



Capital Improvement Program LCPS Capital Facility Planning Guidelines

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LCPS Capital Facility Planning Guidelines

ADOPTED BY THE LOUDOUN COUNTY SCHOOL BOARD ON DECEMBER 13, 2022

SECTION 1: Purpose of the Capital Facility Planning Guidelines

The purpose of the Loudoun County Public Schools (LCPS) Capital Facility Planning Guidelines is to identify the general planning principles and goals that the Loudoun County School Board (LCSB) and the Loudoun County Board of Supervisors have agreed upon in the development of the long-range capital building program to provide public school facilities in Loudoun County. The document serves in tandem with the Capital Improvement Program (CIP) documents outlining new construction, the Capital Asset Preservation Program (CAPP), and the Capital Renewals Program (CRP), which, together, provide public information and opportunity for public input. Planning principles will be used to identify and quantify the requirements for the construction of new schools and to ensure that existing schools are safe, quality places for students to learn and for employees to work. This document replaces the school standards identified in the adopted 2017 Capital Facility Standards and the previously adopted 2010 Capital Facility Planning Guidelines.

The Capital Facility Planning Guidelines support the Loudoun County School Board's stated mission and goals of providing a superior education, safe schools, and a climate for success. Requirements ensure that all students, faculty, and staff have access to quality facilities, resources, technology, and instructional programs. The Guidelines are based upon minimum requirements in the Virginia Department of Education's "Guidelines for School Facilities in Virginia's Public Schools" and LCPS' application thereof.

SECTION 2: Planning Process

The School Board annually adopts a Capital Improvement Program (CIP) budget. The CIP is a forecast of expenditures for land acquisition; site development; design; construction; and furniture, fixtures, and equipment (FFE) costs associated with the development of new or renovated schools, infrastructure, and other school-related facilities.

As a 30-year capital plan, the School Board's CIP addresses an immediate short term six-year plan, a medium-term plan (years seven through ten), and a long-term outlook (years 11 through 30). Projects included in the CIP are based on education program requirements, School Board-endorsed educational policy standards, and the ability of existing school facilities to accommodate present and future instructional programs and student enrollments.

LCPS monitors student enrollment and assesses the need for capacity in our schools on an ongoing basis. Each fall, six-year student enrollments are developed for the division and each individual school by grade. The enrollment projections are utilized for a variety of planning and decision-making functions among which operational and budgeting needs are the most essential. Student enrollment projections, school capacities, and county population trends influence the priority order of projects and the funding plans in the School Board's CIP – specifically the construction of new schools, classroom additions and facility renovations.

SECTION 3: School Design Objectives

With a mission of "empowering all students to make meaningful contributions to the world," LCPS has developed strong facility standards to support the creation and maintenance of state-of-the-art teaching and support spaces.

Most recently updated in 2021, the Virginia Department of Education's (VDOE) "Guidelines for School Facilities in Virginia's Public Schools" have long served as the basis of the LCPS Educational Specifications and Guideline Specification standards and "define the minimum standard that all schools in Virginia should meet and are a design



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starting point for school facility planners, architects, and local school divisions. School facility planners and local school divisions are encouraged to adapt these recommendations as needed to meet the needs of a school's educational programs." Additionally, the *Code of Virginia* requires the Board of Education to review their "Standards of Quality" document every two years. Most recently revised in 2021, there are three (3) priorities stated: to promote educational equity for all students; to support the recruitment and retention of educational personnel; and to support the "Profile of a Virginia Graduate." Each of these priorities directly aligns with the LCPS mission.

From the VDOE guidelines and recommendations, LCPS has developed and maintains Educational Specifications for each school level – elementary, middle, and high schools – as well as comprehensive Guideline Specifications for standard specifications for all facilities. The primary objective of the LCPS Educational Specifications is to establish the LCPS minimum requirements for new construction, however the document also serves as a tool to review parity and equity for improvements of older facilities. Included in the Educational Specifications are LCPS-tailored strategies for site design, building design and requirements for technology, furnishings, fixtures, and equipment. Additional detail is discussed in Sections 4 and 5.

Additionally, LCPS has several targeted planning objectives that are considered for all new school projects as they are developed:

A. Co-Location of Facilities: Co-location of school and public facilities is a strategy supported by Loudoun County School Board and the Loudoun County Board of Supervisors with both infrastructure and operational benefits. LCPS and Loudoun County Government have a long history of successful co-location including school facilities and community, recreation or public safety uses. Staff considers appropriate co-location based on site acreage during the LCPS capital needs assessment and life cycle management process and Capital Improvement Program (CIP) development processes.

