

IV. Enrollment Projections and Facility Needs Analysis

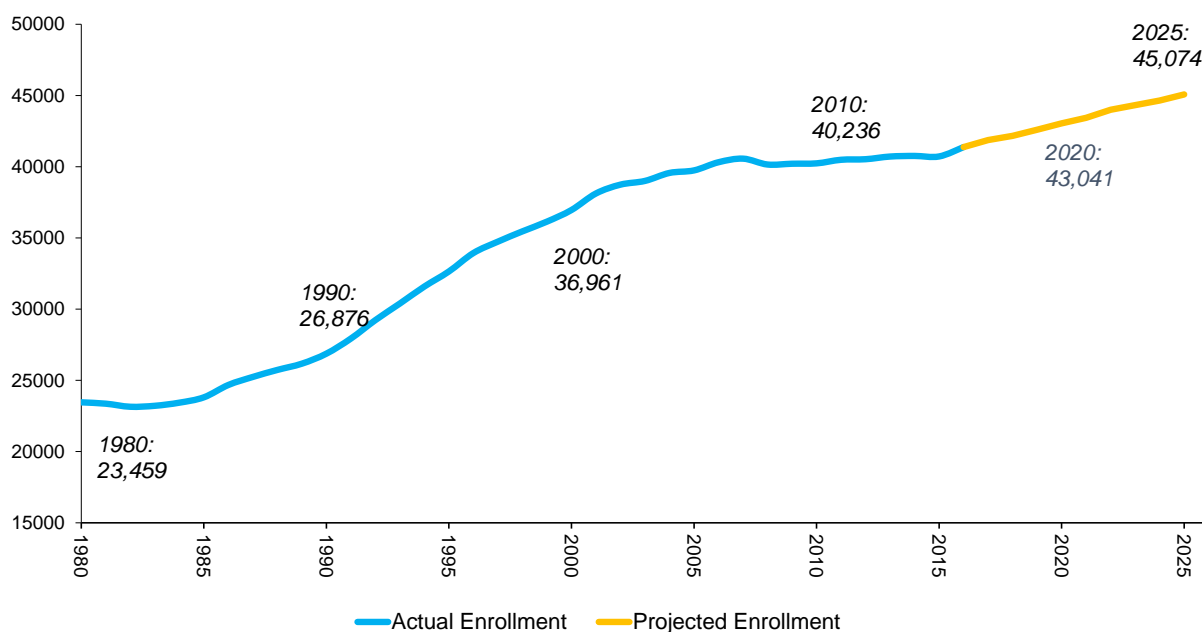
FCPS anticipates future facility needs by reviewing projected enrollment growth and the need for scheduled major maintenance or renovation and repair of existing buildings. Facility needs are also affected by changes in the instructional program. These changes can be initiated locally or mandated by 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. A slightly smaller increase of 2,805 students is anticipated between 2010 and 2020. A similar number of students, 2,033 additional students, is 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 an increasing number of dwelling units expected to be permitted, as noted in [Chapter II](#).

Figure 4A: Total Enrollments 1980-2026



Projected Enrollments

System-wide equated enrollment projections, developed with information provided by the Maryland Department of Planning, were approved in April 2017. These projections anticipate an increase in equated enrollment of approximately 3,904 students between September 2016 and September 2026.

