Feasibility Study

An Annual Review of Long-Term Capital Planning and Redistricting Options

June 2014

For information contact:
Joel A. Gallihue, Manager of School Planning
10910 Clarksville Pike
Ellicott City, MD 21042
410-313-7184

HOWARD COUNTY
PUBLIC SCHOOL SYSTEM

June 26, 2014

To: Board of Education Members

From: Renee A. Foose, Ed.D., Superintendent

Subject: June 2014 Feasibility Study – An Annual Review of Long-Term Capital Planning and Redistricting Options

In August we will open Thomas Viaduct Middle School in the Oxford Square development. The construction of this school building has been a remarkable process to observe. It also serves as a visible reminder of the effort the Board and staff have made to lead the community through challenging decisions to adapt our system to new growth patterns. In 2006 this same report identified future growth trends in eastern Howard County, helping to shift our attention from the opening of Bushy Park Elementary School and what then looked like continued growth in the west. As the trends in the east persisted, we acquired sites and adjusted our capital plans. We redistricted at the elementary and middle school level to better utilize existing capacity, including western capacity when travel distance and feeder patterns were acceptable. Along the way we set some new goals for redistricting to improve accountability to parents and lessen disruption to students. We had a consultant make an equitable appraisal of middle school capacity which was adopted by the Board of Education. Most importantly, we opened the award winning Ducketts Lane Elementary School and now follow up with a signature middle school facility.

Most of us have already had a glimpse of Howard County's future in the new developments growing up around us. While the county planners examine these trends and regulatory options, the Howard County Public School System (HCPSS) must continue to prepare for enrollment growth in the east. This document does not propose any redistricting changes for this year. This year's document considers a number of important long-term options and remains open to alternative solutions.

- **Conceptual Redistricting Discussions for Future Years**
  The Needs and Strategies section of this document supports continued investment in the east. Unlike the reports of previous years, when options include redistricting, we do not present formal plans with specific polygon moves. Plans will continue to be refined over the next year based upon changes in development, enrollment and program changes such as full-day Prekindergarten, and feedback received from the community.

- **Planning for the Approved Consultant Analysis**
  The Approved FY 2015 Operating Budget includes funding to study alternative approaches to the current redistricting process. We are using this document to help flesh out the expectations of this analysis. Some examples include:

  - Review of Enrollment Projection Methodology – Evaluate and report on the accuracy of our current projection methods. Provide comments on where the method could be improved. Review the timing of the projections and its use in county APFO ordinance and suggest changes to procedure.

  - Evaluate Feeder System – Evaluate best practices for moving towards a strong feeder system and recommend a strategy.

  - Consider Redistricting Alternatives – Evaluate best practices for avoiding redistricting. Review strategies for making use of existing capacity in the west outside of traditional domino effect redistricting plans.

- **Downtown Columbia Schools Plan**

  The Columbia Town Center Schools Analysis (Appendix A) lays out the options for dealing with the projected enrollment growth associated with the Columbia Town Center development. The pupil generation rate which is ultimately selected and then experienced will drive the school needs; but under any scenario, a new elementary school will be needed sometime within the next 10–15 years and other capital additions and redistribution of student population will be required at the secondary levels.

While this report can spark animated discussions, it is consistently regarded in citizen feedback as a valuable source of objective information. I hope you will agree that this document has been adjusted to respond to current needs, but remains an informative resource.

Table of Contents

List of Tables

List of Figures

Supplemental Reports

Located online at http://www.hcpss.org/schoolplanning/

Columbia Town Center Schools Study– Appendix A
HCPSS Elementary School Capacity Update - DRAFT – Appendix B

I. Introduction

Each year the Board of Education of the Howard County Public School System (HCPSS) reviews capital planning options and redistricting scenarios through a feasibility study. The annual student enrollment projection is introduced in this report along with scenarios that are intended to provide a comprehensive look at suggested capital additions, renovations, and any attendance area adjustments that are anticipated within the ten-year Capital Improvement Program period. Plans examined in this document may only be implemented through the Board of Education's approval of both the capital budget and any change to current school attendance areas. This report is the starting point for the annual process of developing the capital budget.

This document makes note of scenarios that may be developed in future attendance area review processes. Full plan assessments will be made in a future report prior to Board deliberation to show how plans compare to the eleven policy considerations in Policy 6010 School Attendance Areas.

This is a planning document and the recommendations presented for review are not final. The conditions which have influenced past enrollment projections may change. New plans may be needed to react to population shifts or new residential development plans. Experience has shown that by presenting this report annually, assumptions and trends can be given consideration on a regular basis and appropriate adjustments can be made to the capital budget or redistricting plans. Redistricting proposals are not certain until approved by the Board of Education.

The projections in this document are presented for each organizational level (elementary, middle, and high) using a format similar to the Adequate Public Facilities Ordinance (APFO) chart. The "pre-measures" chart shows the effect of projected enrollment without new or accelerated capital projects recommended in this report. The "post-measures" chart give a preliminary view of projected enrollment with these projects factored in. The chart in this document includes capital projects recommended in for the FY16 Capital Budget. If these projects are not approved, other plans must be developed.

The redistricting process includes the following:

Feasibility Study. Projects in the Capital Improvement Program that increase student capacity will be tested in the feasibility study with a redistricting plan consistent with stated redistricting policy goals. Plans will be linked within and across organizational levels to form a short- and long-range redistricting plan. The Board of Education will review the plan and set direction, as appropriate, during the capital budget presentations each year. In years where redistricting is anticipated, the Attendance Area Committee will critique the plan, providing review and comment to the Superintendent.

Recommending Redistricting Plans. In years where redistricting is planned, staff will refine the goal directed short- and long-range plan based on the most current set of projections that conform to System-Level Process Requirements. The Attendance Area Committee will apply the direction set by the Board of Education, the System-Level

Process Requirements, and the standards and factors in Policy 6010. Staff will make modifications as appropriate. The plan will be presented at regional meetings, critiqued by the public, and adjusted as appropriate.

Board of Education policy standards recommend consideration of redistricting under certain conditions. While these conditions include opening a school or adjusting to some other change, the most likely trigger is when school capacity utilization projections fall outside the minimum or maximum target range of 90–110 percent school capacity over a period of time.

