800 for the site and \$200 for the supervising staff member.

Green Classroom Professional certificate program provides participants with the skills to create sustainable learning spaces, identify features that support or impede environmentally healthy classrooms and energy savings, and help foster a culture that appreciates and models green practices. The GCP certificate program was created by the Center for Green Schools at the U.S. Green Building Council.

Go Green Virginia

The Go Green Virginia program is sponsored by the Virginia School Board Association. The program requires annual documentation and planning for issues relating to environmental stewardship, energy management, indoor air quality, and education of students in the classroom regarding sustainable strategies. PWCS has participated since 2009 earning both the Certified Green School Division award and the Silver Green School certification. In 2018, PWCS was awarded the Platinum Green Schools Division certification and recognized as an overall Green Schools Challenge winner.

Energy Infrastructure Fund

The PWCS Capital Improvements Program (CIP) calls for a portion of the anticipated energy conservation savings to be directed towards continued investment in infrastructure improvements capable of generating additional savings and greater efficiency. Utilizing Energy Infrastructure Improvement funding allocated in the CIP creates sustainable facility improvements that serve a wide range of priorities within the Office of Facilities Services while creating measurable Return on Investment (ROI).

The Energy Management division has endeavored to work with a variety of stakeholders throughout the School Division to identify priorities.

Applicable infrastructure improvements include:

- Conversion of heating systems from fuel oil to natural gas to reduce point of use cost.
- Building management control system installation, upgrades and modernization.
- Lighting control systems.
- Lifecycle modernization/replacement of inefficient and poorly performing mechanical systems.
- Building envelope improvements for better insulated entry points, windows and exterior cladding.
- Sustainability focused enhancements designed to maximize educational opportunities derived directly from school facility sites (e.g. activity trails, ecological studies, civil engineering/ land survey training, renewable energy).

**Anticipated Energy Infrastructure Funding Priorities
Fiscal Years 2020-2024**

Energy Infrastructure Improvement Project	Fiscal Year				
	2020	2021	2022	2023	2024
Building Automation Improvements	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000
LED Lighting Retrofits	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000
Mechanical Infrastructure (Supplemental Heating, Cooling, Dehumidification)	\$300,000	\$400,000	\$400,000	\$400,000	\$400,000
Building Envelope/Thermal Insulation	\$200,000	\$100,000	\$100,000	\$100,000	\$100,000
Third-Party Energy Audits	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
TOTAL	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000

Energy Infrastructure Improvement Projects Fiscal Years 2019 and 2020

FY 2019	
Location	Project Scope
Bel Air ES, Benton MS, Stonewall MS, Woodbridge MS, Forest Park HS	HVAC Equipment Optimization Programs
Parkside MS	Replace Chillers
Mountain View ES, Rippon MS, Gar-Field HS, Woodbridge HS	Replace Water Heater and Expansion Tank
Central Transportation, Stonewall MS, Various HS Auditoriums	LED Lighting Upgrades
Divisionwide	Chiller and Boiler Maintenance Program
Divisionwide	PC Power Management
Divisionwide	Third-Party Energy Audits

FY 2020	
Location	Project Scope
Divisionwide	HVAC Equipment Optimization Programs
Divisionwide	LED Replacement Program
Bel Air ES, Vaughan ES	Dehumidification Upgrades
Divisionwide	Upgrade Temperature Control Systems
Pattie ES, Gainesville MS	Retro-Commissioning
Kelly Leadership Center, Various ES, Rippon MS	SMART Irrigation
Divisionwide	Chiller and Boiler Maintenance Program
Divisionwide	PC Power Management
Divisionwide	Third-Party Energy Audits
Bel Air ES, Dumfries ES, Haymarket ES, Tyler ES, Lake Ridge MS, Woodbridge MS, Colgan HS	Predictive Maintenance Analytics

New Construction

The Office of Facilities Services is committed to the construction of energy efficient, highly performing facilities. Energy Management team members regularly review all energy consuming systems during the design and development of any building construction, renovation or alteration.

The Administrative Coordinator, Energy Management provides final coordination with the Supervisor of Construction for energy management related specifications and construction details.