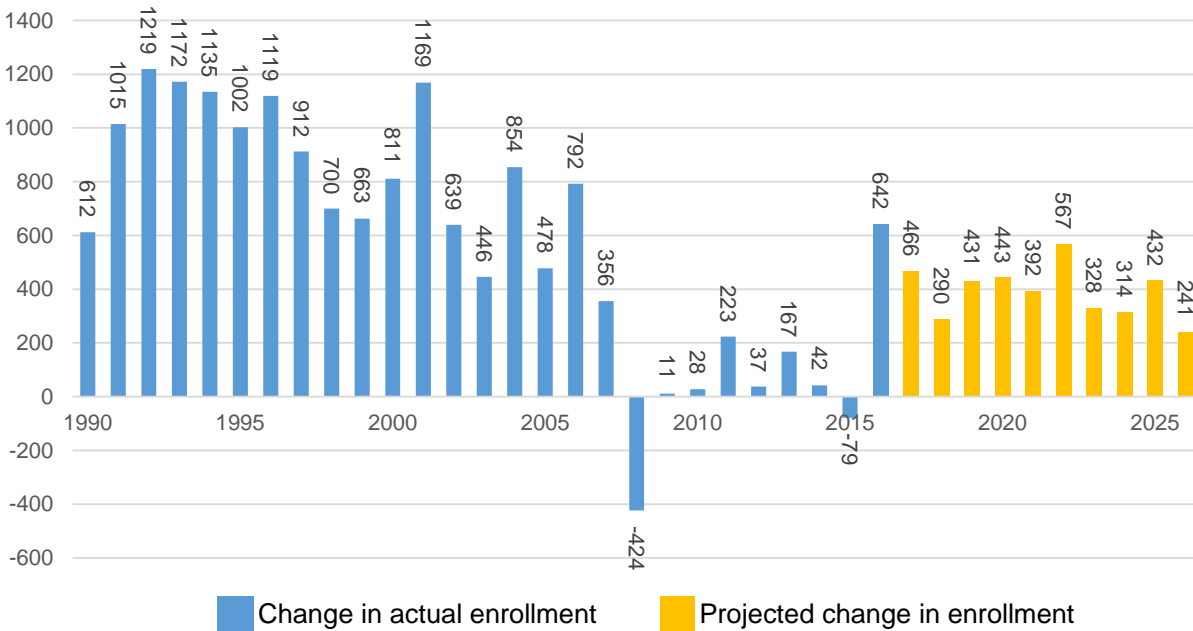
1. Figure 4A uses total enrollments, which counts each and every child that is served by FCPS. The other tables and figures in this report use “equated enrollments” which assign a value of one-half to students enrolled in half-day pre-kindergarten programs. Equated enrollments are used to in funding 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. During the first half of this period, enrollment increases are anticipated to average a little more than 400 students annually while average annual increases during the second half are expected to average a little less than 400 students annually.

Figure 4B: Annual Equated Enrollment Increase - 1990 to 2026



The largest increases in enrollment are expected at the elementary and high school level. Of the approximately 3,900 projected student increase in equated enrollment between 2016 and 2026, slightly more than 1,600 students will be at the elementary school level and 1,500 students at the high school level, as shown in [Figure 4C](#). Almost 800 additional students will be at the middle school level.

Figure 4C: Equated Enrollment Growth by School Level - 2016 to 2026

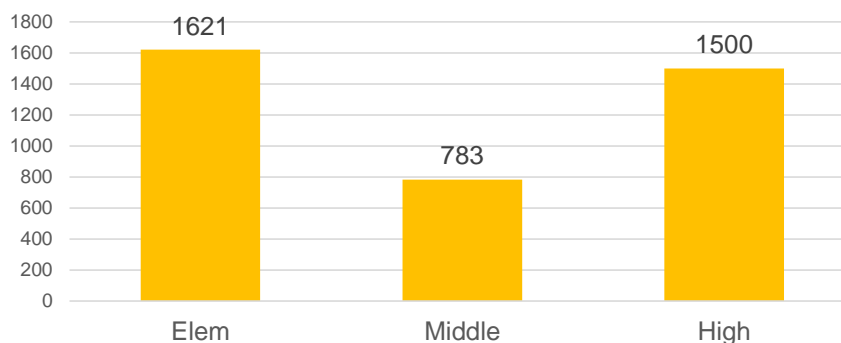
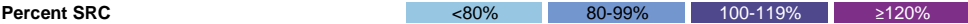


