

IV. Enrollment Projections and Facility Needs Analysis

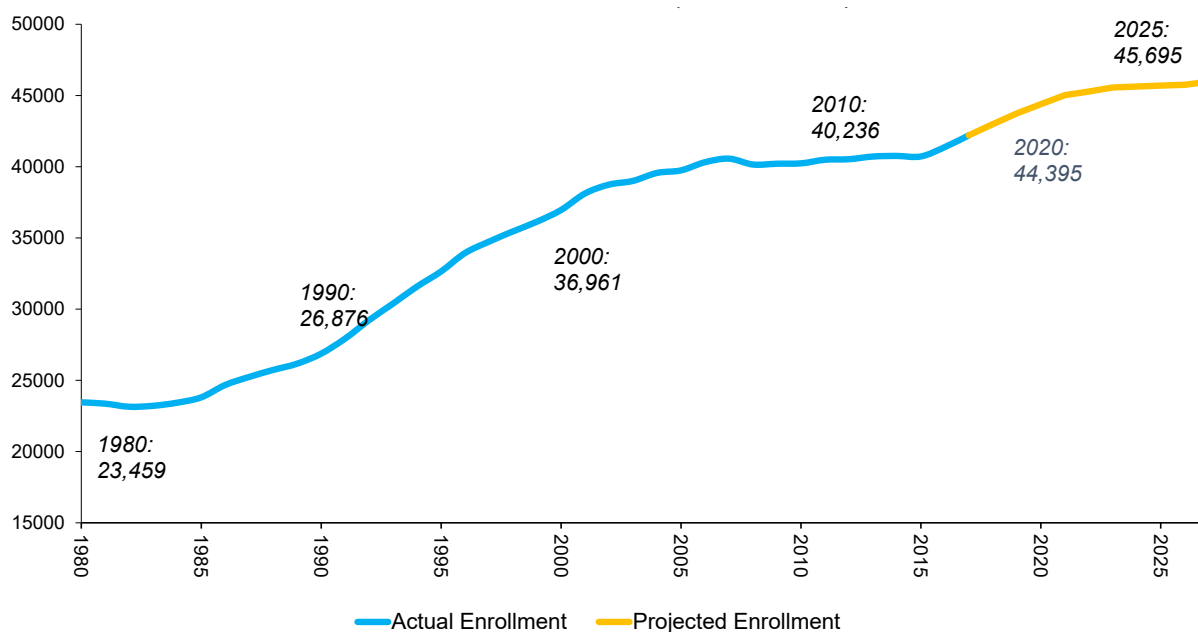
FCPS anticipates future facility needs by reviewing projected enrollment growth and the need for scheduled major maintenance or renovation and repair of existing buildings. Facility needs are also affected by changes in the instructional program. These changes can be initiated locally or mandated by 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 when enrollment increased by 10,085 students. In the next decade, enrollment increased by 3,275 students. An increase of 4,129 students is anticipated between 2010 and 2020. An additional 1,300 students are anticipated over the next five years, between 2020 and 2025. The projected change in the rate of enrollment growth is due to both a projected increase in births over the next ten years as well as in-migration as evidenced by the expected increasing number of dwelling units, as noted in [Chapter II](#).

Figure 4A: Total Enrollments 1980-2027



Projected Enrollments

System-wide equated enrollment projections, developed with information provided by the Maryland Department of Planning, were approved in June 2018. These projections anticipate an increase in equated enrollment of approximately 3,620 students between September 2017 and September 2027.

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.