B. Community Use: Loudoun County Government, including the Office of Elections and the Department of Parks, Recreation and Community Services (PRCS) have priority to use school buildings and grounds when not required for school use. The original agreement between the Loudoun County School Board and the Loudoun County Board of Supervisors dates to the 1967-1968 timeframe. School Board Policy and Regulation 6310, *Facility Use*, defines the conditions for community use of school facilities.

LCPS and PRCS also work together to determine school facilities available to host other community uses including after school childcare and athletics, as examples.

C. Emergency Use: In coordination with the Loudoun County Office of Emergency Management, LCPS works in an active and continual manner to support school and community needs in emergency and/or shelter circumstances in coordination to provide community programs, services and support public safety.

D. Sustainability, Energy, and Environmental Stewardship: LCPS is committed to and has a strong history in energy and environmental stewardship and is continuously exploring advancements in sustainable design, technology and high-performance building and system practices in design and construction. In 2010, the School Board adopted Policy 6410, *High Performance Building Design, Construction and Operations*, implementing sustainable practices in environmental quality, water and energy consumption, renewable energy generation, products, materials, and waste management in new facilities and school renovation projects. LCPS has a long and established history of being awarded the ENERGY STAR Partner of the Year Sustained



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Excellence Award as a benchmark of energy stewardship achievement. LCPS Environmental Requirements and Goals are part of each major design contract outlining specific strategies, life cycle cost analysis requirements for building systems selection, and energy performance criteria.

LCPS design objectives, Educational Specifications, Guideline Specifications, and standards are provided to all consulting architects. Design parameters are reviewed by LCPS during the design process for new school and renovation projects to ensure the strategic objectives are met, as applicable to the project.

SECTION 4: Site Design

The overall design process begins years in advance with pre-design studies linked to the findings and proposed facility plans as developed through the LCPS capital needs assessment and life cycle management process as presented in the CIP. Site selection and land acquisition processes are based on the needs identified in the CIP and the School Board's capital budget. The standards provide flexibility in planning for school development to meet community needs. For public schools in Loudoun County, LCPS follows the following general planning guidelines:

A. Elementary School:

- Building Square Footage: 100,000 – 120,000 GSF
- Site Acreage: Up to 20 Usable Acres
- Standard: 900-1,000 pupils

B. Middle School:

- Building Square Footage: 185,000 – 215,000 GSF
- Site Acreage: Up to 35 Usable Acres
- Standard: 1,350 – 1,500 pupils

C. High School:

- Building Square Footage: 290,000 – 345,000 GSF
- Site Acreage: Up to 75 Usable Acres
- Standard: 1,800 – 2,100 pupils

These standards exceed the VDOE recommended minimum site acreage to accommodate for outdoor programmed spaces including, but not limited to playgrounds, Physical Education areas and athletics or recreation areas as well as ancillary support. Site acreage identified is based on usable area excluding acreage that cannot be built upon and considering applicable zoning, infrastructure and stormwater management requirements and necessary site circulation for pedestrians, busses and cars. Flexibility for varying existing site conditions is important in the site planning process to accommodate all required program elements. All LCPS site design standards are documented in the LCPS Educational Specifications.

Simplicity of entrance access and a completely separated pedestrian, car, and bus circulation paths are primary LCPS goals of school site design. Adequate staff and visitor parking as well as bus parking, where applicable, may consume 4 – 12 acres on a traditional site alone. Configuration of the parcel in relation to roadway infrastructure must be considered in the overall site circulation patterns. Providing a clear, separated circulation path for parent drop off and pick up from the bus loop along with sufficient queuing space for both paths are other large acreage functions. These functions are critical to both the operational success and safety of active school sites.



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Physical Education, recreation, and athletics along with supporting functions are also large programmatic drivers for school sites. Playgrounds are governed by School Board Policy and Regulation 6320, *Playgrounds*, and are commonly used by students during the school day and by the public during non-school hours. LCPS playgrounds are designed to meet accessibility requirements and an inclusive playground will be installed when space and funding permit, as part of new elementary school construction.

