IV. Enrollment Projections and Facility Needs Analysis

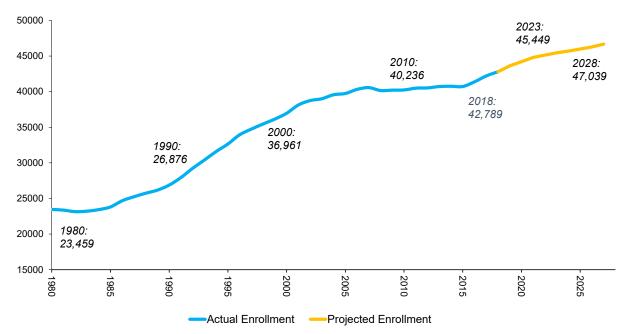
FCPS anticipates future facility needs by reviewing projected enrollment growth and the need for scheduled major maintenance or renovation and repair of existing buildings. Facility needs are also affected by changes in the instructional program. These changes can be initiated locally or mandated by the state. Identifying future facility needs is a central purpose of this Master Plan.

SYSTEM-WIDE ENROLLMENT PROJECTIONS

Historic Enrollments

<u>Figure 4A</u> below shows the total number of students enrolled in FCPS schools from 1980 to the present, along with 10 year projections. FCPS experienced the greatest rate of enrollment growth in the 1990's when enrollment increased by 10,085 students. Between 2000 and 2010, enrollment increased by 3,275 students. An increase of 3,970 students is anticipated between 2010 and 2020. The change in the enrollment growth rate since 2000 is due in large part to a decrease in birth rate for Frederick County. However, birth rates have stabilized while residential growth and in-migration has increased as noted in <u>Chapter II</u>. Therefore, we anticipate that student growth will continue at the same rate or be slightly higher in the coming years.

Figure 4A: Total Enrollments 1980-2028



Projected Enrollments

System-wide equated enrollment projections, developed with information provided by the Maryland Department of Planning, were approved in May 2019. These projections anticipate an increase in equated enrollment of approximately 4,250 students between September 2018 and September 2028.

1. Figure 4A uses total enrollments, which counts each and every child that is served by FCPS. The other tables and figures in this report use "equated enrollments" which assign a value of one-half to students enrolled in half-day pre-kindergarten programs. Equated enrollments are used in funding formulas and school capacity calculations because students in half day programs can share resources that would otherwise have to be allocated on a per-student basis.

The 10 year enrollment projections utilize a "cohort survival method" (a cohort is the total number of students in a particular grade level). This method has three components:

- 1. Analyze the historical cohort progression from grade to grade. Future cohort progression is then determined based upon historical trends, land development/housing patterns, and pupil-yield trends.
- 2. Base kindergarten projections on ratios of kindergarten to births five years prior based on data supplied by the Maryland Department of Planning.
- 3. Determine the county-wide preK-12 total projected enrollment for any year by totaling each grade's projected enrollment for all schools.

During the next 10 years, equated enrollment is projected to fluctuate as shown in Figure 4B below. Equated enrollments assign a value of one-half to half-day pre-kindergarten students because morning and afternoon pre-kindergarten sessions are able to share resources. During the first half of this period, enrollment increases are anticipated to average 517 students annually while average annual increases during the second half are expected to average 318 students annually.

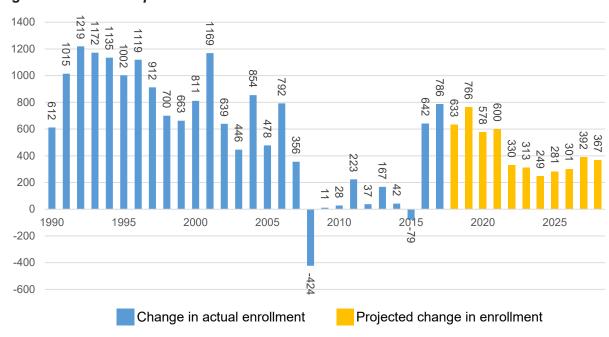


Figure 4B: Annual Equated Enrollment Increase - 1990 to 2028

The largest increases in enrollment are expected at the elementary and high school level. Of the projected student increase in equated enrollment of 4,268 between 2018 and 2028, almost half of the increase in enrollment is expected at the high school level.