The Energy Management Division is committed to year-round advocacy for conservation efforts in PWCS.

Utilities

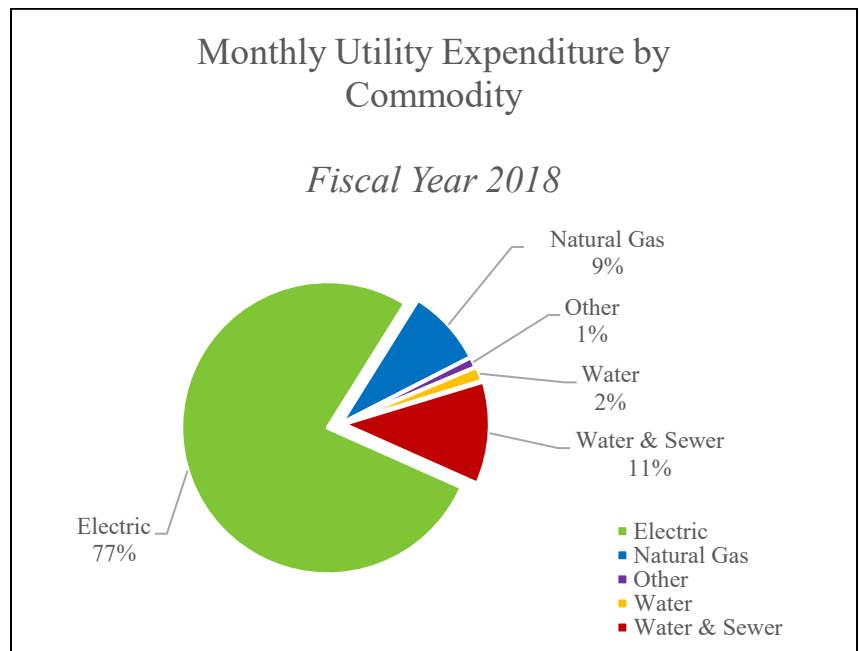
Account Management

Regulation 494-2 establishes responsibilities and operating procedures for the management of utilities by the Office of Facilities Services. It is the responsibility of staff to provide operating utilities and technical services supporting the proper maintenance and operation of school facilities. All utility invoices are processed using customized software called “EnergyCap”. The Administrative Coordinator, Energy Management functions as the liaison for third party contracts and utilities provided by private corporations and companies.

Utilities covered by this provision include:

- Heating Fuels
- Electrical Services
- Water and Sewer Services
- Motorized Fuels

Utility bill data for all PWCS sites is now available for access by the public through the PWCS Energy Management website.