When redistricting is considered, Policy 6010 School Attendance Areas identifies eleven factors to be considered in the development of plans:

1. Educational welfare of the impacted students in both the sending and receiving schools.
2. Frequency with which students are redistricted.
3. Impact on the number of students bused and the distance bused-students travel.
4. Cost.
5. The demographic makeup and academic performance of students in both the sending and receiving schools.
6. Number of students to be redistricted.
7. Maintenance of feeder patterns.
8. Changes in a school's program capacity.
9. Impact on specialized or regional programs.
10. Functional and operational capacity of school infrastructures.
11. Building utilization. (90–110 percent where possible)

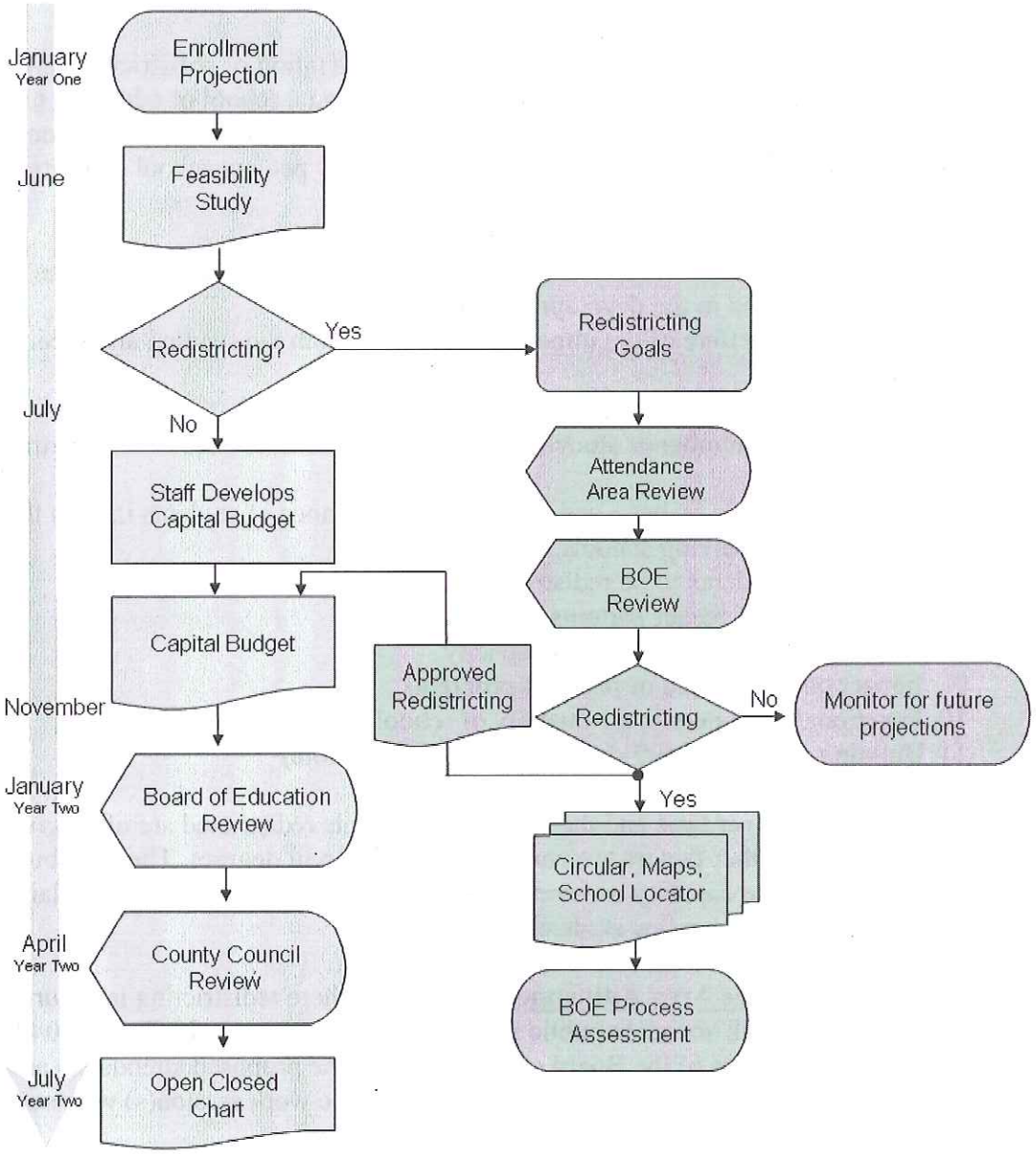
Capacity utilization over time and the number of students redistricted are often given the most attention. The other factors are emphasized to different degrees. The distribution of enrollment growth and capacity is never perfect, so it can be difficult to make plans that satisfy all factors and move few students.

Approving Attendance Area Adjustments. In years where redistricting is occurring, the Board of Education will schedule public hearing(s) in accordance with Policy 2040 Public Participation in Meetings of the Board of Education on the proposed attendance area adjustments. Their deliberations will also include a public work session(s) with staff and the members of the Attendance Area Committee.

Assessing the Process. In years where redistricting is occurring, the Board of Education will assess the process at the end of the redistricting cycle. Modifications will be made as appropriate prior to the beginning of the next cycle.

After the feasibility study has introduced the new projection, tested redistricting scenarios, and recommended capacity adjustments, the capital budget is prepared. In years where redistricting is occurring, the capital budget and redistricting processes run in parallel, as illustrated in Figure 1.

Figure 1. Capital Budget and Redistricting Process



II. Executive Summary

This feasibility study forms the basis for the development of the Capital Improvement Program (CIP). In September 2014 the FY 2016 Superintendent's Proposed Capital Budget will be presented, which includes the five-year CIP. The following sections highlight staff considerations included in this study which may be included in the CIP.

A. Capacities

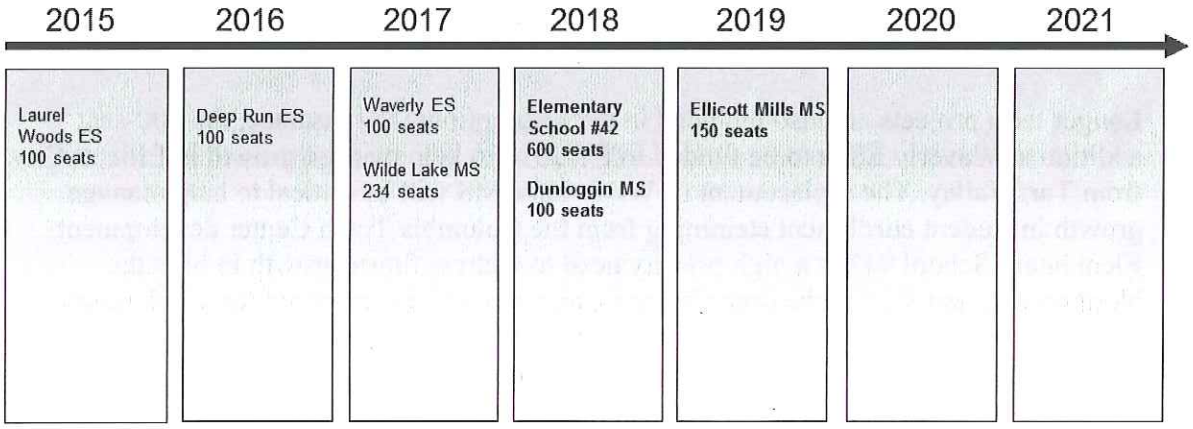
The additions and new schools approved as part of the FY 2015–2024 Long-Range Master Plan are included in the assumptions for this document, including the plan to replace Wilde Lake MS with what will be the first Net Zero Energy school in Maryland. Construction of Thomas Viaduct MS is nearing completion and will open this August within the Oxford Square development.