Physical Education, recreation and athletics elements vary by school level and are generally planned by LCPS as follows and as site conditions allow:

Elementary School Elements	Quantity	Minimum Size
Multi-Use (Hard Surface)	1	55' x 170' for US Map
Multi-Use (Hard Surface) Basketball	1	60' x 120'
Fenced Play Area (Kindergarten)	1	Varies
Playground	1	70' x 80'
Multi-Use Playing Field with Walking Track: 4 Options		
1 – Large Soccer Field with Irrigation	1	225' x 360'
2 – Small Soccer Field with Irrigation	1	138' x 228'
3 – U8 Micro Soccer Field	1	90' x 150'
4 – U6/U7 Soccer Field	2	75' x 105' each
Softball Field	1	200' left to right field 20' backstop to home plate
Middle School Elements		
	Quantity	Minimum Size
Multi-Use (Hard Surface) Basketball	1	96' x 224'
Multi-Use Playing Field with Walking Track: 4 Options		
1 – Large Soccer Field with Irrigation	2	225' x 360'
2 – Small Soccer Field with Irrigation	2	138' x 228'
3 – U8 Micro Soccer Field	2	90' x 150'
4 – U6/U7 Soccer Field	4	75' x 105' each
Softball Field	1	200' left to right field 25' backstop to home plate
High School Elements		
	Quantity	Minimum Size
Stadium with Lighting, Press Box, Track, etc. with artificial turf	1	195' x 300' Soccer 160' x 300' Football
Softball Field with Lighting and Press Box	1	200' left to right field 30' to home plate
Baseball Field with Lighting and Press Box	1	310' left to right field 60' backstop to home plate
Practice Fields with Lighting with artificial and natural turf	2	55 yds x 120 yds
Tennis Courts with Lighting Pickleball Courts	6	36' x 78' each

In support of high school extracurricular activities, LCPS sites also include a Concession Stand Building with Restrooms, a Storage Building, a Team Room Building with Restrooms, Baseball and Softball Press Box Buildings, a Ticket Booth, Tractor Storage, Marching Band Storage and Observation Towers.

As growth in Loudoun County continues and traditional suburban or rural sites of large acreage are less available, it should be considered that school site design will be challenged by existing condition constraints. The same is true as Loudoun develops more urban areas surrounding Metro – the site requirements are no longer necessarily



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prototypical; flexibility will be necessary to maximize site utilization while delivering all the programmatic requirements. Loudoun County Zoning Ordinance requirements, both current and future, will affect the site design approach for school sites and will require further analysis that is project specific. These considerations may also apply to additions and renovations of existing school facilities.

SECTION 5: Building Design

The building design process at LCPS begins with a verification of program for the particular school. LCPS has long maintained prototypical building programs that are site-adapted as school facilities are planned through the LCPS capital needs assessment and life cycle management process as presented in the CIP. As referenced in Section 4, the Capital Facilities Standards provides for a range of pupil planned capacity for each school level with planned capacity as follows:

- A. Elementary School: 900 – 1,000 pupils
 - Kindergarten through Grade Five
 - Planned Capacity of 23 students per General Education Classroom and 10 students per Special Education Classroom
 - Art, Music, Gym, Media Center, Cafeteria, Administrative Office, and Support
 - Classroom Restrooms provided in Kindergarten – Grade Three
 - Regional Classrooms

- B. Middle School: 1,350 – 1,500 pupils
 - Grades Six through Eight
 - Planned Capacity of 19 students per General Education Classroom and 10 students per Special Education Classroom
 - Fine Arts, Auditorium, Career & Technical Education, Labs, Main Gym, Auxiliary Gym, Media Center, Cafeteria, Administrative Office, and Support

- C. High School: 1,800 – 2,100 pupils
 - Grades Nine through Twelve
 - Planned Capacity of 21 students per General Education Classroom and 10 students per Special Education Classroom
 - Fine Arts, Auditorium, Career & Technical Education, Labs, Main Gym, Auxiliary Gym, Athletics Facilities as outlined in Section 4, Media Center, Cafeteria, Administrative Office, and Support

- D. Additional Program Elements:
 - Elementary, Middle and High School Level Collaboration Spaces
 - Elementary, Middle and High School Level Privacy Restrooms
 - Middle and High School Privacy Showers/Changing

This planned capacity becomes the basis of the building program and, with VDOE Guidelines on instructional space including recommendations for Classroom sizes, LCPS develops a school-specific building program to meet the instructional philosophy and educational delivery objectives.

