

IV. Enrollment Projections and Facility Needs Analysis

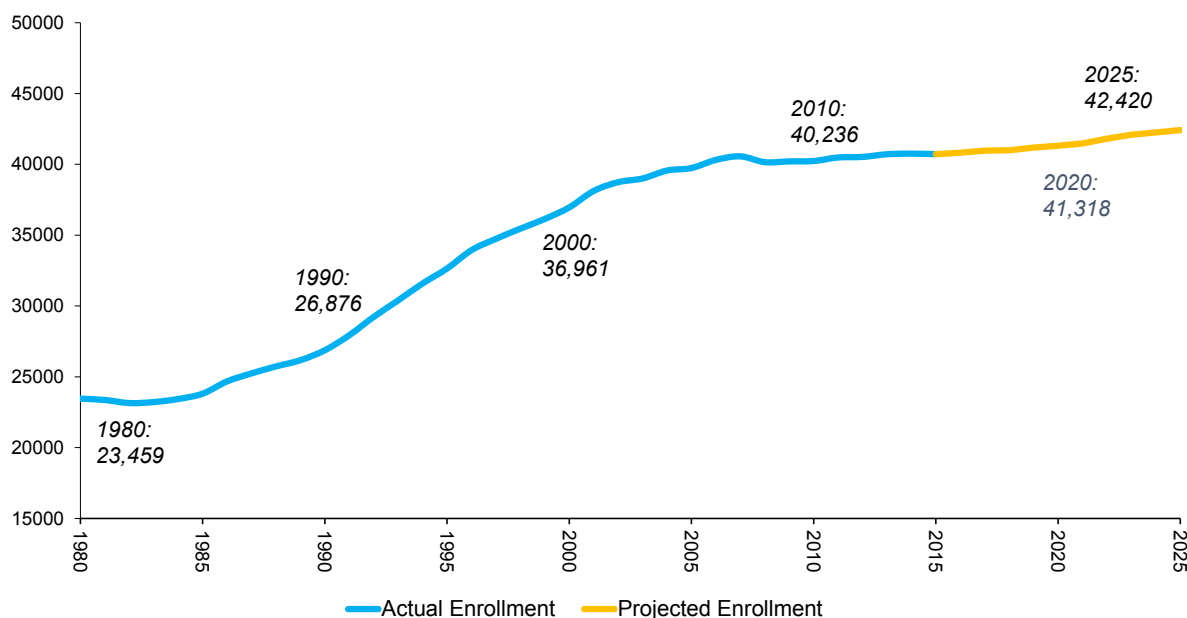
FCPS anticipates future facility needs by reviewing projected enrollment growth and the need for scheduled major maintenance or renovation and repair of existing buildings. Facility needs are also affected by changes in the instructional program. These changes can be initiated locally or mandated by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

SYSTEM-WIDE ENROLLMENT PROJECTIONS

Historic Enrollments

Figure 4A below shows the total number of students enrolled in FCPS schools from 1980 to the present, along with ten year projections.¹ FCPS experienced the greatest rate of enrollment growth in the 1990's; enrollment increased by 10,085 students. In the next decade, enrollment increased by 3,275 students. A much smaller increase of 1,082 students is anticipated between 2010 and 2020 but an additional 1,102 students will be added by 2025. The change in the rate of enrollment growth depends upon birth rates as well as the rate of housing growth. Housing growth is much lower today than it was prior to 2001 and birth rates have also declined (see Chapter II), contributing to slower growth in enrollment.

Figure 4A: Total Enrollments 1980-2025



Projected Enrollments

FCPS enrollments are expected to grow slowly over the next ten years. System-wide equated enrollment projections, developed with information provided by the Maryland Department of Planning, were approved in April 2016. These projections anticipate an increase in equated enrollment of approximately 1,680 students between September 2015 and September 2025.