Longer term projects are also included in the assumptions. For instance, the 100-seat addition at Waverly ES is to be funded in FY 2016 to help manage growth in Ellicott City from Turf Valley. The replacement of Wilde Lake MS will be critical to help manage growth in student enrollment stemming from the Columbia Town Center development. Elementary School #42 is a high priority need to address future growth in both the Northeastern and the Southeastern Regions, and should be considered for acceleration. This study validates the need for all of the projects recently approved in the long-range plan. Looking ahead to the next capital budget, three considerations are recommended for the FY 2016– 2025 Long-Range Master Plan:

- Dunloggin MS Renovation – Growth will continue in the Dunloggin MS attending area and future relief by redistricting appears to be unlikely. A future renovation project is scheduled for planning funding in FY 2016. An addition should be planned as part of the project to allow for construction swing space and to provide additional capacity.
- Ellicott Mills MS – During the middle school redistricting, relief for Ellicott Mills MS was deferred because it could not be accomplished with Thomas Viaduct MS. During the Attendance Area Review, scenario analysis indicated that western redistricting may not be viable and that expansion may be advisable. The newly approved middle school capacities provide context for a possible expansion of Ellicott Mills MS. Both Mayfield Woods MS and Mount View MS are now rated at nearly 800 seats. A feasibility study should be conducted to review the options for an expansion of 150 seats and should include consideration of any necessary core facility adjustments along with additional classrooms.
- Elementary School #42 – Accelerate construction timeline for completion in August 2018.

Since the new general plan and subsequent comprehensive zoning was approved, new development is pending which was not anticipated in the FY 2015 Long-Range Master Plan. In comparison to last year's projection, future housing has been increased by almost 1,000 units. The HCPSS has built facilities and redistricted to use existing capacity to serve development projections prior to these approvals. In the interim, relocatable classrooms provide the short-term capacity to allow schools to operate as intended, but they will not open areas to new residential growth. In future capital budgets, the county can invest in the additional infrastructure needed to support the increased residential growth allowed for in the general plan and comprehensive zoning.

Figure 2. Planned School Capacity (New recommendations in bold)



B. Redistricting Approach

It is our goal to use redistricting as infrequently as possible, moving as few students as necessary within the constraints listed in Policy 6010 School Attendance Areas. In the 2013 Feasibility Study staff recommended taking a break from redistricting in 2014 to further assess the process and evaluate the long-range plan. Redistricting is not recommended for the Board of Education to consider this fall. Future redistricting was already proposed and analyzed in previous feasibility studies and will be revisited in future feasibility studies. The Board of Education followed up on the recommendation to pause from redistricting by budgeting funding for a consultant study. The amount of time we can delay longer-term redistricting is linked to the rate of crowding in specific areas like the Manor Woods ES or Howard HS attending areas.

C. Recommendations

1. **Do not convene an Attendance Area Committee in 2014.**
   The June 2013 Feasibility Study discussed the need for a pause in the redistricting process in 2014 to allow for the evaluation of planning alternatives. The Board of Education calendar was approved on January 23, 2014, without the inclusion of redistricting hearings and work sessions for this fall.

2. **Consider options and provide direction for the consultant review. The scope of the request for proposal is presented in this document. These include:**

   - Review Enrollment Projection Methodology
   - Recommend enrollment projection benchmarks
   - Evaluate Feeder System
   - Consider Redistricting Alternatives

- Evaluate FARM Rates
- Evaluate Scenario Testing Tools
- Develop New Scenario Testing Tool

3. **Accept the Columbia Town Center Schools Analysis findings.**
   The key findings of this plan are as follows:
   - The study uses a modified projection and concludes that there are capacity needs at all three levels.
   - Receiving the donation of the Clary's Forest site[1] is recommended.
   - A concept of converting additional projected land needs into future building space is discussed. This allows consideration of future needs within new downtown development.

4. **Long-term planning is needed for additional capacity.**
   Quality schools build strong communities. While the HCPSS is peripheral to land development discussions, staff continues to work closely with Department of Planning and Zoning and Public Works staff to ensure that schools are central to new development.

   The HCPSS continues to actively pursue land acquisition opportunities for school sites in the eastern part of the county, including one large enough to accommodate a high school. This study continues to affirm the need for another elementary school in the east for 2018. Experience has shown that obtaining sites is difficult, so a site should be added to the land bank this year. Other sites should be obtained to provide maximum flexibility for future capital needs.

   The FY 2015 Capital Budget reflects projects that were first mentioned in this report last year. Many of the long-term trends evident in this report were identified in previous years. Projections indicate the need for an additional elementary facility to support growth from the Columbia Town Center development in the next decade. Projections continue to support the need for elementary redistricting to relieve overcrowding at Manor Woods ES associated with Turf Valley growth. The planned 2017 addition at Waverly ES can maintain target capacity utilization until 2020, including the new attending area added in the 2013 redistricting. Considering the limited potential for expanding schools outside of the sewer service area, a Turf Valley school site should be obtained.

[1] Lot 147 on Plat number 305A-1051 recorded 4/21/1989 and identified in the notes as a school site.

III. Planning Considerations

This section identifies planning assumptions and considerations. The annual projection is developed with assumptions about enrollment growth that have evolved over the years. Other planning considerations involve implications for capital facilities. Some of the previous planning assumptions have been adjusted, while others have been added for this study. This section presents a discussion of the major components and adjustments included in this year's planning considerations.

A. Projections

Projections used for this study were generated in the spring of 2014. The projection model and methodology used by the HCPSS is based on historic cohort survival ratios—the number of students that "survive" from one grade level (cohort) to the next. Then the effects of new housing yields and the net effects of resale of existing housing stock and apartment turnover are added to the projection. Using the births and actual enrollment data history[2], these variables are combined to project the total student enrollment at each school for September 30 of each future year. The projection is presented out to 2025 in this document, although it extends further into the future. It should be noted that the trends shown after the first five or six years are less reliable; however, certain decisions like site acquisition are appropriately informed by the later part of the projection.