Environmental Compliance

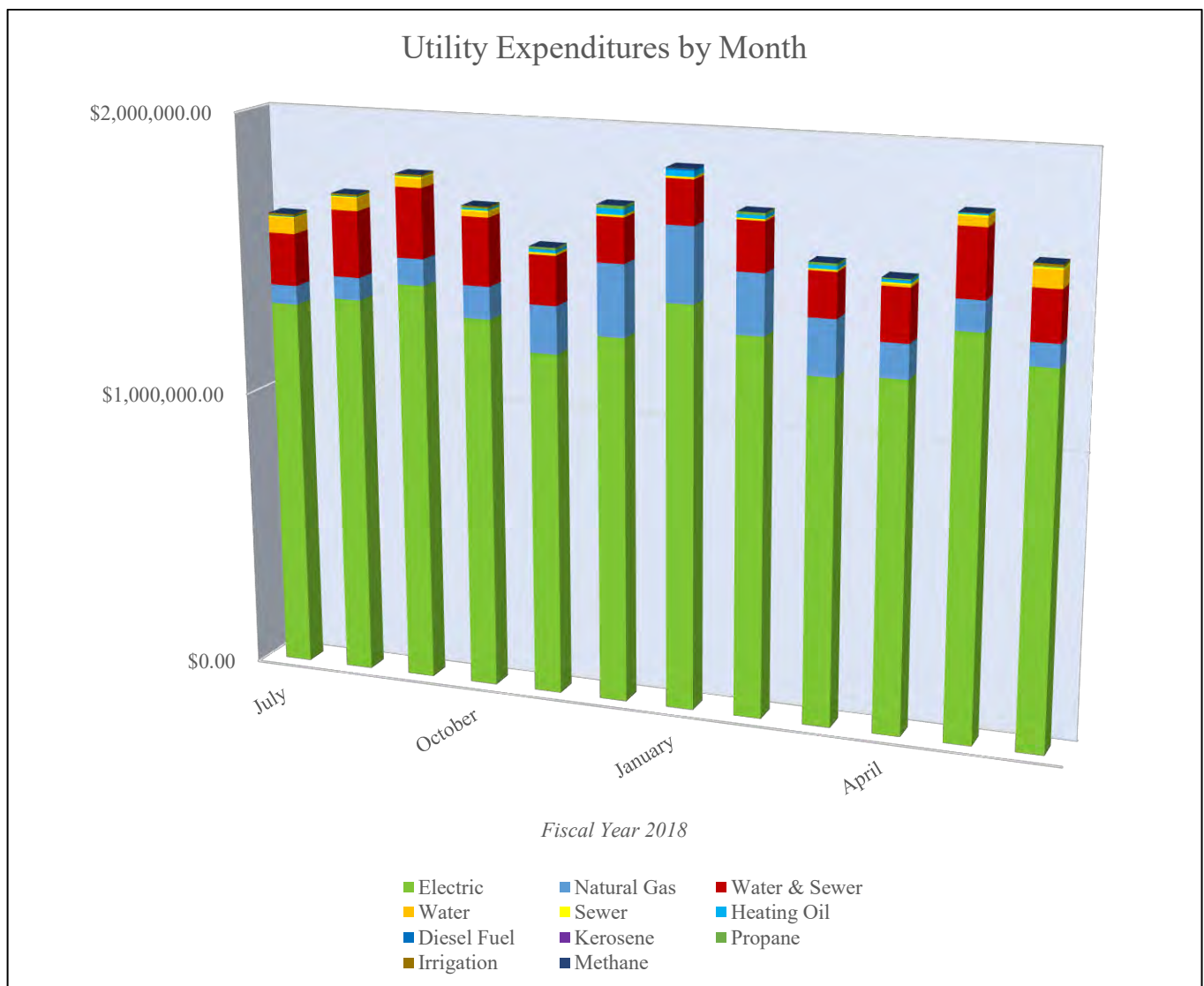
Prior to procurement, delivery or payment of any heating and/or motorized fuels, the Administrative Coordinator, Energy Management ensures coordination with the Administrative Coordinator, Environmental Services, to verify proper delivery techniques, inspect spill control methods, and verify quantity delivered.

Required annual reporting of stored gallonage to the Department of Environmental Quality is the responsibility of the Administrative Coordinator, Energy Management.

Demand Response

Due to the constraints of available electrical utility capacity and required demand, it has become essential for utility providers at times to control the distribution of electricity. Demand response engages customers to reduce their personal or corporate consumption when possible, during critical times, so as not to overload the electrical grid. Utilities sub-contract the administration of demand response programs. Enrollment in such programs means utility customers may be notified of a critical period and subsequently, voluntarily, curtail usage where possible. A rebate is provided based on the extent of curtailment pursued. These peak periods are generally during the summer.

Over summer break, demand response presents a great opportunity for Prince William County Schools to pursue the benefits of demand response as a potential revenue source. Our facilities currently operate on a reduced schedule during these times.



APPENDIX F

Technology Improvement Plan

Future Ready Technology Improvement Plan

2020-2024



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Notes: 1. All Plan Overviews and Objectives are based on the FY 2016 Budgeting for Results Plan.

2. FY 2018 current year expenses are shaded in gray on all charts and are included for reference.

Plan Overview: Data Center/School Upgrades/Replacements

This section includes information regarding the operational, technical, and functional support of the Enterprise Data Centers, backup/restore services, disaster recovery services, and authentication services that are critical to delivering support to students, teachers, parents and staff.

Plan Objectives

Through the PWCS Technology Improvement Plan, data center systems, servers, and backups need to be replaced, refreshed, and maintained on a regular technology improvement plan schedule. This equipment is critical in maintaining and supporting core infrastructure and ensures instructional and business systems are able to access the data and resources needed to support teaching and learning and to perform other critical functions and/or provide data/communications to stakeholders.