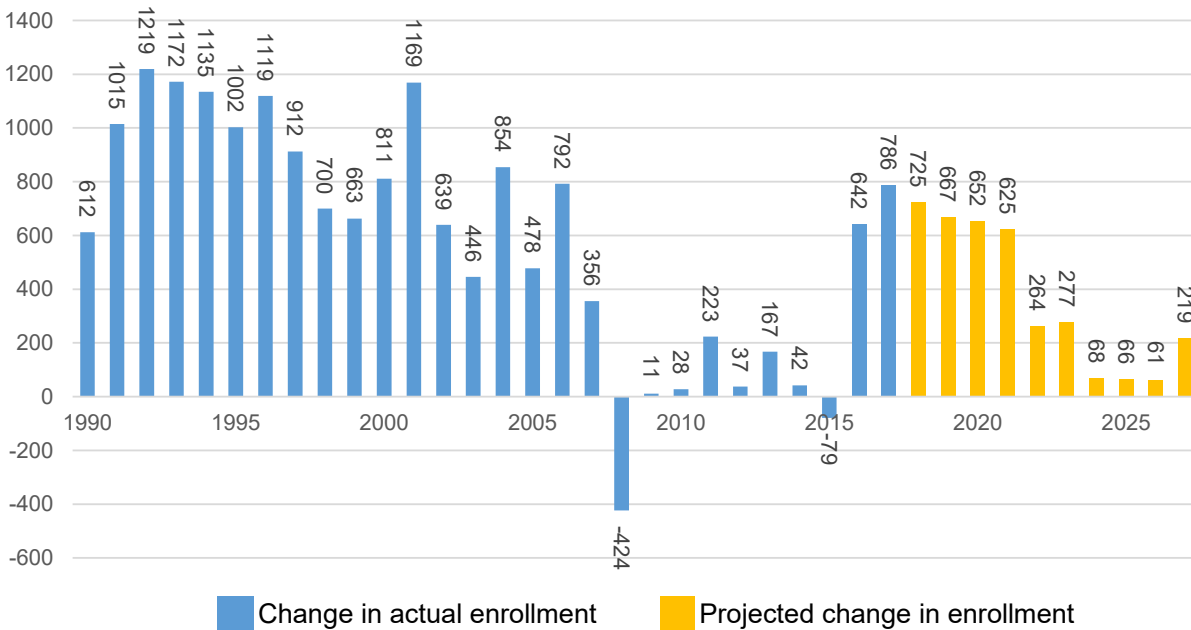


The 10-year enrollment projections utilize a “cohort survival method” (a cohort is the total number of students in a particular grade level). This method has three components:

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 county-wide 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. 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 587 students annually while average annual increases during the second half are expected to average 138 students annually.

Figure 4B: Annual Equated Enrollment Increase - 1990 to 2027



The largest increases in enrollment are expected at the elementary and high school level. Of the approximately 3,600 projected student increase in equated enrollment between 2017 and 2027, over half of the increase in enrollment is expected at the high school level.