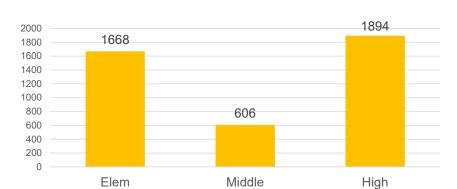


Figure 4C: Equated Enrollment Growth by School Level - 2018 to 2028

Table 4A: FCPS Equated Enrollment Projections

	State	Actual					Proje	ected				
	Rated Capacity	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Ballenger Creek Elementary	614	632	593	583	563	529	507	511	516	522	526	537
Brunswick Elementary	508	699	735	751	776	771	764	763	771	778	786	801
Butterfly Ridge Elementary	734	593	589	611	620	611	617	620	628	630	638	650
Carroll Creek Montessori	210	204	205	206	205	204	204	204	203	204	204	204
Carroll Manor Elementary	595	552	581	601	628	630	651	661	669	675	687	695
Centerville Elementary	635	929	940	897	891	890	897	907	921	930	943	960
Deer Crossing Elementary	590	789	822	840	862	882	879	868	881	890	901	919
Emmitsburg Elementary	225	237	224	215	206	208	207	210	212	214	217	222
Frederick Classical	240	252	252	248	247	244	242	240	240	240	240	240
Glade Elementary	608	598	600	602	593	596	593	600	610	615	623	634
Green Valley Elementary	499	511	575	640	686	704	697	633	626	615	612	621
Hillcrest Elementary	537	673	654	618	636	655	659	662	673	680	688	698
Kemptown Elementary	398	404	422	429	450	451	480	484	493	497	500	513
Lewistown Elementary	174	177	177	176	172	169	170	171	173	176	176	179
Liberty Elementary	274	262	267	265	270	272	271	270	274	279	281	285
Lincoln Elementary	656	552	551	554	561	561	564	567	575	584	588	597
Middletown Elementary	490	467	502	483	515	529	548	539	493	492	496	510
Middletown Primary	445	471	460	495	488	447	446	449	462	471	470	478
Monocacy Elementary	574	604	612	611	620	622	631	627	625	630	636	648
Monocacy Valley Montessori	195	204	205	204	208	207	206	205	208	208	208	208
Myersville Elementary	421	385	396	401	421	426	419	421	428	436	439	447
New Market Elementary	647	683	676	682	679	681	683	698	709	716	720	735
New Midway/Woodsboro Elementary	291	291	286	288	293	277	278	282	290	295	298	303
North Frederick Elementary	735	640	634	637	615	620	624	632	641	648	655	667
Oakdale Elementary	624	679	720	770	814	834	826	813	821	824	820	844
Orchard Grove Elementary	598	572	576	580	585	588	595	600	608	617	623	632
Parkway Elementary	228	220	225	224	225	229	228	228	233	237	238	242
Sabillasville Elementary	114	100	86	82	84	79	80	80	82	84	83	82
Spring Ridge Elementary	523	447	445	452	461	463	466	472	477	483	487	496
Thurmont Elementary	368	299	311	298	311	296	298	297	295	295	299	304
Thurmont Primary	470	339	326	325	328	321	319	321	330	339	340	344
Tuscarora Elementary	580	655	662	685	676	654	647	646	654	660	667	679
Twin Ridge Elementary	566	469	457	444	441	436	441	442	451	459	461	472
Urbana Elementary @ Sugarloaf	718	747	784	814	835	841	851	856	861	870	876	893
Valley Elementary	500	484	486	449	438	420	411	413	420	424	428	433
Walkersville Elementary	683	676	675	687	684	689	694	697	707	716	722	735
Waverley Elementary	355	477	492	531	560	575	601	630	665	673	677	692
Whittier Elementary	626	650	624	612	620	618	622	638	648	655	660	672
Wolfsville Elementary	190	138	134	133	141	138	140	139	143	147	146	147
Yellow Springs Elementary	431	457	446	446	447	442	440	442	452	457	460	468
ELEMENTARY SCHOOL TOTAL	18,869	19,218	19,407	19,569	19,855	19,809	19,896	19,938	20,168	20,365	20,519	20,886
TOTAL PERCENT OF CAPACITY*		102%	103%	100%	101%	101%	102%	102%	103%	104%	105%	107%

Elementary enrollments are equated for half day Pre-K programs

*Includes projects with construction funding approved.