The plan will meet the following objectives:

- Replace backup infrastructure to not over exceed capacity which will mean less downtime for school and core business functions Divisionwide.
- Upgrade network infrastructure in the data center on a regular maintenance schedule of five years.
- Upgrade the disaster recovery plan and develop a strategy that includes evaluating the effectiveness of using Independent Hill Complex (IHC) as a disaster recovery site.
- Maintain some physical servers and replace every five years for applications not supported in a virtualized environment.
- To make more efficient use of hardware and environmental resources, invest and maintain virtualization annually.

See detailed chart on the following page.

Data Center/School Upgrades/Replacements – listed in order of priority						
	FY19	FY20	FY21	FY22	FY23	FY24
Pure Storage Infrastructure Replacement		\$450,000				
Physical Data Center SQL Servers – upgrade 2 per year	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000
AIX Finance Servers		\$500,000				
Disaster Recovery	\$250,000	\$200,000	\$100,000	\$100,000	\$100,000	\$100,000
School Server and UPS Replacement		\$600,000				
Server Virtualization		\$200,000		\$250,000		
HMC – Manage the AIX Servers	\$10,000					
Replace Fire Suppression for KLC data center		\$100,000				
Total	\$280,000	\$2,070,000	\$120,000	\$370,000	\$120,000	\$120,000

Plan Overview: VoIP/LAN/WLAN and Bandwidth Upgrades

This section includes information regarding the installation, management, and operational support for the PWCS I-Net wide area network (WAN) including the local area networks (LANs), and wireless area networks (WLANs) throughout the School Division. Upgrades to WAN, LANs and WLANs will improve network access and internet speeds Divisionwide and allow for enhanced instruction.

Plan Objectives

Through the PWCS Technology Improvement Plan, Network Services provides bandwidth and VoIP/LAN/WLAN upgrades Divisionwide. Locations are upgraded based on the end-of-life of their current phone system and in correlation, when possible, with PWCS facilities renovations and additions.

The plan will meet the following objectives:

- Increase bandwidth to meet Federal ConnectEd initiative and the Virginia Department of Education (VDOE) and Education Superhighway recommendations of 1 Mbps per student by 2018.
- Upgrade network infrastructure (Local Area Network, Wireless Local Area Network, and VoIP) Divisionwide.
 - ✓ Schools;
 - ✓ Trailers; and
 - ✓ Central office and other related facilities.

**Note: This will have an associated increase of \$173,000 in internet service provider fees from December 2017-18. An overall increase from FY18 to FY19 is \$260,550.*

VoIP/LAN/WLAN School Upgrades and Replacements – listed in order of priority						
	FY 19	FY20	FY21	FY22	FY23	FY24
Bandwidth Increase		\$75,000 – AWS line	\$2,100,000* To go from 10Gb to 20Gb			
Voice and Data Network Upgrade	\$3,476,117	\$2,394,000	\$2,400,522	\$2,400,522	\$2,400,522	\$2,400,522
Maintain Wireless Trailers	\$275,000	\$275,000	\$275,000	\$275,000	\$275,000	\$275,000

VoIP/LAN/WLAN School Upgrades and Replacements – listed in order of priority						
	FY 19	FY20	FY21	FY22	FY23	FY24
Replacing UPS in LAN Closets		\$500,000	\$500,000			
VoIP Server upgrade	\$210,000					
Divisionwide VoIP upgrade		500,000				
Total	\$3,961,117	\$3,669,000	\$5,275,522	\$2,675,522	\$2,675,522	\$2,675,522

Plan Scope

Tentative LAN, WLAN, and VoIP Upgrades Schedule

The following charts provide a tentative schedule over the next five years of locations to be upgraded. The VoIP telephone replacement sequence is based on the age of existing equipment in each facility and coordinated with renovations and new construction.

Note: Light-blue-shaded boxes in the charts indicate service upgrades that still need to be completed.