Figure 4C: Equated Enrollment Growth by School Level - 2017 to 2027

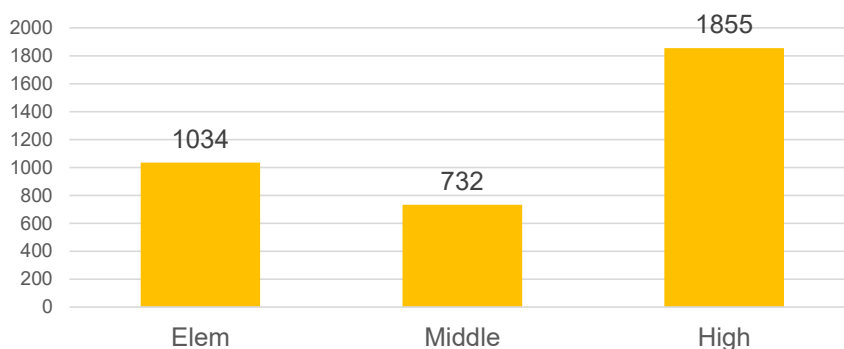


Table 4A: FCPS Equated Enrollment Projections

	State Rated Capacity	Actual					Projected					
		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
1 Ballenger Creek Elementary	663	631	615	590	582	583	571	574	584	590	593	597
2 Brunswick Elementary	611	671	676	682	698	707	710	695	700	710	709	720
3 Butterfly Ridge Elementary (1)	725		692	705	720	740	729	726	715	710	712	710
4 Carroll Creek Montessori (2)	210	205	203	209	210	211	210	210	210	210	210	210
5 Carroll Manor Elementary	618	542	513	509	512	517	498	510	518	518	519	527
6 Centerville Elementary	675	956	933	935	915	907	897	902	914	923	937	959
7 Deer Crossing Elementary	587	764	779	776	796	808	812	800	806	803	817	830
8 Emmitsburg Elementary	316	246	236	222	216	215	215	219	220	226	229	232
9 Frederick Classical (3)	255	248	246	246	243	242	241	243	245	240	245	240
10 Glade Elementary	638	650	605	608	618	622	620	634	641	646	635	648
11 Green Valley Elementary	504	417	441	454	467	478	470	473	479	478	484	496
12 Hillcrest Elementary	670	903	645	678	683	679	677	665	675	679	680	691
13 Kemptown Elementary	435	389	360	363	360	359	357	360	360	361	372	376
14 Lewistown Elementary	242	166	170	170	173	172	169	167	170	173	173	178
15 Liberty Elementary	364	280	259	260	258	257	253	257	255	256	261	270
16 Lincoln Elementary	633	554	584	576	562	564	567	565	567	569	576	584
17 Middletown Elementary	526	473	477	504	487	490	457	477	486	473	478	453
18 Middletown Primary	482	442	444	421	427	441	433	424	404	407	409	415
19 Monocacy Elementary	567	591	560	562	567	573	572	579	585	586	589	609
20 Monocacy Valley Montessori	180	202	201	202	203	202	202	203	202	203	203	203
21 Myersville Elementary	458	372	381	406	428	449	446	428	411	378	360	340
22 New Market Elementary	659	682	665	667	673	686	687	684	691	703	707	717
23 New Midway/Woodsboro Elementary	340	296	279	280	285	287	282	289	293	295	307	312
24 North Frederick Elementary	679	640	656	678	686	694	699	694	695	696	698	692
25 Oakdale Elementary	692	613	615	620	642	679	682	693	691	686	688	700
26 Orchard Grove Elementary	639	659	579	580	588	604	601	609	621	629	632	641
27 Parkway Elementary	248	208	233	230	231	236	233	233	229	230	235	240
28 Sabillasville Elementary	160	112	110	107	109	110	108	109	110	110	110	114
29 Spring Ridge Elementary	577	473	484	489	492	501	498	485	474	463	460	464
30 Thurmont Elementary	483	321	293	299	285	288	277	289	297	298	305	314
31 Thurmont Primary	528	331	332	330	334	333	333	336	340	350	357	362
32 Tuscarora Elementary	662	798	694	709	730	747	746	743	748	759	768	776
33 Twin Ridge Elementary	674	484	470	460	462	464	459	458	465	468	479	480
34 Urbana Elementary @ Sugarloaf	725	700	680	688	710	727	733	738	749	760	783	790
35 Valley Elementary	504	390	523	533	529	528	531	530	526	521	526	533
36 Walkersville Elementary	662	652	641	649	653	648	647	646	653	665	668	677
37 Waverley Elementary	416	670	562	578	586	596	594	601	620	629	640	651
38 Whittier Elementary	671	710	692	675	680	687	689	687	693	701	709	721
39 Wolfsville Elementary	226	150	145	142	143	142	139	135	136	137	139	144
40 Yellow Springs Elementary	456	453	443	436	437	439	436	442	447	450	453	462
ELEMENTARY SCHOOL TOTAL	20,360	19,044	19,116	19,228	19,380	19,612	19,480	19,512	19,625	19,689	19,855	20,078
TOTAL PERCENT OF CAPACITY*		98%	94%	94%	95%	96%	96%	96%	96%	97%	98%	99%

Elementary enrollments are equated for half day Pre-K programs

(1) Butterfly Ridge Elementary will open in fall 2018.

(2) 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.

(3) 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.

Percent SRC	<75%	75-89%	90-99%	100-119%	≥120%
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	State Rated	Capacity	Actual			Projected							
			2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
41 Ballenger Creek Middle	870	870	779	841	907	915	925	903	898	896	880	887	897
42 Brunswick Middle	884	884	578	609	584	614	608	630	640	636	635	627	630
43 Carroll Creek Montessori (2)	90	90	74	88	90	90	90	89	88	88	88	89	89
44 Crestwood Middle	600	600	579	690	710	698	619	654	650	648	630	643	630
45 Frederick Classical (3)	120	120	120	120	120	122	123	122	120	120	120	120	120
46 Gov. Thomas Johnson Middle	900	900	513	521	560	565	591	584	599	618	628	599	590
47 Middletown Middle	914	914	813	782	800	840	859	919	919	938	920	921	910
48 Monocacy Middle	860	860	789	1031	1079	1090	1073	1062	1070	1050	1037	987	998
49 Monocacy Valley Montessori	90	90	83	84	82	81	80	81	81	82	81	82	82
50 New Market Middle	881	881	545	568	586	559	542	534	538	537	538	543	545
51 Oakdale Middle	600	600	703	706	745	716	724	731	779	798	812	788	797
52 Thurmont Middle	900	900	555	567	544	559	532	512	489	488	485	501	512
53 Urbana Middle	900	900	964	1012	1045	1000	982	980	971	950	949	963	988
54 Walkersville Middle	1051	1051	882	874	870	860	871	850	840	836	849	866	880
55 West Frederick Middle	955	955	890	910	894	940	938	899	900	885	879	863	859
56 Windsor Knolls Middle	924	924	758	744	779	813	856	871	891	854	824	838	830
MIDDLE SCHOOL TOTAL	11,539	11,539	9,625	10,147	10,395	10,462	10,413	10,421	10,473	10,424	10,355	10,317	10,357
TOTAL PERCENT OF CAPACITY*			83%	88%	90%	91%	90%	90%	91%	90%	90%	89%	90%