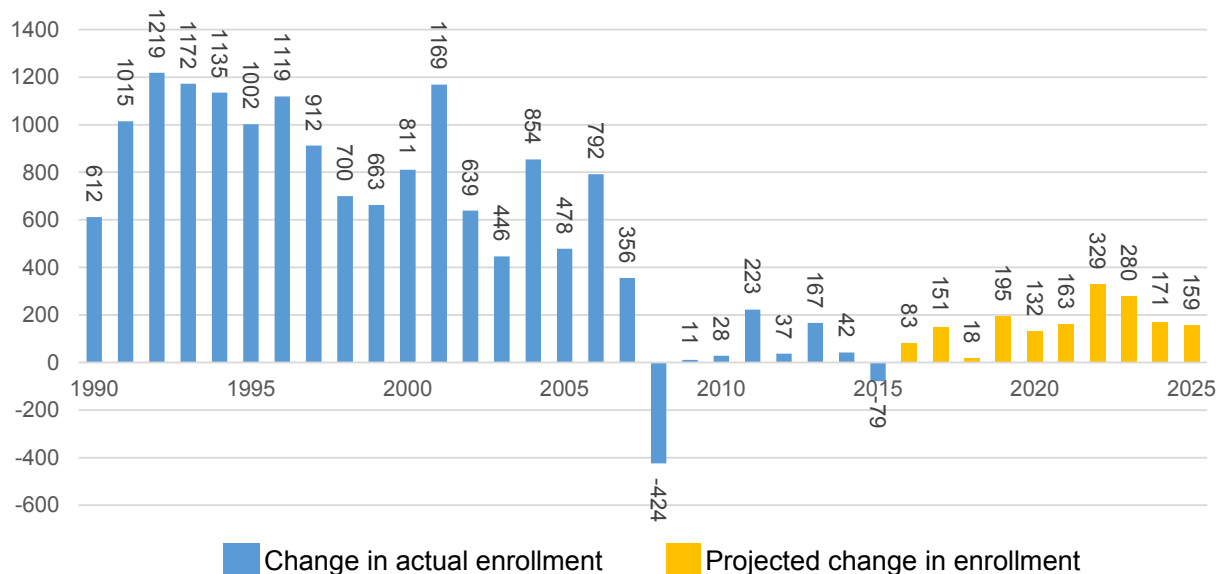
1. Figure 4A uses total enrollments, which counts each and every child that is served by FCPS. The other tables and figures in this report use “equated enrollments” which assign a value of one-half to students enrolled in half-day pre-kindergarten programs. Equated enrollments are used to in funding 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 5 years prior based on data supplied by the Maryland Department of Planning.
3. Determine the countywide preK-12 total projected enrollment for any year by totaling each grade’s projected enrollment for all schools.

During the next ten years, equated enrollment is projected to fluctuate as shown in Figure 4B below. During the first half of this period, enrollment increases are anticipated to average about 116 students annually; average annual increases during the second half are expected to be approximately 220 students.

Figure 4B: Annual Equated Enrollment Increase - 1990 to 2025



The low projected rate of enrollment growth in the coming ten years may be due to the delay in family formation by the generation born in the mid to late 1980s, which was hit hard by the economic recession and is just now starting to form families and have children. The largest increase in enrollment is expected at the high school level, which is due to the maturation of an earlier wave of large class sizes at the elementary level. Of the projected 1,681 student increase between 2015 and 2025, 927 students will be at the high school level, as shown in Figure 4C.