Table 4A: FCPS Equated Enrollment Projections

	State Rated Capacity	Actual					Projected					
		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
1 Ballenger Creek Elementary	663	647	659	597	569	562	561	572	586	603	611	620
2 Brunswick Elementary	611	617	644	616	614	621	620	631	639	650	664	674
3 Butterfly Ridge Elementary (1)	725			718	696	723	733	736	744	756	765	775
4 Carroll Creek Montessori (2)	210	196	202	198	195	195	196	195	198	198	198	198
5 Carroll Manor Elementary	618	533	536	530	521	520	532	530	536	542	552	562
6 Centerville Elementary	675	1001	941	918	915	898	893	901	903	920	933	939
7 Deer Crossing Elementary	587	725	719	710	715	718	722	741	751	760	765	770
8 Emmitsburg Elementary	316	248	247	230	217	213	214	223	228	232	240	247
9 Frederick Classical (3)	255	241	240	238	240	240	240	240	240	240	240	240
10 Glade Elementary	638	633	633	607	609	598	600	612	621	632	640	649
11 Green Valley Elementary	504	367	379	362	368	370	370	376	384	390	401	408
12 Hillcrest Elementary	670	906	913	622	604	600	594	599	606	615	622	631
13 Kemptown Elementary	435	386	393	373	385	393	406	416	428	438	450	442
14 Lewistown Elementary	242	173	182	180	180	181	180	195	194	198	200	201
15 Liberty Elementary	364	284	275	260	261	258	256	263	266	271	275	280
16 Lincoln Elementary	633	567	572	581	588	588	584	588	590	600	602	603
17 Middletown Elementary	526	434	463	460	496	489	521	500	518	522	533	536
18 Middletown Primary	482	475	453	466	450	471	479	486	496	504	510	514
19 Monocacy Elementary	567	579	582	563	562	574	583	590	602	613	621	629
20 Monocacy Valley Montessori	200	202	193	193	195	195	199	198	198	198	198	198
21 Myersville Elementary	458	340	341	350	377	390	403	419	432	440	446	453
22 New Market Elementary	659	704	675	648	640	649	644	649	661	673	682	683
23 New Midway/Woodsboro Elementary	340	296	293	282	280	282	288	290	293	295	294	299
24 North Frederick Elementary	679	640	637	641	645	666	662	674	677	690	699	709
25 Oakdale Elementary	692	613	605	620	640	661	689	700	721	738	750	755
26 Orchard Grove Elementary	639	662	722	645	648	649	656	664	680	702	712	718
27 Parkway Elementary	248	212	206	190	190	192	190	191	195	195	199	200
28 Sabillasville Elementary	160	122	130	122	120	124	121	125	130	128	129	128
29 Spring Ridge Elementary	577	437	442	438	422	425	423	435	432	439	435	441
30 Thurmont Elementary	483	301	326	295	302	288	295	290	299	304	309	310
31 Thurmont Primary	528	339	334	336	330	335	341	349	356	362	360	365
32 Tuscarora Elementary	662	781	788	710	719	734	746	735	732	746	756	767
33 Twin Ridge Elementary	674	482	479	482	476	484	486	493	500	508	516	520
34 Urbana Elementary	511	700	731	738	744	766	774	761	794	808	820	832
35 Valley Elementary	504	388	399	485	498	511	522	535	546	556	564	572
36 Walkersville Elementary	662	680	682	663	665	650	633	649	651	662	673	683
37 Waverley Elementary	416	593	649	557	547	522	496	502	508	521	528	537
38 Whittier Elementary	671	707	695	680	670	679	680	675	685	695	704	714
39 Wolfsville Elementary	226	147	149	140	136	132	133	134	134	136	137	139
40 Yellow Springs Elementary	456	488	479	472	471	481	485	490	501	511	518	526
ELEMENTARY SCHOOL TOTAL	20,166	18,846	18,988	18,916	18,900	19,027	19,150	19,352	19,655	19,991	20,251	20,467
TOTAL PERCENT OF CAPACITY*		97%	98%	94%	94%	91%	92%	93%	94%	96%	97%	98%

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.



	Current SRC	Actual		Projected								
		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
41 Ballenger Creek Middle	870	778	805	800	864	888	898	878	895	884	870	868
42 Brunswick Middle	884	588	585	608	646	701	727	764	756	753	760	774
43 Carroll Creek Montessori (2)	90	47	60	90	90	90	90	90	90	90	90	90
44 Crestwood Middle	600	514	533	625	626	608	561	547	562	578	575	577
45 Frederick Classical (3)	120	116	120	120	120	120	120	120	120	120	120	120
46 Gov. Thomas Johnson Middle	900	562	542	555	579	571	590	575	589	582	592	600
47 Middletown Middle	914	851	837	790	779	799	810	858	849	889	879	909
48 Monocacy Middle	860	738	733	856	882	921	940	925	902	885	881	895
49 Monocacy Valley Montessori	90	81	90	85	80	78	77	80	81	83	82	80
50 New Market Middle	881	508	518	531	543	522	505	500	491	481	490	498
51 Oakdale Middle	600	644	703	718	750	720	700	705	697	710	738	750
52 Thurmont Middle	900	561	551	558	516	531	510	533	509	509	490	516
53 Urbana Middle	900	866	953	998	1,028	994	1,005	1,022	1,000	985	967	1,008
54 Walkersville Middle	1051	826	867	873	868	887	890	871	848	823	847	847
55 West Frederick Middle	955	853	864	909	929	892	809	795	776	768	760	770
56 Windsor Knolls Middle	924	761	749	714	718	700	712	711	727	741	752	775
MIDDLE SCHOOL TOTAL	11,539	9,294	9,510	9,830	10,018	10,022	9,944	9,974	9,892	9,881	9,893	10,077
TOTAL PERCENT OF CAPACITY*		81%	82%	85%	87%	87%	86%	86%	86%	86%	86%	87%