Planning issues can become apparent by examining the consistency of the current projection to those made in previous years. When several years of enrollment projections are graphed, the basic trends are consistent in each of the projections. By using a ten-year series, these three consecutive annual projections share some years of data. This brings stability to the projection, but still allows the projections to indicate differences so that changing trends can be apparent.

As shown in Figure 3, the 2014 projection is showing stronger enrollment growth at the elementary level. Most of the enrollment growth comes as "survival," meaning the system is gaining new students in the transition from one grade to the next. The trend in the 2014 projection is for elementary enrollment to increase by 3,912 students by 2023. As a result of this enrollment growth, the capacity utilization of all elementary schools combined will begin to exceed 110 percent by 2020. This is earlier than previous projections and may suggest that adjustments are needed to the long-range capital improvement plan. Projects approved as part of the FY2015 CIP can absorb some of this growth.

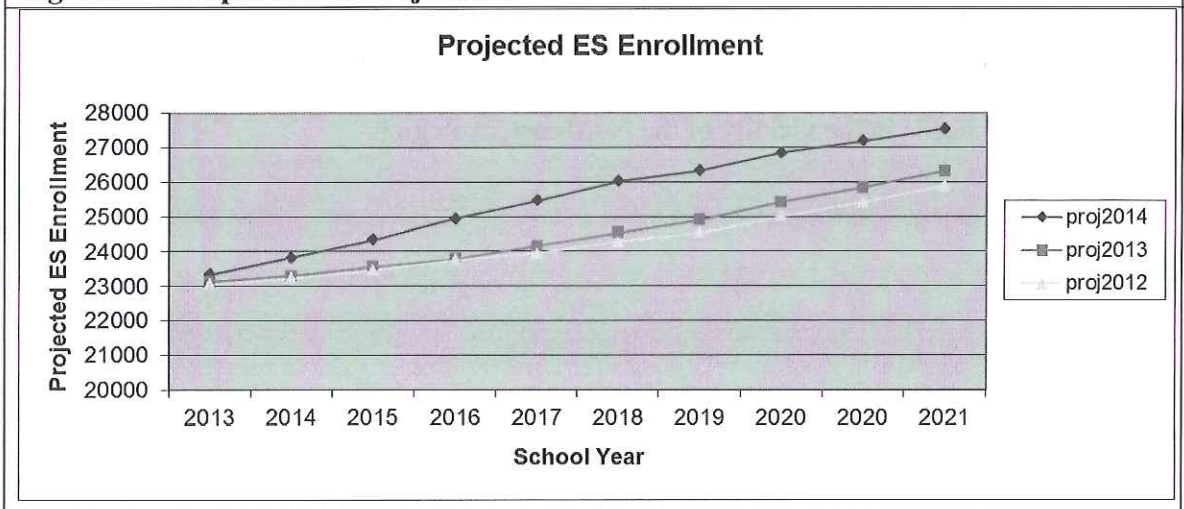
The trend in the 2014 projection is for middle school enrollment to increase by 2,855 students by 2023. As a result of this enrollment growth, the capacity utilization of all middle schools combined will begin to exceed 110 percent beyond 2021. Most of the projected growth is in the east, and projects approved as part of the FY 2015 CIP can only partially absorb this growth.

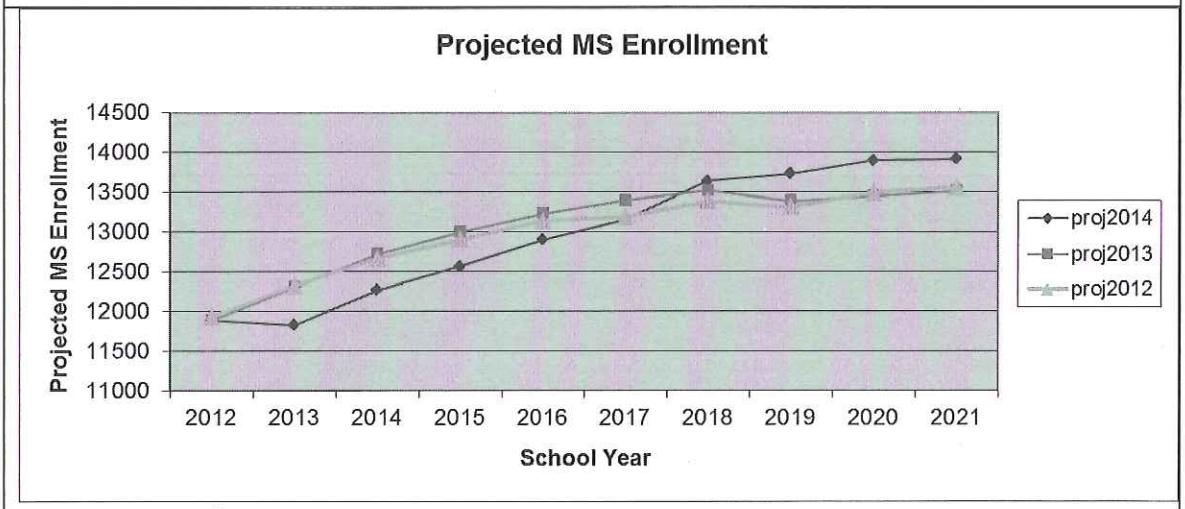
---

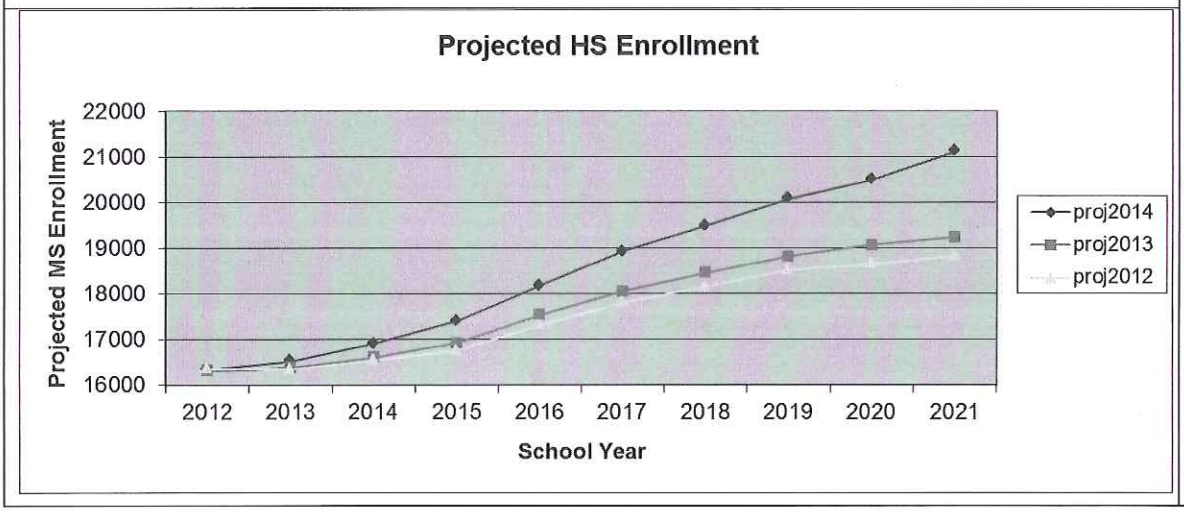
[2] A five-year series, in this case September 30, 2009, through 2013 enrollments, is used in the projection.