Percent SRC	<75%	75-89%	90-99%	100-119%	≥120%
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	State Rated	Capacity	Actual			Projected							
			2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
57 Brunswick High	893	893	766	734	766	752	790	798	802	830	831	865	840
58 Catoclin High	1135	1135	783	744	802	792	821	837	809	766	738	690	662
59 Frederick High	1826	1826	1460	1341	1361	1391	1459	1596	1628	1657	1656	1620	1610
60 Gov Thomas Johnson High	2091	2091	1574	1735	1792	1854	1909	1942	1974	2002	1997	2000	2003
61 Linganore High	1635	1635	1326	1326	1312	1373	1413	1451	1470	1464	1486	1477	1489
62 Middletown High	1169	1169	1140	1137	1137	1160	1153	1149	1201	1200	1284	1299	1324
63 Oakdale High	1531	1531	1251	1246	1225	1278	1301	1350	1364	1350	1377	1437	1494
64 Tuscarora High	1606	1606	1550	1607	1654	1712	1816	1900	1915	1908	1945	1895	1840
65 Urbana High	1636	1636	1758	1826	1896	2021	2079	2118	2165	2171	2139	2103	2093
66 Walkersville High	1197	1197	1094	1134	1192	1237	1271	1259	1265	1249	1215	1215	1202
HIGH SCHOOL TOTAL	14,719	14,719	12,702	12,830	13,137	13,570	14,012	14,400	14,593	14,597	14,668	14,601	14,557
TOTAL PERCENT OF CAPACITY*			86%	87%	89%	92%	95%	98%	99%	99%	100%	97%	99%

*Includes projects with construction funding approved.

Percent SRC	<75%	75-89%	90-99%	100-119%	≥120%
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Other:

(Rock Creek, Heather Ridge, Virtual School, SUCCESS)	390	192	195	195	195	195	195	195	195	195	195	195	195
TOTAL EQUATED	47,008	41,563	42,288	42,955	43,607	44,232	44,496	44,773	44,841	44,907	44,968	45,187	
TOTAL PERCENT OF CAPACITY*		88%	90%	91%	93%	94%	95%	95%	95%	96%	96%	96%	

*Includes projects with construction funding approved.

Source: Frederick County Public Schools, Facilities Services Division; May 2018

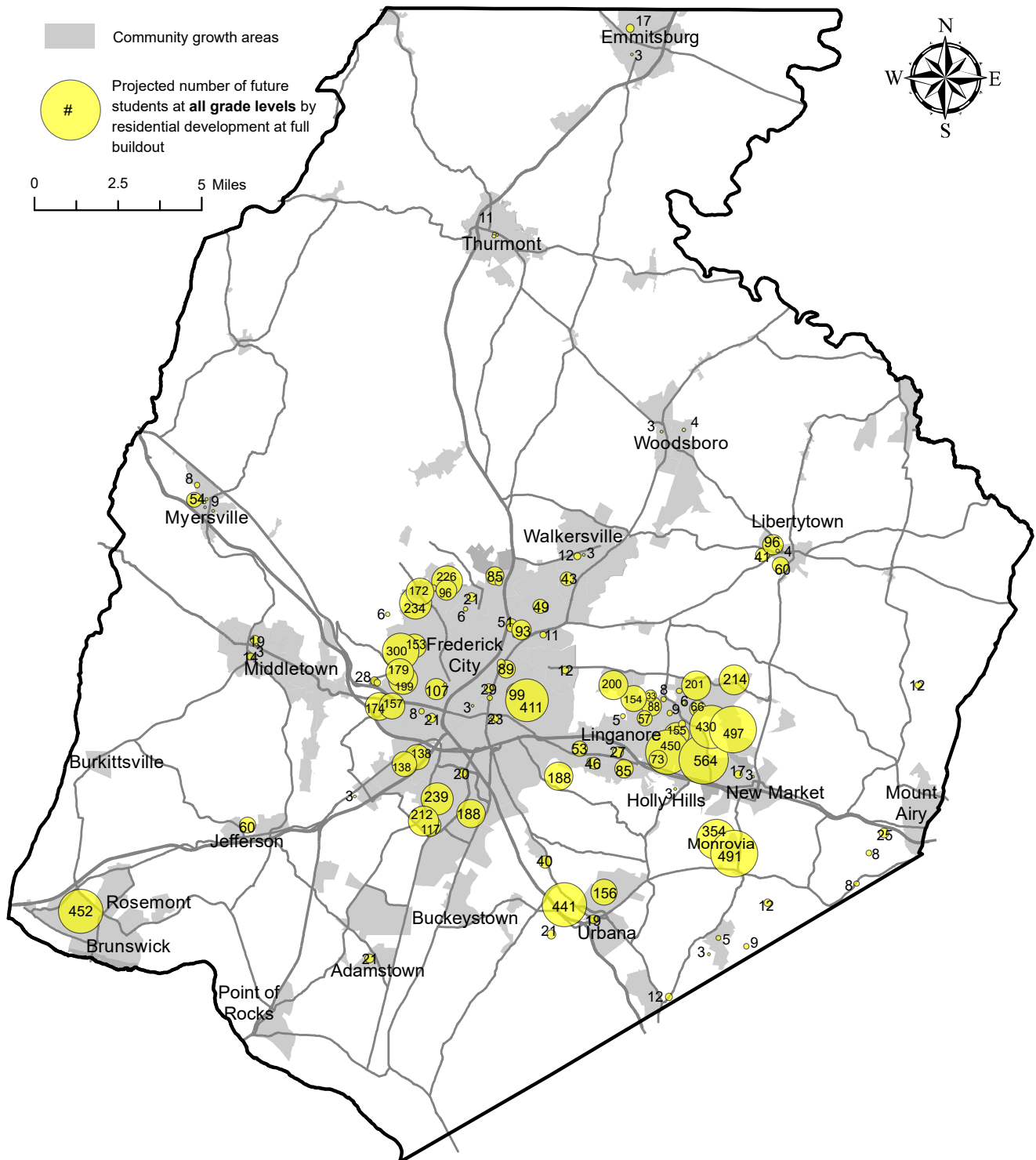
GEOGRAPHIC LOCATIONS OF ENROLLMENT GROWTH