Figure 4C: Equated Enrollment Growth by School Level - 2015 to 2025

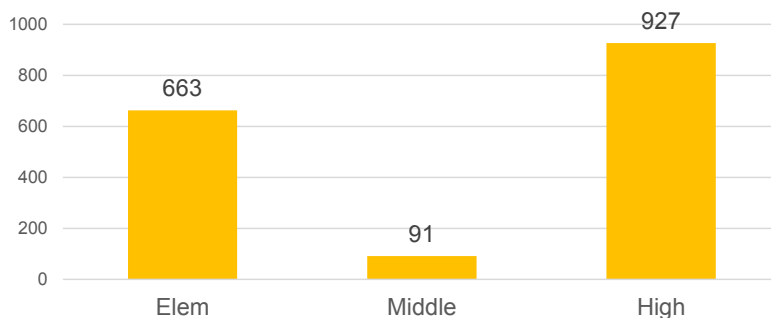


Table 4A: FCPS Equated Enrollment Projections

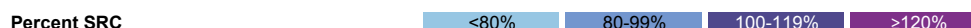
	State Rated Capacity	Actual					Projected						
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
1 Ballenger Creek Elementary	663	636	644	646	640	626	623	630	635	647	660	678	
2 Brunswick Elementary	611	627	621	635	610	610	607	609	621	629	649	660	
3 Carroll Creek Montessori (1)	210	194	203	207	208	209	209	209	209	210	210	210	
4 Carroll Manor Elementary	618	548	532	534	525	522	523	519	523	531	540	566	
5 Centerville Elementary	675	997	1024	977	950	942	910	920	930	952	978	994	
6 Deer Crossing Elementary	587	732	749	739	735	726	736	743	748	761	777	790	
7 Emmitsburg Elementary	316	269	272	274	275	260	256	260	262	266	270	274	
8 Frederick Classical (2)	255	240	240	240	240	239	239	239	238	239	240	240	
9 Glade Elementary	638	608	607	603	585	577	579	581	587	601	622	640	
10 Green Valley Elementary	504	365	360	365	369	369	365	370	374	376	384	390	
11 Hillcrest Elementary	670	939	955	951	922	914	912	942	953	991	1028	1060	
12 Kemptown Elementary	435	358	368	366	363	365	365	365	370	380	391	403	
13 Lewistown Elementary	242	177	161	154	150	142	137	142	147	148	151	156	
14 Liberty Elementary	364	283	280	272	262	266	260	262	270	278	287	295	
15 Lincoln Elementary	633	539	564	568	563	553	560	558	559	563	576	590	
16 Middletown Elementary	526	423	424	439	440	447	429	437	447	451	460	466	
17 Middletown Primary	482	425	425	420	426	426	428	434	440	452	460	469	
18 Monocacy Elementary	567	571	556	549	524	502	504	505	510	535	565	587	
19 Monocacy Valley Montessori	200	208	203	201	201	198	199	197	196	197	198	197	
20 Myersville Elementary	458	315	302	291	282	278	269	272	276	280	288	293	
21 New Market Elementary	659	690	696	660	634	622	618	614	619	626	640	652	
22 New Midway/Woodsboro Elementary	340	315	301	291	287	284	283	282	284	289	292	296	
23 North Frederick Elementary	679	614	645	655	650	654	645	640	645	650	660	669	
24 Oakdale Elementary	692	589	570	534	530	523	530	545	567	595	607	619	
25 Orchard Grove Elementary	639	602	616	622	623	621	620	620	625	635	645	651	
26 Parkway Elementary	248	223	231	228	214	216	224	215	215	219	222	221	
27 Sabillasville Elementary	160	112	104	101	98	91	90	91	92	93	95	97	
28 Spring Ridge Elementary	577	441	437	443	440	428	429	438	443	447	459	467	
29 Thurmont Elementary	483	332	313	339	315	313	292	294	293	299	303	307	
30 Thurmont Primary	528	338	340	318	320	322	325	328	330	340	346	350	
31 Tuscarora Elementary	662	774	741	712	676	642	646	656	668	680	696	716	
32 Twin Ridge Elementary	674	510	477	471	463	444	447	445	446	450	463	470	
33 Urbana Elementary	511	689	667	651	645	639	636	642	655	660	680	692	
34 Valley Elementary	504	398	387	379	377	383	385	387	390	397	404	410	
35 Walkersville Elementary	662	681	668	655	650	651	647	647	652	659	675	687	
36 Waverley Elementary	416	568	597	622	633	633	626	634	642	646	657	669	
37 Whittier Elementary	671	693	689	672	659	641	664	677	698	715	736	745	
38 Wolfsville Elementary	226	153	154	152	155	152	148	149	150	151	155	158	
39 Yellow Springs Elementary	456	495	492	489	481	479	478	471	474	480	490	500	
ELEMENTARY SCHOOL TOTAL	19,441	18,671	18,615	18,425	18,120	17,909	17,843	17,969	18,183	18,518	18,959	19,334	
TOTAL PERCENT OF CAPACITY*		96%	96%	95%	90%	89%	85%	85%	86%	88%	90%	92%	

Elementary enrollments are equated for half day Pre-K programs

(1) Carroll Creek Montessori Public Charter School opened in August 2012 with grades preK through 4. Additional classes added each year until full enrollment in 2018.

(2) Frederick Classical School opened in August 2013 with grades K-5. Additional classes added each year until full enrollment in August 2019.

*Includes projects with construction funding approved.