Percent SRC	<75%	75-89%	90-99%	100-119%	≥120%
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	State Rated	Actual	Projected									
	Capacity	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Ballenger Creek Middle	859	841	850	842	844	850	871	875	853	852	864	863
Brunswick Middle	957	606	581	617	602	638	655	665	640	625	628	631
Carroll Creek Montessori	90	85	90	90	90	90	90	90	90	90	90	90
Crestwood Middle	850	653	719	698	695	707	717	729	713	698	694	695
Frederick Classical	120	126	128	128	126	126	126	122	120	120	120	120
Gov. Thomas Johnson Middle	827	513	541	540	560	545	555	541	550	548	565	567
Middletown Middle	1072	784	775	800	809	843	840	880	903	916	908	861
Monocacy Middle	914	889	970	1019	1027	1020	1000	1032	1020	1066	1086	1104
Monocacy Valley Montessori	90	81	78	79	79	78	79	80	80	79	80	80
New Market Middle	732	552	570	545	520	509	515	507	505	508	507	509
Oakdale Middle	775	769	835	827	867	903	964	1011	1021	1015	1005	1009
Thurmont Middle	945	566	547	564	551	514	509	485	481	466	470	472
Urbana Middle	1020	1003	1016	981	991	1019	1013	1005	990	999	1003	1002
Walkersville Middle	1105	892	886	851	840	842	861	843	834	838	846	849
West Frederick Middle	1049	853	893	905	816	767	760	770	785	792	783	786
Windsor Knolls Middle	893	742	753	766	797	842	858	960	960	1005	938	923
MIDDLE SCHOOL TOTAL	12,298	9,955	10,232	10,252	10,214	10,293	10,413	10,595	10,545	10,617	10,587	10,561
TOTAL PERCENT OF CAPACITY*		81%	83%	83%	83%	84%	85%	86%	86%	86%	86%	86%

^{*}Includes projects with construction funding approved.

Percent SRC

27 2028 9 868 8 686
9 868
9 868
3 686
1448
7 2112
1398
1208
0 1693
1928
3 2237
9 1153
05 14,731
% 101%
11 16 16 23 17

90-99%

100-119%

<75%

^{*}Includes projects with construction funding approved.

Percent SRC		<75%		75-89%		90-99%		100-119%		≥120%		
(Pool Crook Hoother Didge Virtual												
(Rock Creek, Heather Ridge, Virtual School, SUCCESS)	390	186	195	195	195	195	195	195	195	195	195	195
TOTAL EQUATED	46.186	42.196	42.962	43.540	44.140	44,470	44,783	45 032	45,313	45.614	46.006	46.373
TOTAL PERCENT OF CAPACITY*	40,100	91%	93%	94%	96%	96%	97%	98%	98%	99%	100%	100%
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^{*}Includes projects with construction funding approved.

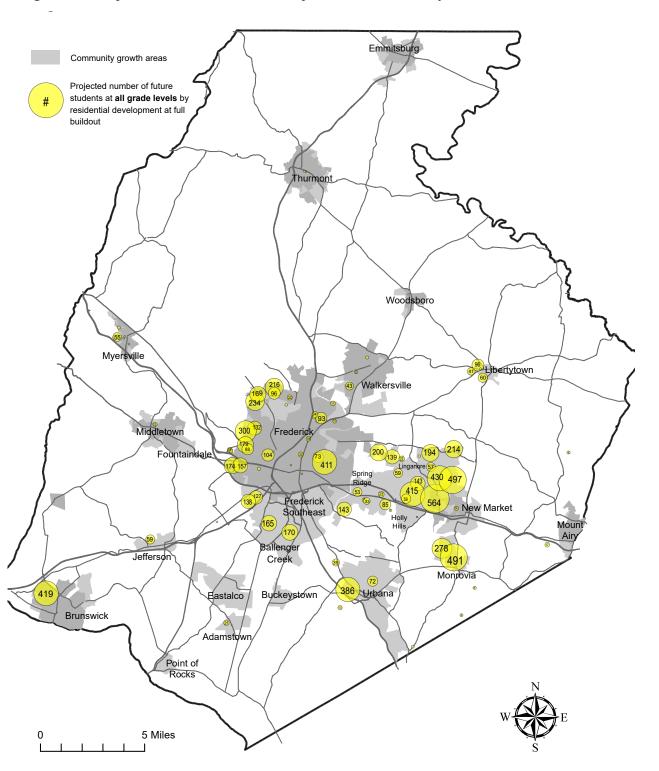
Source: Frederick County Public Schools, Facilites Services Division; May 2019

GEOGRAPHIC LOCATIONS OF ENROLLMENT GROWTH

Enrollment growth will be influenced by the location of major residential development activity. In order to determine where such development may occur, FCPS continuously monitors county and municipal plans. Although enrollment growth is expected to increase system-wide in the next decade, this growth will be primarily distributed within three key areas.