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 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 25-30 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 April 1, 2018 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 2017 pupil yield rates by housing type and 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 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 and I-70 corridor, 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 ten years. The new Butterfly Ridge Elementary School slated to open in 2018, as well as the modernization/addition to Waverley Elementary School, will add much needed capacity to the Frederick City area while the new Sugarloaf Elementary School and Urbana Elementary School replacement will add capacity to the Urbana area. 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 [Chapter V](#).

This EFMP includes recommendations to reduce the number of overcrowded schools in Frederick County. For the 2017-18 school year, 18 schools were at or over 100% of capacity. For the 2018-19 school year, 16 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. 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. In 2018-19, FCPS will be piloting 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 1,292 students in 2017, a 70% increase in 12 years. It is anticipated that there will be more than 1,500 pre-K students in 2018. 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 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 V](#) 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 10 schools with Community Recreation Centers. Two more will be added with the opening of the new Butterfly Ridge and Sugarloaf elementary schools. 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.

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 tracks the condition of school facilities with SchoolDude software. SchoolDude lists systems and equipment within each school building and assigns a 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 concluded in August 2016 with the recommendation to replace the school on another site. The Board of Education approved the Walkersville Middle School 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 Elementary School. 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 1019 students.

MAINTENANCE

Public school buildings are designed and constructed to last well in excess of 40 years. This extended lifespan sets schools apart from many other commercial buildings. As such, public school facilities must be well maintained to ensure the availability and reliability of a safe, healthy, and aesthetically pleasing learning environment for students and staff. The FCPS maintenance program strives to protect the taxpayers' investment by extending the useful life of the buildings and building systems, avoiding interruption in instruction, and providing equitable access to safe and comfortable classrooms to all students.

FCPS uses the industry standard indicator, the facility condition index (FCI), to assess the condition of all facilities and to determine the annual reinvestment necessary to prevent further accumulation of deferred maintenance. The aggregate FCI for all FCPS buildings is the ratio of deferred maintenance costs (\$412 million) to the current replacement value (\$2 billion), or 21 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.

Ongoing maintenance does not eliminate the need for upgrading or renovating major systems in older buildings that are under immediate threat of failure. 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. Deferred maintenance needs continue to accumulate. In order to prevent an increase in deferred maintenance over the next ten years, FCPS would need to invest \$28.5 million in major construction and systemic projects annually, a 14 percent increase from recent state and local funding allocated.

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.

SUMMARY OF FUTURE FACILITY NEEDS

According to projections, FCPS must accommodate approximately 3,600 new students between 2017 and 2027. Since many schools are at or near capacity, accommodating growth will require additional facilities. The greatest need system-wide will be at the high school 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 45 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 upgrade or renovation of these buildings into future capital budgets. Deferral of maintenance and renovation will only result in more costly projects in the future.