	Current SRC	Actual					Projected					
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
40 Ballenger Creek Middle	870	718	731	708	712	729	725	718	690	686	680	671
41 Brunswick Middle	884	557	596	593	630	610	622	591	607	598	589	577
42 Carroll Creek Montessori (1)	90	17	52	90	90	90	90	90	90	90	90	90
43 Crestwood Middle	600	506	497	518	560	589	579	551	524	522	515	519
44 Frederick Classical (2)	120	113	119	120	120	120	120	120	120	120	120	120
45 Gov. Thomas Johnson Middle	900	532	549	551	589	629	644	636	620	604	607	609
46 Middletown Middle	914	816	818	798	751	761	768	760	753	716	738	738
47 Monocacy Middle	860	723	718	724	794	837	847	825	791	785	768	770
48 Monocacy Valley Montessori	70	77	78	80	81	80	80	79	79	77	78	76
49 New Market Middle	881	497	520	538	559	566	540	514	507	496	480	479
50 Oakdale Middle	600	648	645	720	755	810	771	756	720	722	720	737
51 Thurmont Middle	900	543	547	540	566	562	584	563	535	506	504	505
52 Urbana Middle	900	834	834	889	921	942	912	870	867	842	851	857
53 Walkersville Middle	1051	804	821	853	876	870	869	851	833	818	809	808
54 West Frederick Middle	955	856	803	830	890	946	937	895	880	896	880	884
55 Windsor Knolls Middle	924	777	756	730	712	700	693	708	690	686	669	669
MIDDLE SCHOOL TOTAL	11,519	9,018	9,084	9,282	9,606	9,841	9,781	9,527	9,306	9,164	9,098	9,109
TOTAL PERCENT OF CAPACITY*		78%	79%	81%	83%	85%	85%	83%	81%	80%	79%	79%

*Includes projects with construction funding approved.

Percent SRC	<80%	80-99%	100-119%	≥120%
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	Current SRC	Actual					Projected					
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
56 Brunswick High	893	737	753	810	823	862	886	925	942	930	943	906
57 Catoctin High	1135	856	815	800	766	793	779	822	853	855	833	814
58 Frederick High	1603	1,317	1,430	1,463	1,445	1,465	1,458	1,532	1,593	1,601	1,592	1,557
59 Gov Thomas Johnson High	2091	1,408	1,357	1,344	1,302	1,288	1,312	1,360	1,431	1,477	1,472	1,437
60 Linganore High	1635	1,423	1,379	1,379	1,390	1,414	1,460	1,472	1,451	1,445	1,386	1,362
61 Middletown High	1169	1,139	1,131	1,162	1,170	1,160	1,190	1,145	1,205	1,160	1,131	1,108
62 Oakdale High	1531	1,218	1,263	1,267	1,306	1,332	1,339	1,396	1,438	1,510	1,568	1,585
63 Tuscarora High	1606	1,447	1,447	1,469	1,476	1,480	1,503	1,530	1,564	1,558	1,532	1,498
64 Urbana High	1636	1,635	1,669	1,701	1,708	1,711	1,798	1,803	1,824	1,854	1,749	1,721
65 Walkersville High	1197	1,071	1,080	1,072	1,080	1,132	1,170	1,201	1,221	1,219	1,199	1,190
HIGH SCHOOL TOTAL	14,496	12,251	12,324	12,467	12,466	12,637	12,895	13,186	13,522	13,609	13,405	13,178
TOTAL PERCENT OF CAPACITY*		85%	85%	85%	85%	86%	88%	90%	92%	92%	91%	90%

*Includes projects with construction funding approved.

Percent SRC	<80%	80-99%	100-119%	≥120%
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Other:

(Rock Creek, Heather Ridge, Virtual School, SUCCESS)	390	195	195	195	195	195	195	195	195	195	195	195
TOTAL EQUATED	45,846	40,135	40,218	40,369	40,387	40,582	40,714	40,877	41,206	41,486	41,657	41,816
TOTAL PERCENT OF CAPACITY*		88%	88%	88%	88%	88%	88%	89%	89%	90%	90%	91%

*Includes projects with construction funding approved.