The trend in the 2014 projection is for high school enrollment to increase by 4,945 students by 2023. This represents a stronger trend than in previous years. As a result of this enrollment growth, the capacity utilization of all high schools combined will begin to exceed 110 percent by 2018. Based on the long-term growth trends, land should be banked for future needs in the vicinity of the Northeastern Region.

Figure 3. Comparison of Projections







The graphs on the left consider the elementary, middle, and high school projections for this year in comparison to the projections made for 2012 and 2013.

These overall depictions of the projection by level help to show general relationships in trends.

The 2014 projection appears to show stronger long-term enrollment growth at all three levels.

When developing the annual projection, School Planning staff reviews the differences between previous projections to determine if data inputs were correct or if any assumptions should be reconsidered. Projections are simply an organized way of making assumptions based upon available data. Differences between projections can be explained by variations in input data from year to year. Specific contributing factors to differences between projections include:

1. **Changes in Development Horizon.** Each year the Department of Planning and Zoning provides a housing projection for each school. New approvals or changes to phasing of existing projects can alter the timing and intensity of growth at specific schools. As previously noted, approximately an additional 1,000 units were included to account for the general plan and comprehensive zoning effect.

2. **Difficulty Projecting Kindergarten.** Kindergarten is typically the most difficult grade to project because the time between the data point (birth) and enrollment is five years as opposed to one for all other survival ratios.

3. **Changing Housing Yields.** Lower elementary pupil generation will likely continue in the west. While most future housing in that area will be single family detached, environmental restrictions will limit supply, leading to larger more expensive homes. Higher housing yields continue to be observed for multi-family units. This impacts the northeast and southeast where many such units are under construction and more are anticipated. Individual projections for each school help to capture local effects.

4. **Changes in Cohort Survival Ratios.** With each new data set, the newest survival ratio is added to the five-year historical base and new historical average results. The new average is then amplified throughout the model, meaning the projection, over time, can be sensitive to a relatively small change in the survival ratio. The more immediate impact to projected enrollment is the initial size of the cohort.

5. **Changes at Feeder Schools.** If enrollment in an elementary school feeding a middle school increases or decreases, the effect can be magnified at the middle school, particularly if several feeder schools change in the same direction. The size of the outgoing cohort may also have an impact.

B. Capacities

Capital planning and Adequate Public Facilities Ordinance (APFO) regulatory review[3] of development depend upon accurate capacity assessments and sound projections to derive capacity utilization projections. Capacities of schools dictate the calculation of capacity utilization percentage. The final phase of the HCPSS Elementary School Capacity Update review is underway and will determine whether any further changes should be made to elementary capacities. Appendix B includes draft analysis for Running Brook ES and Forest Ridge ES. The draft results indicate that while small changes are warranted, they

[3] Capacity is only relevant to APFO at the elementary and middle level. There is no high school capacity test.

will have little impact in the regions of greatest concern. It is expected that the complete report will be presented to the Board in September for their review.

C. Regions

This study presents school information in six regions. The regions were originally designed to correspond to planning regions used by the county. As new facilities have been built, the school planning regions were not adjusted. The service areas of the six regions do not match up by level—elementary, middle, and high. This disconnecthas not been a problem for developing projections and redistricting scenarios because modeling is done at the school and planning polygon level, with the results then summed for regions.

The Howard County Department of Planning and Zoning has not needed HCPSS regions to align with their planning areas. The Adequate Public Facilities Ordinance Housing Unit Allocation charts allocate units based upon fixed planning areas. When new developments are proposed, the Adequate Public Facilities Ordinance School Test (elementary and middle) is based upon whether the assigned schools are open or closed. A region test is made at the elementary level only. The law closes a region to development if capacity utilization for the region exceeds 115 percent, even if the assigned elementary school does not exceed 115 percent. This condition is projected; however, by the time this condition occurs, it is likely the HCPSS will have taken steps to address the enrollment growth by building new capacity or redistricting.

The school regions remain important in making comparisons and discussion of the impact of real estate trends on student enrollment in different areas of the county. The regions serve a general purpose for identifying trends but staff can re-aggregate data in several logical groupings of schools to study specific matters. A recent example is the evaluation of impacts to schools from the proposed development of Downtown Columbia.

D. Capital Planning and Sewer Service Area

Some HCPSS facilities are outside of the sewer service area and require on-site treatment systems. While the systems currently in place are well designed and maintained, there is no guarantee that future requirements for discharge will not be more stringent. For this reason, staff now considers new sites that would require on-site waste treatment to be a significant cost consideration. Future capital planning will seek to locate new or replacement schools on sites that have access to public sewer. This strategy is consistent with the Maryland Smart Growth Act and the Howard County General Plan which both direct new residential growth into Priority Funding Areas within the sewer service area.

E. Land Bank

The HCPSS maintains a bank of sites[4] for future school construction. For many years, most of the land bank consisted of school site reservations that came out of Columbia planning and development. Approximately 67 acres of land remain in reservation. Howard County has aided the school system in the past through exchanges of county land where needed. Opportunities for additions to the land bank in eastern Howard County are under consideration. An elementary school site is also sought to accommodate Turf Valley development. The HCPSS will continue to reach out to local and state agencies as it searches for additional sites along the Route 1 Corridor and other areas of identified growth. To this end, the efforts of Howard County Government staff have been greatly appreciated. A full inventory of school sites is presented annually in the capital budget.

IV. Needs and Strategies

Prior to examining future redistricting plans, it is necessary to review the implications of the new projection and identify needs and potential strategies. When school capacity utilization is outside of the acceptable range (90–110 percent), redistricting may be considered.