The data and maps indicate that most major residential developments now planned or under construction are located either in the Frederick City area, the I-270 corridor, or in the I-70 corridor east of Frederick City. Figure 4D shows the number of additional students projected to enroll in FCPS by the time approved developments are built out (up to 25-30 years in some cases). Appendix I contains a list of ongoing residential developments by feeder pattern.

Figure 4D: Projected Enrollment Growth by Residential Development at Full Buildout



Source: Data on the remaining number of residential units to be developed was obtained from April 1, 2019 Residential Development Pipeline from the Frederick County Planning and Permitting Division (see Appendix I). The number of students projected for each development was calculated using the 2017 pupil yield rates by housing type and school level for each attendance area (see Appendix J).

Outside the major growth areas, smaller (but not insignificant) areas of residential development can be found within several incorporated municipalities. For example, the Brunswick Crossing development located in Brunswick will include over 1,400 single family, townhouse, and multifamily units at build out. The rate of new housing construction growth will be a function of sales and municipal policies.

School facilities in the Urbana area are at or near capacity, as are several other facilities in the Frederick City, I-70 corridor and Brunswick area, especially elementary schools. FCPS has identified the need for new facilities and additions to existing facilities to address these and other areas over the next 10 years. The replacement of Waverley ES will add much needed capacity to the Frederick City area while the Urbana ES replacement will add capacity to the Urbana area. Blue Heron ES will alleviate enrollment pressures in the Lake Linganore area. The redistricting associated with the new schools in Lake Linganore and Urbana should balance enrollment at schools in the eastern part of Frederick County. A potential modernization at Brunswick ES and a new Brunswick area elementary school will accommodate the growing population in Brunswick. Staff will continue to monitor the rate and location of future development.

SYSTEM-WIDE NEW SCHOOL CAPACITY NEEDS

Based on projected enrollment increases, FCPS will need to continue to pursue a program of school construction to address targeted areas of growth in the county. This subject is discussed more in <u>Chapter V</u>.

This EFMP includes recommendations to reduce the number of overcrowded schools in Frederick County. For the 2018-19 school year using the revised 2018 SRCs, 23 schools were at or over 100% of capacity. For the 2019-20 school year, 26 schools are projected to be at or over capacity. This is unacceptable. Overcrowded schools impact students, teachers, and administrators in the following ways:

- Limit time available for specials classrooms, including art, music, and physical education.
- Provide inadequate space for special programs (reading, hearing, speech, etc.) and inadequate space for administrative offices (guidance offices, health facilities, special education, etc.).
- · Require too many lunch shifts in overcrowded cafeterias throughout the day.
- Result in inadequate media center facilities and limit the time available for media center instruction (at the elementary level) and research (at all levels).

Congested hallways, cafeterias and restrooms, as well as competition for instructional program space and student activities creates stress for students and teachers. Moreover, overcrowded schools lack the flexibility to respond to new instructional program initiatives that would benefit students. Due to their level of use, overcrowded buildings are also more difficult to maintain.

Finally, overcrowded schools create a dependency on portable classrooms to provide adequate instructional space. While portables are effective in the short term, they are not comparable to appropriate space within the school building.

INSTRUCTIONAL PROGRAM NEEDS ANALYSIS

In addition to growth in enrollments generally, schools must continue to respond to changes in instructional programs offered by FCPS. These changes in instruction are the result of state requirements or local initiatives. In either case, schools exist to serve students. Therefore, they must be designed or retrofitted for new instructional purposes. There have been several recent changes in instructional programming that affect facilities:

Pre-Kindergarten Program: FCPS' pre-kindergarten (pre-K) program serves children ages three and four. Currently, pre-K enrollment is based on eligibility for free or reduced-price meals or factors that increase a child's risk of not being successful in school. Pre-K or special education pre-K programs are offered at 26 elementary schools (including charter schools). While the pre-K program is half-day, it impacts school facilities by reducing K-5 capacity. In 2018-19, FCPS piloted a full-day pre-K program at Hillcrest and Monocacy elementary schools. There has been a significant increase over the last decade in the number of students eligible for the pre-K program, increasing from 759 students in 2005 to 1,258 students in 2018, a 66% increase in 13 years. It is anticipated that there will be more than 1,300 pre-K students in 2019. FCPS must evaluate the need for pre-K services when preparing the educational specifications for new schools and considering future capacity needs. Future state funding may allow for expansion of pre-K programs.