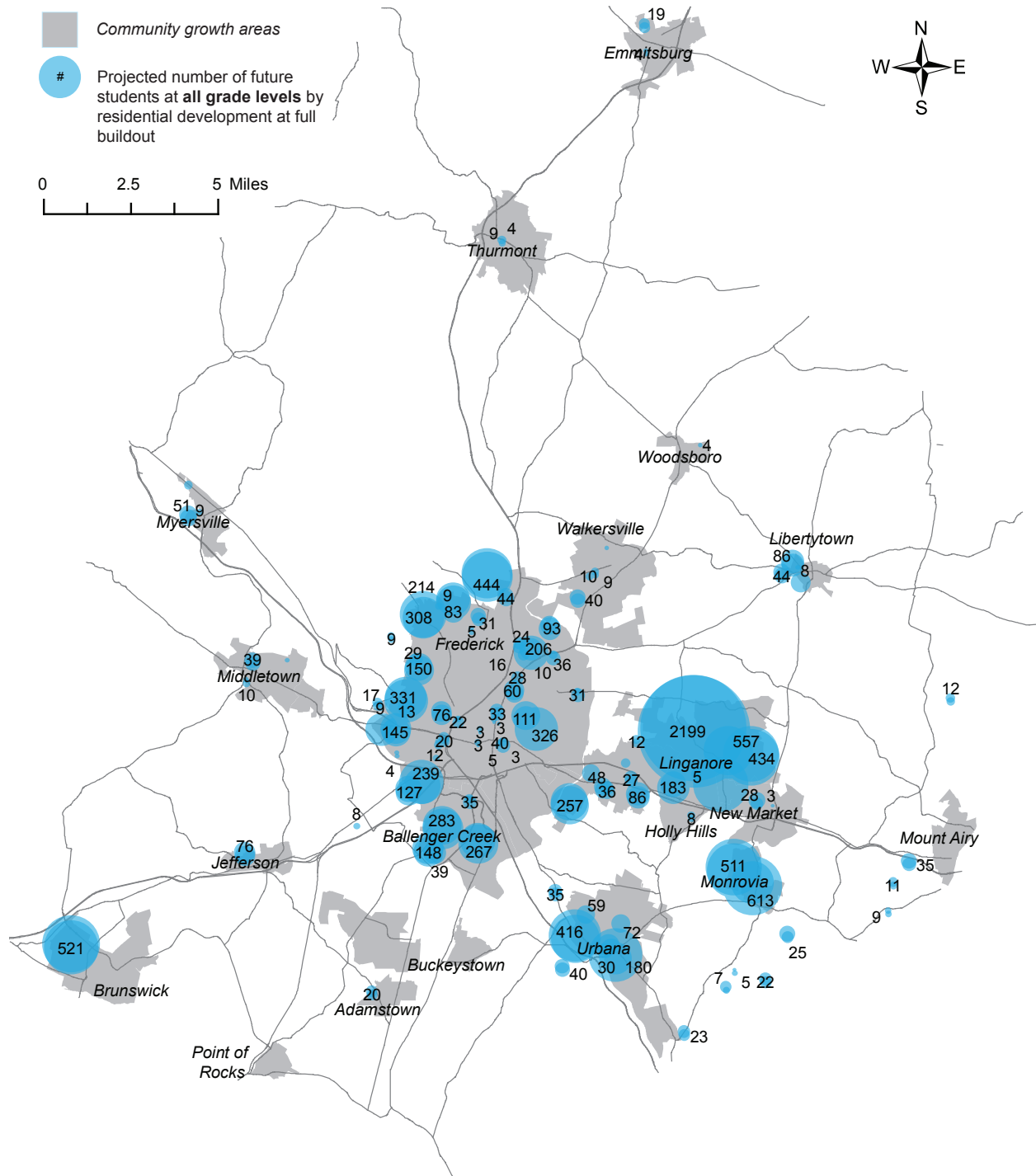
Source: Frederick County Public Schools, Facilities Services Division; July 2016

GEOGRAPHIC LOCATIONS OF ENROLLMENT GROWTH

Although enrollment growth is expected to increase system-wide in the next decade, this growth will be widely distributed. 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.

The data and maps indicate that most major residential developments now planned or under construction are located either in the Frederick City area, the Urbana/Monrovia area along 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 years in some cases). [Appendix J](#) 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 July 1, 2016 Residential Development Pipeline from the Frederick County Planning and Permitting Division (see [Appendix J](#)). The number of students projected for each development was calculated using the total pupil yield rate by school level for each attendance area (see [Appendix K](#)).