A. Elementary School Section

Elementary redistricting has been completed for the Northeast and Southeast Regions and Ducketts Lane ES is now open. Most schools in these regions have been balanced by these changes, but several, including Bollman Bridge ES, Ducketts Lane ES and Forest Ridge ES, will need relief within the next five years or earlier. The construction of Elementary School #42 should be accelerated if possible.

A surplus of capacity will remain in the Western Region due to lower than anticipated pupil generation rates and larger facilities. Some of this capacity was used to provide relief to the Southeastern Region in a redistricting approved in November 2011. The three areas which will experience the greatest growth over the next five to ten years will be the Route 1 Corridor, Columbia Town Center, and Turf Valley.

The HCPSS Elementary School Capacity Update is underway and will determine whether any further changes should be made to elementary capacities. Draft examples for Running Brook ES and Forest Ridge ES are included as Attachment B. The draft results indicate that while small changes are warranted, they will have little impact in the regions of greatest concern. For example, Running Brook ES is currently rated at a capacity of 405 students. When the construction of the addition is completed in August 2014, using the same methodology that was used as part of the middle school capacity review, the student capacity could be changed to 515, an increase of 10 over the projected CIP capacity of 505. Even with this change, the school would still be projected to reach 110 percent of capacity by 2016 in this projection.[5] Similarly, Forest Ridge ES is currently rated at a

[4] The land bank is listed in the Capital Budget , in Appendix E on page 74.

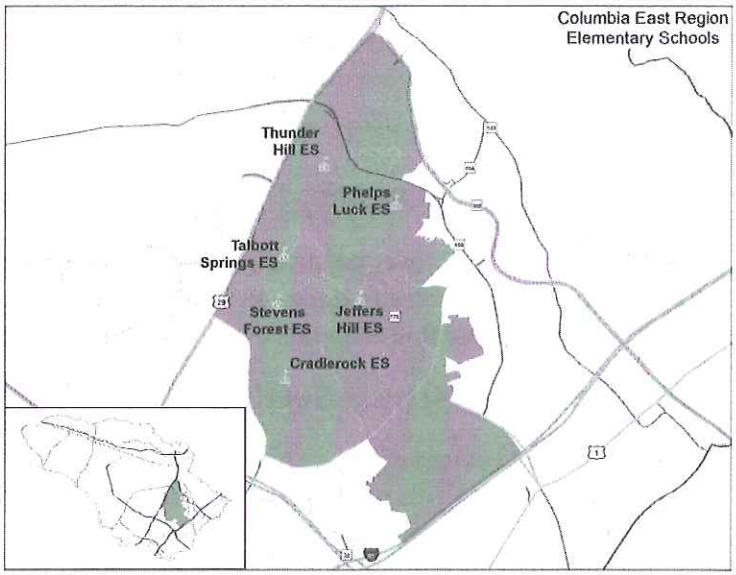
[5] The Board recently approved an APFO open and closed chart based upon the June 2013 projection. The testing year for showing schools closed if they exceed 115% is 2017. Running Brook is shown closed on this chart with a 505 seat capacity. If the capacity were increased to 515, the closure would occur in 2018.

capacity of 626 students, but could be increased to 644 students, an increase of 18. Even with this change, the school would still be projected to reach 110 percent of capacity by 2016. The draft analysis is included as Appendix A to this report.
It is expected that the complete report will be presented to the Board in September for their review. Regardless of the outcome of that action, a combination of new schools and redistricting in some form will be required to contain the rapid student enrollment growth HCPSS will be experiencing over the next five to ten years.

Columbia East Region

Need:
None in short term.

Strategy:
Monitor enrollment projections in future studies.

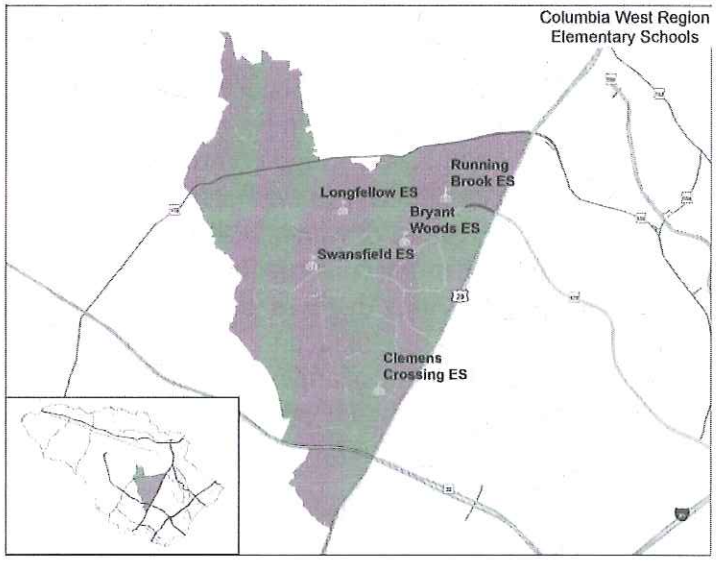


The schools in this region will substantially remain within target as a result of approved redistricting and capital projects which have recently been completed at Thunder Hill ES, Phelps Luck ES, and Stevens Forest ES.

Columbia West Region

Need:
The region exceeds 110% by 2020 in this projection, ultimately requiring the need for an additional elementary school in the next decade.

Strategy:
Provide interim capacity with an addition at Running Brook ES. Maintain Faulkner Ridge site. (Additional detail in Columbia Town Center School Analysis – Appendix A)

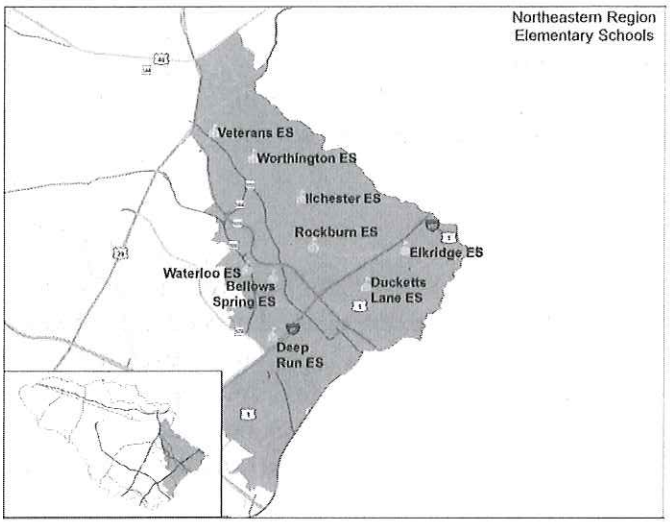


Investment in a 100-seat addition at Running Brook ES, which is planned to open this August, has been a key capital project for managing growth in this area. Even with this addition, Running Brook ES is expected to exceed 110 percent utilization by 2016. A 100-seat addition is also planned at Swansfield ES and will open in 2018. Some combination of additional capacity and redistricting will be required to accommodate growth in the area. A redistricting strategy alone, which uses schools that are reasonably nearby, will not provide an adequate solution to accommodate the projected growth. Faulkner Ridge Center, previously used as a staff development and training facility, was closed on July 1, 2011. This site should be retained for redevelopment as a future school.