Special Education: Special Education has gone through a transition over the years. Today, special education students can attend either their neighborhood school or a specialized facility such as Rock Creek School. Elementary, middle, and high schools need to adapt by providing appropriate staff and improving facilities to serve children with various physical, emotional and educational abilities. However, as special education programs are located within schools, other capacity is reduced. To meet the changing special educational needs, FCPS offers a variety of programs ranging from occasional assistance to full time intensive programs. Appendix U provides a more detailed description of FCPS special education programs.

Recreation: Use of schools as Community Recreation Centers is part of the culture in Frederick County, supported by Board of Education policy. There are 12 schools with Community Recreation Centers. Growth in county population has, however, bolstered the need to better coordinate school system program needs and the needs of county and municipal recreation providers. Joint use agreements have been approved recently; the use of these agreements will continue to be considered.

FACILITY NEEDS ANALYSIS

Modernization

"Modernization" refers to the design, construction and equipping process through which an aging school facility is brought up to current educational standards and through which its systems are renewed and updated to meet school system, county, state and federal codes and requirements. Modernizations may be accompanied by additions or redesign of existing spaces to meet educational program requirements. Modernizations begin with a feasibility study.

Today the FCPS Operations Division tracks the condition of school facilities with a computerized maintenance management software (CMMS). The CMMS lists systems and equipment within each school building and assigns the industry standard indicator, the Facilities Condition Index (FCI), to each building. Decisions about which school will be considered for a modernization, renovation, or replacement are based in part on the FCI.

The next school to be addressed is Rock Creek School. Rock Creek School is 45 years old and has never had a major renovation. A feasibility study for the modernization of the Rock Creek School in August 2016 recommended replacing the school on another site. The Board of Education approved the Walkersville MS campus as the new site for the Rock Creek School and design for the replacement school began in fall 2017. Replacing Rock Creek on another site will also facilitate the much needed modernization and expansion of Waverley ES. The feasibility study for the Waverley project was completed in spring 2018 with a recommendation to replace the school on its current site at a capacity of 1,019 students.

FCPS is adding "Limited Renovation" projects in this year's EFMP to provide a plan for renovating schools that are not in need of additional capacity based on projected enrollment. The schools under consideration either have a current FCI value of 30 or more; or the FCI value will reach or exceed 30 by the year 2028. Any FCI value over 10 indicates poor facility condition. Numbers over 30 indicate that a facility is need of either replacement, major renovation, or upgrade to major building systems. Sabillasville ES, Lewistown ES, Thurmont ES, Emmitsburg ES, and Wolfsville ES are being considered as candidates for Limited Renovation projects.

Buildings with high FCI require additional capital funds to replace aging systems. Since the year 2000, \$8.2M capital funds have been used on these five schools to complete critical systems replacement. Older buildings that do not have upgraded systems cost more money to operate, and maintain. Maintenance backlog for these five schools will approach \$32M by 2028.

Performing limited renovations will enable FCPS to upgrade building systems at these facilities, and potentially right-size educational spaces to gain added capacity, increase building utilization, and efficiency. Upgraded systems will result in decreased energy and operating costs, providing savings to the school district over long term.

FCPS anticipates that the work associated with limited renovations at these schools will be completed in two phases, over two summer breaks. Completing the work over summer breaks will eliminate the cost, safety and logistical issues associated with creating temporary swing spaces for students.

FCPS plans to begin a study in FY2020 to analyze existing space, current facility conditions, and building systems in these schools. The study would review space, adequacy, utilization, circulation and conditions of the building systems. Once completed, FCPS will be able to finalize the estimated cost and order of schools to be included in the CIP submissions in FY21.

Systemic Projects

With the addition of limited renovation projects, the request for funds for specific systemic projects will be limited to targeted systems replacement, equipment replacement and repair projects needed to support system requirements. The CIP request for systemic projects will also include a contingency amount to help with emergency replacement needs for each fiscal year. A targeted approach to systemic projects will help free up funds that could be used towards limited renovation projects.