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. 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 and I-70 corridor, especially elementary schools. FCPS has identified the need for new facilities and additions to existing facilities to address these areas and 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, especially at the elementary level to address targeted areas of growth in the county. This subject is discussed more in Chapter V.

This Educational Facilities Master Plan includes recommendations to reduce the number of overcrowded schools in Frederick County. For the 2015-16 school year, 16 schools were at or over 100% of capacity. This is unacceptable. Overcrowded schools impact students, teachers, and administrators in the following ways:

- Limit time available for specials classrooms, including computer labs, art rooms, and physical education facilities.
- 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, and competition for instructional program space and student activities also create 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. During the 2015-16 school year, 179 portable classrooms were in use at 28 schools to address capacity issues. In 2016-17, these accommodations will be 179 portables at 27 schools.

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 of 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 program serves 4-year-old children. Currently, pre-K enrollment is based on criteria including eligibility for free or reduced-price meals or factors that increase a child's risk of not being successful in school. Twenty-three elementary schools (including charter schools) have pre-K programs (including special education pre-kindergarten).

While the pre-K program is half-day, it impacts school facilities by reducing K-5 capacity. There has been a significant increase over the last decade in the number of pre-K students, increasing from 759 students in 2005 to 1,188 students in 2015. FCPS must evaluate the need for pre-K services when preparing the educational specifications for new schools and considering future capacity needs.

Special Education: Special Education has gone through a transition over the years. Today, special education students can attend either the local community school or a specialized facility such as Rock Creek. Elementary, middle, and high schools need to adapt by providing appropriate staff and improving facilities to serve children with various physical and other disabilities. To meet this need, FCPS offers a variety of programs ranging from occasional assistance to fulltime intensive programs. [Appendix V](#) provides a more detailed description of FCPS special education programs. As special education programs are located within schools, other capacity is reduced.

Recreation: Use of schools as Community Recreation Centers is part of the culture in Frederick County, supported by Board of Education policy. There are 10 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.”

FCPS maintains an up-to-date inventory of the condition of building systems including roofs, boilers, flooring, HVAC systems, parking and pavement systems, etc. During the high growth years of the 1990s, FCPS could only focus on spot improvements via “systemic renovation” projects. FCPS moved to a process of completing significant renovation projects in schools that were already scheduled to receive an addition.

Today the FCPS Operations Division and the Curriculum and School Instructional staff also assess schools’ entire physical condition and instructional functionality to determine which schools should be considered for significant renovation or replacement. The first assessments were part of the 1999-2000 School Modernization Project and were separately prepared and combined for a total evaluation. FCPS updated the assessment studies for 20-year-old or older schools in May 2011 for secondary schools and in August 2012 for elementary schools

The scores of the assessments are found in [Table 4B](#). The two elementary schools with the lowest scores (and, therefore, the schools ranked highest in need of renovation), were North Frederick and Urbana elementary schools. The North Frederick ES replacement opened in the fall of 2014. A feasibility study for the renovation of Urbana ES concluded in Fall 2014 with the recommendation that the school building be replaced. FCPS will proceed with design and construction contingent on funding, with the new building expected to open in August 2020. The next elementary school in need of renovation is Liberty Elementary. A feasibility study for the renovation of Liberty is scheduled for Fiscal Year (FY) 2019.

At the secondary level, Frederick High School and Middletown Middle School are identified as the