Northeastern Region

Need:
There is adequate capacity in this region until 2017.

Strategy:
Consider opening Elementary School #42 earlier than 2019.

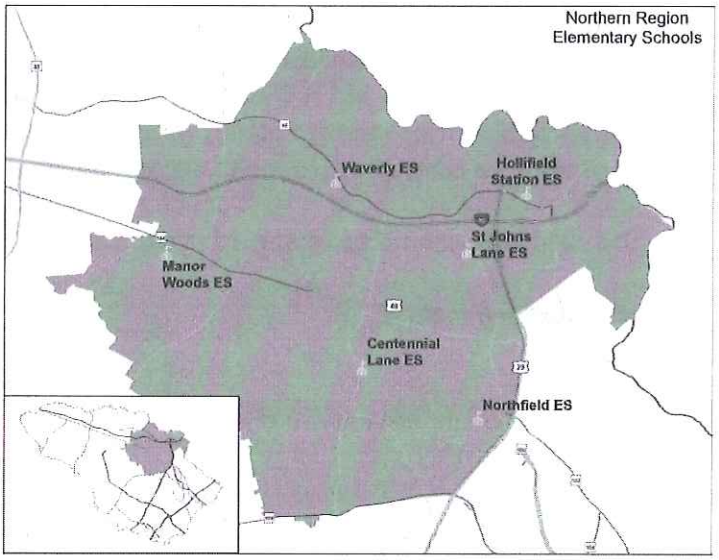


Capacity utilization at Ducketts Lane ES, which opened August 2013 in the northern Route 1 corridor, will exceed 110 percent utilization next year. We have known for some time that a second new elementary school in the eastern part of the county is needed. The region will exceed 115 percent utilization in 2018 and require close to 1,000 additional seats. The recently completed comprehensive zoning increased the entire housing projection this year by 996 units, most of which was in the east. Advancing the construction of Elementary School #42 to allow opening in 2018 should be considered.

Northern Region

Need:
Manor Woods ES requires relief as soon as 2015. Growth at St. John's Lane ES must be monitored.

Strategy:
Completion of the Waverly ES addition and construction of a new elementary school later in the decade in Turf Valley.

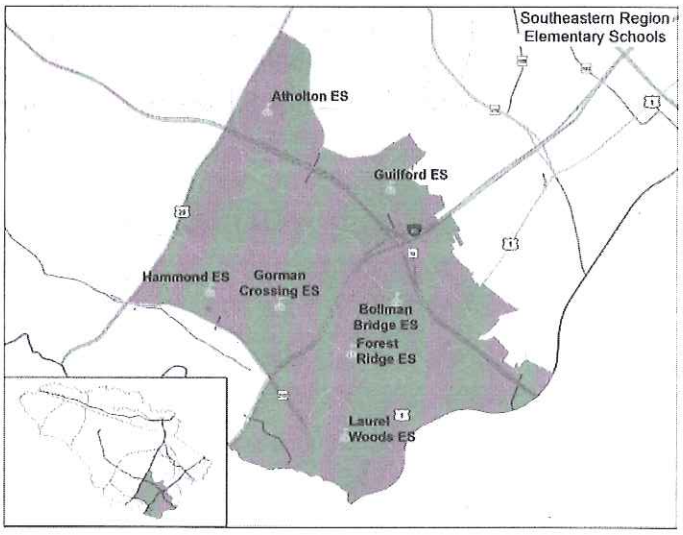


In the years 2015 and beyond, Manor Woods ES is projected to be above the 110 percent capacity utilization standard and eventually trends above 200 percent, a condition which has varied depending upon the timing of the Turf Valley development. A key feature of capital planning for this development is the Phase II addition at Waverly ES. Constructing this addition in 2017 can help relieve overcrowding at Manor Woods ES. A new elementary school in Turf Valley that is sized to the current educational specifications is needed after 2020 and could serve as a replacement for West Friendship ES. Much of the territory for existing schools will be bused regardless of the school assignment, but a Turf Valley school could have an assigned walk area (HCPSS does not currently own a site within the Turf Valley development).

Southeastern Region

Need:
Future enrollment growth is projected, primarily at Bollman Bridge ES and Forest Ridge ES.

Strategy:
Obtain a site for the land bank. Consider opening Elementary School #42 earlier than 2019.



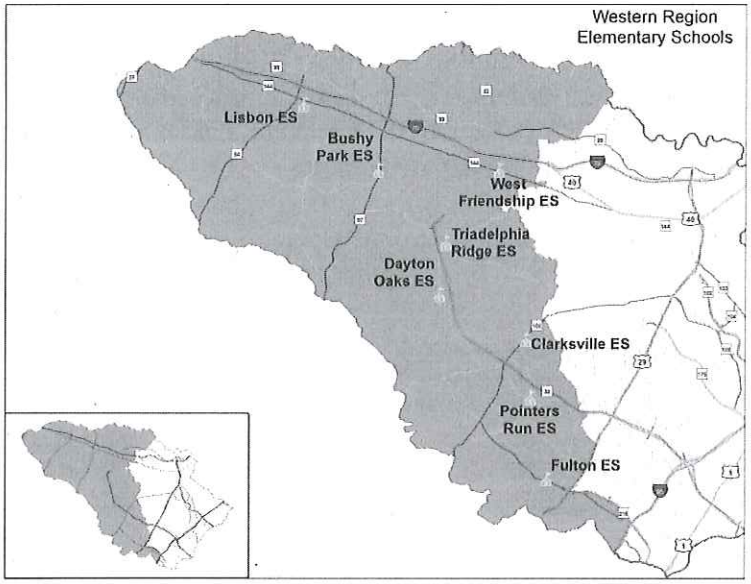
Schools in the region, with the exception of Forest Ridge ES, are projected below 110 percent utilization at the start of this coming school year. Growth at Forest Ridge ES was

anticipated since it will contain some of the growth that will later comprise the Elementary School #42 attending area. Temporary capacity has been provided and more may be used in the near future. Growth continues in the region, supporting the opening of the next elementary school which is currently planned for 2019.

Western Region

Need:
More fully utilize capacity in the Western Region.

Strategy:
Monitor projections.