2018-19 School Year (FY19)			
School	LAN	WLAN	VoIP
Alvey ES	\$75,000	\$81,000	
Bel Air ES	\$75,000	\$81,000	
Bennett ES	\$75,000	\$81,000	Completed
Dale City ES	\$75,000	\$81,000	
Featherstone ES	Completed	\$81,000	Completed
King ES	Completed	\$81,000	Completed
Lake Ridge ES	\$75,000	\$81,000	Completed
Leesylvania ES	\$75,000	\$81,000	In Process
Loch Lomond ES	\$75,000	\$81,000	Completed
Marumsco Hills ES	\$75,000	\$81,000	
Mary Williams ES	\$75,000	Completed	
Montclair ES	\$75,000	\$81,000	In Process
Mullen ES	Completed	\$81,000	Completed
Penn ES	\$75,000	\$81,000	
Piney Branch ES	\$75,000	\$81,000	
Rockledge ES	\$75,000	\$81,000	
Rosa Parks ES	\$75,000	\$81,000	
Sinclair ES	\$75,000	\$81,000	
Vaughan ES	\$75,000	\$81,000	
West Gate ES	\$75,000	\$81,000	
Woodbine Preschool	\$25,000	\$30,000	Completed
Beville MS		\$115,000	
Upgrade School WAN Links		\$492,117	
Total	\$1,300,000	\$2,176,117	\$0
Grand Total		\$3,476,117	

2019-20 School Year (FY20)			
School	LAN	WLAN	VoIP
Ashland ES	\$75,000	Completed	
Bristow Run ES	\$75,000	\$81,000	
Buckland Mills ES	Completed	Completed	
Cedar Point ES	\$75,000	\$81,000	
Ellis ES	\$75,000	Completed	
Enterprise ES	\$75,000	\$81,000	
Fannie Fitzgerald ES	\$75,000	\$81,000	Completed
Glenkirk ES	\$75,000	\$81,000	
Marshall ES	Completed	Completed	In Process
Mountain View ES	Completed	\$81,000	Completed
River Oaks ES	\$75,000	\$81,000	In Process
Samuel Gravely ES	\$75,000	\$81,000	Completed
Signal Hill ES	\$75,000	\$81,000	
Springwoods ES	Completed	\$81,000	Completed
T. Clay Wood ES	\$75,000	\$81,000	
Triangle ES	\$75,000	\$81,000	Completed
Victory ES	\$75,000	\$81,000	
Pennington Traditional	\$50,000	\$45,000	
Bull Run MS	Completed	Completed	
Fred Lynn MS	Completed	Completed	
Rippon MS	Completed	\$115,000	
Total	\$1,100,000	\$1,294,000	\$0
Grand Total	\$2,394,000		

At the end of FY20, all school's infrastructure Divisionwide will have been upgraded. FY21 LAN/WLAN/VoIP schools to be updated is to be determined. For FY21 the focus would go back to the initial schools that were upgraded over four years ago and start the upgrade process over again as needed and based on new technologies. Estimated cost \$2,400,522.

Completed Upgrades Updated 10/3/18			
School	LAN	WLAN	VoIP
Antietam ES	Completed	Completed	Completed
Belmont ES	Completed	Completed	Completed
Chris Yung ES	Completed	Completed	Completed
Covington-Harper	Completed	Completed	Completed
Dumfries ES	Completed	Completed	Completed
Haymarket ES	Completed	Completed	Completed
Henderson ES	Completed	Completed	Completed
Kerrydale ES	Completed	Completed	
Kilby ES	Completed	Completed	Completed
Kyle Wilson ES	Completed	Completed	Completed
Lake Ridge ES	Completed	Completed	Completed
McAuliffe	Completed	Completed	Completed
Minnieville ES	Completed	Completed	In Process
Neabsco ES	Completed	Completed	Completed
The Nokesville School	Completed	Completed	Completed
Occoquan ES	Completed	Completed	
Old Bridge ES	Completed	Completed	Completed
Pattie ES	Completed	Completed	Completed
Potomac View ES	Completed	Completed	Completed
Sudley ES	Completed	Completed	Completed
Swans Creek	Completed	Completed	
Tyler ES	Completed	Completed	
Westridge ES	Completed	Completed	Completed
Yorkshire ES	Completed	Completed	Completed
Middle Schools			
Benton MS	Completed	Completed	Completed
Gainesville MS	Completed	Completed	Completed
Hampton MS	Completed	Completed	Completed
Graham Park MS	Completed	Completed	Completed
Lake Ridge MS	Completed	Completed	Completed
Marsteller MS	Completed	Completed	Completed
Parkside MS	Completed	Completed	Completed
Porter Traditonal	Completed	Completed	Completed
Potomac MS	Completed	Completed	Completed
Reagan MS	Completed	Completed	Completed
Saunders MS	Completed	Completed	Completed
Stonewall MS	Completed	Completed	Completed
Woodbridge MS	Completed	Completed	Completed
High Schools			
Battlefield HS	Completed	Completed	Completed
Brentsville HS	Completed	Completed	Completed
Colgan HS	Completed	Completed	Completed
Forest Park HS	Completed	Completed	Completed
Freedom HS	Completed	Completed	Completed
Garfield HS	Completed	Completed	Completed
Hylton HS	Completed	Completed	Completed
Independence NT	Completed	Completed	Completed