Table 4B: Facility Assessment Combined by Level

ELEMENTARY SCHOOLS August 2012 (updated 2015)		PHYSICAL ASSESSMENT SCORE 1000	FUNCTIONAL ASSESSMENT SCORE 1000	TOTAL SCORE 2000
1	NORTH FRED ELEM	Completed August 2014		
2	URBANA ELEM	Feasibility Study Complete October 2014		
3	LIBERTY ELEM	307	396	703
4	VALLEY ELEM	302	438	740
5	WAVERLEY ELEM	345	420	765
6	NEW MIDWAY ELEM	436	412	848
7	YELLOW SPRINGS ELEM	317	556	873
8	LEWISTOWN ELEM	397	501	898
9	SABILLASVILLE ELEM	550	477	1027
10	THURMONT ELEM	464	570	1034
11	BRUNSWICK ELEM	426	636	1062
12	EMMITSBURG ELEM	451	631	1082
13	WOODSBORO ELEM	517	601	1118
14	PARKWAY ELEM	591	556	1147
15	GREEN VALLEY ELEM	472	679	1151
16	MIDDLETOWN ELEM	424	736	1160
17	MYERSVILLE ELEM	463	698	1161
18	KEMPTOWN ELEM	464	781	1245
19	WOLFVILLE ELEM	651	612	1263
20	NEW MARKET ELEM	651	734	1385
21	HILLCREST ELEM	535	876	1411
22	MONOCACY ELEM	507	942	1449
23	CARROLL MANOR ELEM	825	803	1628
24	WALKERSVILLE ELEM	776	870	1646

MIDDLE SCHOOLS May 2011		PHYSICAL ASSESSMENT SCORE 1000	FUNCTIONAL ASSESSMENT SCORE 1000	TOTAL SCORE 2000
1	MIDDLETOWN MIDDLE	462	535	997
2	WALKERSVILLE MIDDLE	490	602	1092
3	MONOCACY MIDDLE	602	537	1139
4	NEW MARKET MIDDLE	567	638	1205
5	BALLENGER CR MIDDLE	533	682	1215
6	BRUNSWICK MIDDLE	697	710	1407

HIGH SCHOOLS May 2011		PHYSICAL ASSESSMENT SCORE 1000	FUNCTIONAL ASSESSMENT SCORE 1000	TOTAL SCORE 2000
1	FREDERICK HIGH	Under Construction		
2	MIDDLETOWN HIGH	401	536	937
3	BRUNSWICK HIGH	541	473	1014
4	WALKERSVILLE HIGH	610	492	1102

next schools most in need of a renovation. Construction of the new Frederick High began in the spring of 2015 and the building will open in August 2017. A feasibility study for the modernization of Middletown Middle is scheduled for FY 2019 with design to begin in FY 2021.

A feasibility study for the modernization of the Rock Creek School concluded in August 2016 with the recommendation to replace the school on another site. Design for the replacement school is scheduled for FY 2018. Replacing Rock Creek on another site will also facilitate the much needed addition and renovation of Waverley Elementary School. The feasibility study for this project is scheduled for FY 2018.

MAINTENANCE

When not scheduled for modernization, older buildings require ongoing care to maintain major building systems (HVAC, roofs, plumbing, floor and wall finishes, etc.). Ongoing maintenance was the subject of the Frederick County Maintenance Management System adopted in 1990 by the Board of Education. FCPS has since implemented this plan.

Ongoing maintenance does not, however, eliminate the need for upgrading or renovating major systems in older buildings. While ongoing maintenance may extend the life of building systems, boilers, roofs, flooring, doors and windows eventually need replacement and parking areas, tracks, and tennis courts eventually need resurfacing. FCPS must factor these projects into future school system capital budgets.

In 2012, FCPS completed an overview of the systemic renovation needs of all FCPS facilities to determine the annual funding needed in the capital budget to keep up with ongoing building systems replacement and repair needs. FCPS considered three approaches to estimating needs:

1. The percentage of the current replacement value of the entire facilities portfolio.
2. A sustainment model, such as that used by government agencies to track backlog maintenance and repair projects (BMAR)
3. The total cost of deferred maintenance and repair projects.

The study showed that FCPS has \$26 million in deferred maintenance projects (backlog of maintenance and repair, BMAR). In order to start to reduce the projects on this list and keep up with current and future projects, FCPS would ideally allocate an average of \$7 million annually in the capital budget (from a combination of state and local funding). Prior to FY 2013, approximately \$2.8 million had been allocated annually from these sources. Since FY 2013, approximately \$5 million has been allocated annually.

SUMMARY OF FUTURE FACILITY NEEDS

According to projections, FCPS must accommodate approximately 1,680 new students between 2016 and 2025. Since many schools are at or near capacity, accommodating growth will require additional facilities. With completion of recent middle and high school projects, combined with projected demographic changes, the greatest need will be at the elementary level. The areas in most need of new capacity will be Frederick City, 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 42 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 upgrading or renovation of these buildings into future capital budgets. Deferral of maintenance and renovation will only result in more costly projects in the future.

IV