Percent SRC	<80%	80-99%	100-119%	≥120%
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	Current SRC	Actual		Projected								
		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
57 Brunswick High	893	748	781	761	766	797	835	880	947	993	1,032	1,042
58 Catocin High	1135	806	730	678	697	692	712	709	690	675	690	680
59 Frederick High	1826	1,459	1,423	1,451	1,523	1,590	1,705	1,716	1,687	1,608	1,540	1,500
60 Gov Thomas Johnson High	2091	1,385	1,484	1,428	1,436	1,408	1,391	1,491	1,499	1,530	1,548	1,505
61 Linganore High	1635	1,381	1,355	1,360	1,343	1,345	1,354	1,352	1,331	1,322	1,319	1,301
62 Middletown High	1169	1,116	1,148	1,165	1,174	1,191	1,165	1,130	1,152	1,142	1,213	1,227
63 Oakdale High	1531	1,251	1,260	1,295	1,319	1,360	1,402	1,436	1,476	1,507	1,575	1,579
64 Tuscarora High	1606	1,518	1,529	1,545	1,569	1,611	1,701	1,814	1,802	1,809	1,813	1,783
65 Urbana High	1636	1,690	1,733	1,765	1,824	1,941	1,978	2,043	2,071	2,043	2,092	2,051
66 Walkersville High	1197	1,088	1,107	1,144	1,200	1,228	1,267	1,274	1,297	1,312	1,279	1,274
HIGH SCHOOL TOTAL	14,719	12,442	12,550	12,592	12,851	13,163	13,510	13,845	13,952	13,941	14,101	13,942
TOTAL PERCENT OF CAPACITY*		86%	85%	86%	87%	89%	92%	94%	95%	95%	96%	95%

*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
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TOTAL EQUATED	46,814	40,777	41,243	41,533	41,964	42,407	42,799	43,366	43,694	44,008	44,440	44,681
TOTAL PERCENT OF CAPACITY*		87%	88%	88%	89%	90%	91%	92%	93%	94%	94%	95%

*Includes projects with construction funding approved.

Source: Frederick County Public Schools, Facilities Services Division; July 2017

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

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 Educational Facilities Master Plan includes recommendations to reduce the number of overcrowded schools in Frederick County. For the 2016-17 school year, 16 schools were at or over 100% of capacity. For the 2017-18 school year, 19 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 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.

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-four 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 1,207 students in 2016 , a nearly 60% increase in 10 years. 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.

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

Table 4B: Facility Assessment Combined by Level

ELEMENTARY SCHOOLS August 2012 (updated 2017)		PHYSICAL ASSESSMENT SCORE 1000	FUNCTIONAL ASSESSMENT SCORE 1000	TOTAL SCORE 2000
1	NORTH FRED ELEM	Completed August 2014		
2	URBANA ELEM	Design beginning fall 2017		
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	New building opens August 2017		
2	MIDDLETOWN HIGH	401	536	937
3	BRUNSWICK HIGH	541	473	1014
4	WALKERSVILLE HIGH	610	492	1102

feasibility study for the renovation of Urbana ES concluded in Fall 2014 with the recommendation that the school building be replaced. Design of this school is beginning in Fall 2017. FCPS will proceed with construction contingent on funding, with the new building expected to open in August 2020. The next elementary school slated for modernization 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 was identified as the next school most in need of a renovation. Construction of the new Frederick High began in the spring of 2015. The new building will open in August 2017.

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. Design for the replacement school will begin in fall 2017. Replacing Rock Creek on another site will also facilitate the much needed addition and modernization of Waverley Elementary School. The feasibility study for the Waverley project will begin in fall 2017.

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 3,900 new students between 2017 and 2026. Since many schools are at or near capacity, accommodating growth will require additional facilities. The greatest need system wide will be at the elementary and high school levels. 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 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