MAINTENANCE

The Maintenance and Operations Department serves to keep FCPS facilities clean, safe, and fully functioning as effective learning environments. In support of the BOE's strategic plan, the department strives to avoid interruption to instruction, maintain facility conditions that promote student achievement, and provide amenities and services that foster community involvement and inclusion. The department develops and maintains a skilled and safety-minded workforce that supports the organization's goals in practice and ideology. Additionally, FCPS allocates resources to ensure the safety of building occupants, protect the State's and County's capital investment, and inspire public confidence in our responsible stewardship. The Maintenance and Operations Department's Comprehensive Maintenance Plan, approved by the Board of Education, describes the FCPS strategy for maintaining public school facilities.

The aggregate FCI for all FCPS buildings is the ratio of deferred maintenance costs (\$414 million) to the current replacement value (\$2.3 billion), or 17.7 percent. This FCI indicates that many of the building systems are reaching or exceeding the end of their lifecycle. FCPS Maintenance and Operations employees work diligently to keep these older systems functioning until they can be replaced. Additional information on the FCPS maintenance program including FCI scores for individual buildings can be found in the Comprehensive Maintenance Plan for Educational Facilities found on the FCPS website.

SUSTAINABILITY

FCPS incorporates principles of sustainability in existing and new school buildings. A coordinator of energy and utilities monitors energy bills and works with other maintenance staff to reduce energy and water usage. All new school buildings are built to achieve the Silver level of certification from the US Green Building Council's Leadership in Energy and Environmental Design (LEED). Several schools have taken initiative to pursue additional sustainability initiatives such as composting, installation of additional bike racks, and educational campaigns to increase walking and biking to school.

FCPS is currently working with a performance contractor to provide upgrades to building automation systems, air sealing, energy efficient lighting, low flow water fixtures, and advanced controls for heating, ventilation and air conditioning equipment in 24 older school buildings. The performance contract allows FCPS to pursue energy savings measures without expending funds from the capital or operating budgets. These projects are completed by the contractor and the energy savings are used to pay for the projects.

STATE SCHOOL SUFFICIENCY STUDY

The Interagency Commission on School Construction (IAC) established the Maryland Public School Facilities Educational Sufficiency Standards in May 2018 to "establish acceptable minimum levels for the physical attributes, capacity, and educational suitability of existing public K-12 school facilities." The standards will be used to evaluate the condtion of buildings and building systems, adequacy of school sites including recreation and outdoor physical education opportunities, and the ability of educational and support spaces to provide required services in existing facilities across the state. In November 2018 the IAC solicited proposals from consultants to assess the condition and educational sufficiency of public schools across the state in order to create a database. The consultant is expected to evaluate the statewide portfolio and provide projections of "necessary annual funding levels to achieve and maintain specific Statewide average Facility Condition Index (FCI) outcomes." The initial assessment is planned to be completed by July 1, 2019 and may have an impact on planning and funding for future capital projects at FCPS.

SUMMARY OF FUTURE FACILITY NEEDS

According to projections, FCPS must accommodate approximately 4,250 total new students between 2018 and 2028. Since 23 schools are at or over capacity, accommodating growth will require additional facilities. The greatest need system-wide will be at the elementary and high

^{2. &}quot;Maryland Public School Facilities Educational Sufficiency Standards", Interagency Commission on School Construction, May 31, 2018 http://www.pscp.state.md.us/Documents/Md.%20Educ.%20 Sufficiency%20Standards Adopted 180531.pdf

^{3. &}quot;State of Maryland Interagency Commission on School Construction Request for Proposals 2018 School Facilities Assessment", November 14, 2018, https://emaryland.buyspeed.com/bso/external/bidDetail.sdo?bidId=MDR0031041820&parentUrl=activeBids

school levels. The areas in most need of new capacity will be Frederick City, Brunswick, Urbana, and the I-70 corridor in and around New Market and Lake Linganore. The next chapter discusses the criteria for selecting and prioritizing new projects.

There will continue to be more ongoing maintenance and building renovation projects in the future. FCPS operates 47 buildings that are, in whole or part, 25 or more years old. The major building systems at these schools are approaching or exceeding their normal life expectancies. Therefore, FCPS must factor the limited renovation, renovation or replacement of these buildings into future capital budgets. Deferral of maintenance and renovation will only result in more costly projects in the future.