To deliver state-of-the-art education to the students of Loudoun County, LCPS follows the VDOE Guidelines on standard classroom sizes for new construction. Major renovations endeavor to also meet the current VDOE Guidelines. School size and design is guided by educational program requirements and standards established by the Loudoun County School Board. Classroom sizes include all features such as storage, countertops, however,



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exclude classroom toilets. All LCPS building design standards are documented in the LCPS Educational Specifications.

Similar to site design considerations, as growth in Loudoun County continues, flexibility within the general parameters of the approved Capital Facility Standards and the LCPS historical prototypical program will need consideration. For example, in School Year 2022 – 2023, LCPS opened its first three-story Elementary School and has under construction, its first four-story Middle School. Site adapting the prototypical program will continue to be a challenge on constrained and more urban sites necessitating increased square footage in building programming for duplication of functions on multiple floors, increased vertical and horizontal circulation and building support.

Both new construction and renovation projects must study continued development of building design and new instructional initiatives in realms that include student support areas including mental health, expanded STEM (Science, Technology, Engineering and Math) and CTE (Career and Technical Educations) programs, Project Based Learning (PBL), specialized services, and other requirements that will continue to inform space programming in all levels of schools. Safety and security are paramount and are assessed through multiple lenses during the site and building design including application of Crime Prevention Through Environmental Design (CPTED) principles and review of projects. Flexibility in design will require attention to create adaptable spaces supported by furniture and technology that can support all student and staff needs with longevity. Renovation projects aim to achieve the same LCPS requirements as new construction projects, however, the existing site and building constraints will require project-specific analysis. Qualitative aspects of design including access to daylight, acoustics and thermal comfort play important roles in the experience for staff and students.

SECTION 6: Furniture, Fixtures and Equipment including Technology

LCPS maintains strong standards of Furniture, Fixtures and Equipment (FFE) and Technology to deliver and support school facilities and 21st century learning. FFE is included in all new construction and renovation projects. FFE efforts include, but are not limited to, furniture, fixtures, and equipment, but also technology equipment and software, instructional materials and equipment required to support and maintain the facility to deliver a fully outfitted, turn-key project.

SECTION 7: Life Cycle Planning

LCPS endeavors to build 75-year buildings to serve the educational mission of Loudoun County and support community uses year-round. Major renovations and/or additions to existing schools are considered when additional permanent/long-term capacity is needed and full condition evaluations are conducted at the mid-life facility age. The trigger for additional capacity or replacement is evaluated and established each year through the School Board Adopted CIP. Renovations and additions increasing capacity must consider the impact to the building's core capacity in areas including but not limited to restrooms, Cafeteria, Media Center, Administrative Office, and Gyms.

Throughout a school's life cycle, maintenance and improvements may also be funded through the Capital Asset Preservation Program (CAPP) or through the Capital Renewals Program (CRP) portion of the CIP budget. In accordance with LCPS Policy 6410, *High Performance Building Design, Construction and Operations*, schools should be managed in terms of life cycle and instructional appropriateness. When a facility has aged to 75 years, evaluation to determine if the structure should continue to support instructional requirements and activities with either minor capital improvements, a major capital renovation, or complete capital replacement of the facility to meet new school facility design standards. Critical systems replacements are commonly considered when a building has aged to 30 years or greater. Analysis of existing facilities and their life cycle considerations relative to renovation or replacement will be identified in the annual School Board Adopted CIP.



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SECTION 8: Support Facilities

LCPS evaluates the need for additional support facility space based upon a full programming analysis. As a means to apply standardized space allocations, this analysis identifies individual department requirements, role or position responsibilities, key job functional requirements and level of responsibility. Needs will be analyzed from a cost benefit perspective and may include analysis of lease space alternatives. As growth continues, needs for expanded support or Administrative Space will be identified in the annual School Board Adopted CIP.

SECTION 9: Conclusion and Future Updates

The LCPS Capital Facility Planning Guidelines will continue to serve as the School Board and Loudoun County Board of Supervisors endorsed guide to the development of school facility projects including buildings and sites, renovations, and new construction alike via adoption of the CIP. Changes to the Educational Specifications will continue to be required over time with VDOE updates or other legislative revisions. These updates would be presented during the School Board's subsequent Capital Budget Process. The effect of growth within the County will continue to be managed to ensure resource equity between older and newer facilities such that all students, faculty and staff have access to quality facilities, resources, technology, and instructional programs.