Completed Upgrades Updated 10/3/18			
Osbourn Park HS	Completed	Completed	Completed
Patriot HS	Completed	Completed	Completed
Potomac HS	Completed	Completed	Completed
Stonewall Jackson HS	Completed	Completed	Completed
Woodbridge HS	Completed	Completed	Completed
PACE West			Completed
EKLC	Completed	Completed	Completed
IHC	Completed	Completed	Completed
Transportation East			Completed
Transportation West			Completed
Transportation Central			Completed
Transportation Hooe Rd			Completed
Totals	63	59	65

Plan Overview: Network/Infrastructure/Replacements

This section includes information regarding information security operations to provide confidentiality, integrity, and availability for all PWCS network and computer system assets. Information Security Services supports the design, implementation, management, and maintenance of all information security solutions Divisionwide to identify and prioritize security risks. The PWCS network is FERPA, CIPA and COPPA complaint ensuring the protection of student and staff data and their safety in our online environment.

Plan Objectives

Through the PWCS Technology Improvement Plan, Information Security Services provides firewalls, intrusion prevention systems, DNS, email/spam filtering, forward/reverse proxies, content filtering, malware and patch management, auditing, and security management.

The plan will meet the following objectives:

- Provide for enterprise wireless management, network system identification, access control, and segmentation.
- Meet future ready bandwidth requirements and replace end-of-life hardware with additional firewall, VPN, and intrusion prevention.
- Incident and event correlation solution to log and capture event data through SIEM.
- Decrypt encrypted network traffic and actively pass traffic to proxy, firewalls, and intrusion prevention systems.
- Analyze network traffic including spam, websites, and executables in a protected environment and detonate payloads in real-time to ensure malicious content does not get downstream to critical systems.

Security/Infrastructure Upgrades/Replacements – listed in order of priority						
	FY 19	FY20	FY21	FY22	FY23	FY24
Network Access Control Hardware	\$52,000					
Divisionwide Enterprise Class Forward Proxies	\$400,000		\$400,000			\$400,000

Security/Infrastructure Upgrades/Replacements – listed in order of priority						
	FY 19	FY20	FY21	FY22	FY23	FY24
Replacing Reverse Proxies (load balancer)		\$40,000		\$40,000		\$40,000
Divisionwide Enterprise Class Perimeter and Datacenter Firewalls, VPN, AAA		\$150,000			\$715,000	
Divisionwide Enterprise Cloud Based SIEM Incident and Event Correlation Solution			\$561,751			
Network Encryption Tap Appliance		\$150,000				
Spam and Network Traffic Sandboxing		\$100,000				
Total	\$452,000	\$440,000	\$961,751	\$40,000	\$715,000	\$440,000

Note: The TIP has been modified to reflect the results of the FY 2016 internal audit.

Plan Overview: Replacement of Divisionwide Enterprise Systems

This section includes information regarding human resource management, financial, operational, technical, and functional support for applications within the School Division. These systems provide technical support for data analysis reporting, development, maintenance, hiring, and payroll.

Plan Objectives

Through the PWCS Technology Improvement Plan, Information Technology Services will replace PowerSchool student information system due to end-of-life. Financial Services will upgrade AMS to version 3.11 for greater functionality, efficiency, transparency, accountability and information access. The Office of Human Resources will implement a new observation, hiring, and evaluation process that aligns with state and local requirements, and facilitating collaboration between teachers, principals and staff.

The plan will meet the following objectives:

- Replace the current end-of-life student information system. The new student information system will be cloud-based, provide single sign-on, and a better overall user experience for parents, teachers and students through ease of access.
- Upgrade the current AMS financial system.
- Implement a human resources management system for hiring, and evaluation management.

Divisionwide Enterprise Systems						
	FY 19	FY20	FY21	FY22	FY23	FY24
Student Information System (once purchased ongoing costs will be part of the ITS operation budget)	\$3,171,228	\$1,094,300				
AMS Upgrade			\$2,750,000			
Credit Card Acceptance	\$1,131,875					
HR Talent Management	\$829,106					
Media Services Backup System Replacement	\$750,000					
Total	\$5,882,209	\$1,094,300	\$2,750,000	\$0	\$0	\$0

Computer Refresh

Plan Overview: Refresh

This section includes information that will outline the age-based refresh cycle for technology devices in PWCS along with associated costs over the next five years.

Plan Objectives

The age-based refresh is one avenue to equip students, teachers, administrators, and support staff, with the needed tools to support the Strategic Plan by integrating technology into instruction and business operations. The PWCS age-based technology refresh is not intended to replace all equipment, serve as the sole funding source for technology equipment, or drive instructional and operational goals.

Included in the Refresh Plan

Across the School Division there is a variety of technology in classrooms. For the scope of this refresh plan, we are including Division-standard equipment and replacing it based on the age of each asset across the School Division, some dating back to 2004. Therefore, refresh funds will not be equally divided between schools. Instead, to get the School Division on an “even playing field,” available funds will be expended where the oldest computers and related equipment are located. Information Technology Services notifies schools of the age of all their technology equipment, the plan’s schedule to replace/update it over a five-year period, and options within 50/50 matches (when offered/available) to refresh the remaining equipment. This provides schools with the information needed to fiscally plan for their participation in 50/50 match opportunities. For schools that participate in the 50/50 match, on average schools can receive an additional 10-20 computers.

The following equipment is included in the refresh plan:

- All “Red Tag” non-Windows 7 or higher capable computers in the School Division;
- Desktops;
- Laptops;
- Servers; and
- Storage Area Networks (SANS) and will assess and implement cloud storage when appropriate.

Fully-Funded Computer/Server Refresh						
	FY19	FY20	FY21	FY22	FY23	FY24
Information Systems Equipment	\$0	\$600,000	\$0	\$0	\$0	\$0
Schools/Offices	\$22,832,910	\$10,327,366	\$5,141,360	\$3,938,228	\$11,459,454	\$886,648
Total	\$22,832,910	\$10,927,366	\$5,141,360	\$3,938,228	\$11,459,454	\$886,648

Fully-Funded Computer Refresh vs Funded						
	FY19	FY20	FY21	FY22	FY23	FY24
*By Year Funded Refresh	\$22,832,910 Replace all 5+ years old in 2018	\$10,327,366 Replace all 5+ years old in 2019	\$5,141,360 Replace all 5+ years old in 2020	\$3,938,228 Replace all 5+ years old in 2021	\$11,459,454 Replace all 5+ years old in 2022	\$886,648 Replace all 5+ years old in 2023
VPSA Funded Refresh	2,338,000	2,338,000	2,338,000	2,338,000	2,338,000	2,338,000
Total	-\$20,494,910	-\$7,989,366	-\$2,803,360	-\$1,600,228	-\$9,121,454	\$1,451,352

**Note: Current plan does not include a refresh for all technology equipment (e.g., interactive whiteboards, printers, tablets), estimated to cost an additional \$1,000,000+ annually.*

Snapshot of the Refresh with Projected VPSA Funding and 50/50 Match						
	FY 19	FY20	FY21	FY22	FY23	FY24
Information Systems Equipment	\$0	\$600,000	\$0	\$0	\$0	\$0
School 50/50	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000
ITS 50/50	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000
Straight Refresh Funding for Schools	\$1,988,000	\$1,388,000	\$1,988,000	\$1,988,000	\$1,988,000	\$1,988,000
Total	\$2,688,000	\$2,688,000	\$2,688,000	\$2,688,000	\$2,688,000	\$2,688,000

Snapshot of the Projected Cost Differential in Funded vs. Fully-Funded						
	FY19	FY20	FY21	FY22	FY23	FY24
*Averaged Funded Refresh	\$9,097,661	\$9,097,661	\$9,097,661	\$9,097,661	\$9,097,661	\$9,097,661
VPSA Only Funded Refresh	\$2,338,000	\$2,338,000	\$2,338,000	\$2,338,000	\$2,338,000	\$2,338,000
Difference	-\$6,759,661	-\$6,759,661	-\$6,759,661	-\$6,759,661	-\$6,759,661	-\$6,759,661

**Note: 1. The amounts for the fully funded refresh have been averaged out over a six-year period. Total cost for a complete Divisionwide refresh would be \$54,585,966.*

Plan Implementation Costs Overall

Comprehensive TIP						
	FY 19	FY20	FY21	FY22	FY23	FY24
Data Center/School Upgrades/Replacements	\$280,000	\$2,070,000	\$120,000	\$370,000	\$120,000	\$120,000
VoIP/LAN/WLAN School Upgrades and Replacements	\$3,961,117	\$3,669,000	\$5,275,522	\$2,675,522	\$2,675,522	\$2,675,522
Security/Infrastructure Upgrades/Replacements	\$452,000	\$440,000	\$961,751	\$400,000	\$715,000	\$440,000
Divisionwide Enterprise Systems	\$5,882,209	\$1,094,300	\$2,750,000	-	-	-
Computer Refresh Average (additional funding would be needed if fully-funded)	\$9,097,661	\$9,097,661	\$9,097,661	\$9,097,661	\$9,097,661	\$9,097,661
Projected Estimated Totals	\$19,672,987	\$16,370,961	\$18,204,934	\$12,543,183	\$12,608,183	\$12,333,183

- When revenue is insufficient to cover expenses, items in the age-based computer refresh will be delayed until future years, unless 50/50 school matching funds (when offered/available) exceeds expectations.
- The non-fully-funded equipment would cost an additional \$4.3 million (on average) annually (e.g. \$1.8 million for interactive whiteboards, tablets, and printers and \$2.5 million for computers).

Projected Local, State and Federal Revenue

Projected Revenue						
	FY19	FY20	FY21	FY22	FY23	FY24
PWCS Five-Year Budget* Plan	\$6,671,228	\$5,094,300	\$4,500,000	\$5,000,000	\$5,500,000	\$6,000,000
Federal E-Rate Type I*	-	-	-	-	-	-
Federal E-Rate, Type II Modernization*	\$1,480,130	\$1,182,387	-	-	-	-
50/50 Computer Refresh (Revenue from Schools)	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000
VPSA State Technology Incentive Program*	\$2,338,000	\$2,338,000	\$2,338,000	\$2,338,000	\$2,338,000	\$2,338,000
Local Cable Franchise Fees*	\$400,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
LOCAL, STATE, AND FEDERAL TOTALS	\$11,239,358	\$9,164,687	\$7,388,000	\$7,888,000	\$8,388,000	\$8,888,000
PROJECTED REVENUE (+/-) VS. PLAN IMPLEMENTATION	-8,433,629	-7,206,274	-10,816,934	-4,655,183	-4,220,183	-3,445,183

- *Notes: 1. FY19-FY20 PWCS Five-Year Budget Plan includes funding to replace the vendor end-of-life student information system (FY18 - \$2,134,472, FY19 - \$3,171,228, FY20 - \$1,094,300 = \$6.4 million total).
2. These revenue sources have restrictions on the technology and services that can be purchased. For FY21-FY24, E-Rate Type II revenue is not included pending available funding from the Federal Government.
3. These revenue sources do not include year-end funding that has supplemented the TIP over recent years.