Elementary capacity in the Western Region exceeds need. Twelve years ago, overcrowding in western elementary schools was significant. The September 30, 2000, enrollment report indicated that the region was at 120 percent capacity utilization. The construction of Dayton Oaks ES, the replacement of Bushy Park ES and lower enrollment trends for the region have lowered the overall capacity utilization, which is now approaching 70 percent for the region. The projections which preceded the construction of the new Bushy Park ES and Dayton Oaks ES anticipated larger pupil generation rates than the existing housing stock has produced. West Friendship ES has consistently shown declining enrollment in recent projections. The school operates with a septic system outside the sewer service area and could eventually be subject to more stringent requirements which may require expensive upgrades.

Previous studies have examined the possibility of closing West Friendship ES and using existing capacity in the short term. This idea was set aside last fall to be examined in the context of a future new school, likely in the Turf Valley development and within the sewer service area.

B. Middle School Section

To avoid unnecessary redistricting, save funding and calculate building utilization based on the most accurate facility data available, a middle school capacity study was conducted. These projections support the approved middle school capacity adjustments and the effort invested in redistricting. The study more accurately rated school capacities. Specifically, properly sized classroom space that was previously uncounted was realized,

and undersized space was discounted from the calculations to develop a more realistic capacity for each of the schools. Redistricting planning was based on the revised capacities. With these findings, some planned expansions can be contemplated both in the context of a systemic capacity adjustment and redistricting findings. For this reason, adjustments to the CIP are recommended for Dunloggin MS and Ellicott Mills MS.

Without the new Thomas Viaduct MS and associated redistricting, some schools in the Northeastern and Southeastern Regions would have remained over-utilized, while others remained under-utilized. For example, Murray Hill MS capacity utilization was reduced from 138.5 percent to 97.3 percent and Bonnie Branch MS from 119.5 percent to 96.8 percent with redistricting alone.

Table 1. Comparison of Utilization

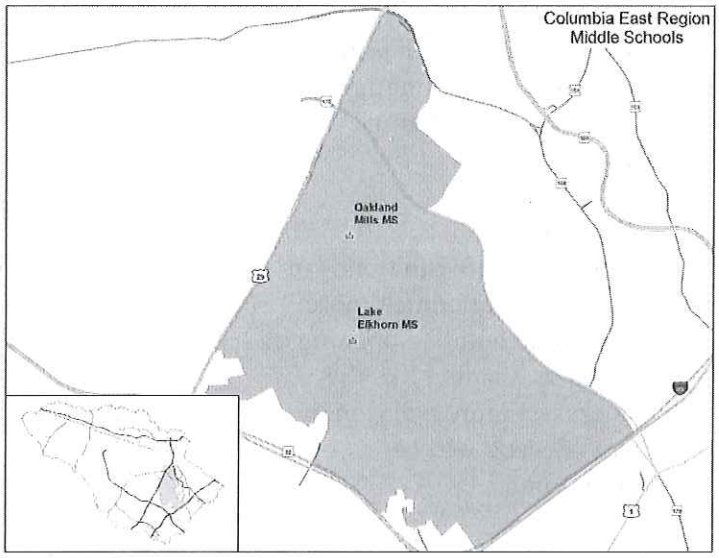
		'13 Feasibility Study pre-redistricting with *original* capacities				'13 Feasibility Study pre-redistricting with *new* capacities				'14 Feasibility Study *post*-redistricting with *new* capacities			
		Capacity	2014-15			Capacity	2014-15			Capacity	2014-15		
		2015	Proj	% Util.		2015	Proj	% Util.		2015	Proj	% Util.	
Murray Hill MS		662	917	138.5	C	662	917	138.5	C	662	644	97.3	
Elkridge Landing MS		662	821	124.0	C	779	821	105.4		779	752	96.5	
Mayfield Woods MS		682	827	121.3	C	798	827	103.6		798	666	83.5	
Bonnie Branch MS		662	791	119.5	C	662	791	119.5	C	662	641	96.8	
Patuxent Valley MS		662	700	105.7		760	700	92.1		760	685	90.1	
Hammond MS		584	565	96.7		604	565	93.5		604	560	92.7	
Lake Elkhorn MS		584	460	78.8		643	460	71.5		643	554	86.2	
Lime Kiln MS		701	625	89.2		701	625	89.2		701	720	102.7	
Thomas Viaduct MS	NS	662				662		.0		662	574	86.7	

At the countywide level, middle school capacity utilization reaches 110 percent in 2021. While it is possible to balance all schools countywide, the challenge has been that the capacity and enrollment growth do not share the same geography. The Columbia West Region exceeds 110 percent capacity utilization by 2020 and the Northern Region exceeds 110 percent by 2018. The Western Region is within acceptable levels but there are specific schools exceeding policy targets. The Columbia East Region has surplus capacity. The later years of the projection seem to indicate the need for more capacity within the long-range plan and should be monitored in future planning analysis. Presently the projection supports acquisition or development of additional school site options in the Route 1 corridor through agreements with other agencies or developers.

Columbia East Region

Need:
Some capacity exists in this region.

Strategy:
Monitor long-term needs.

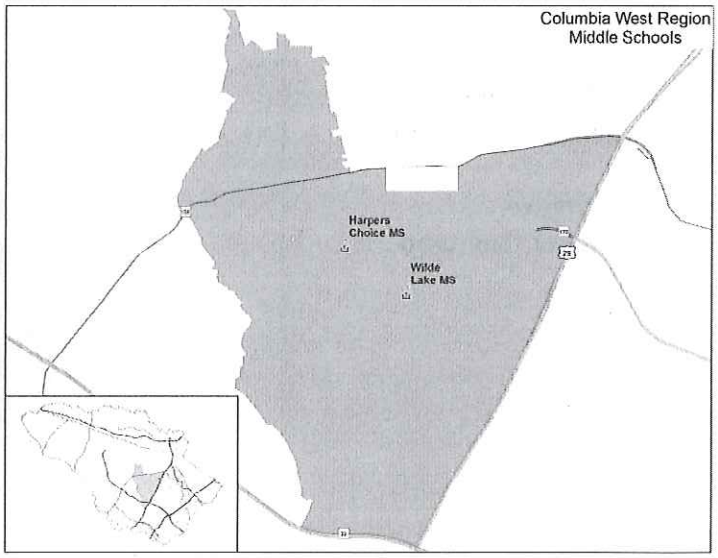


Lake Elkhorn MS has some available capacity for the foreseeable future which is why it received a portion of the Patuxent Valley MS attending area in redistricting approved this past year. Oakland Mills MS is also in target for many years.

Columbia West Region

Need:
Enrollment exceeds 110% of regional capacity.

Strategy:
Utilize temporary capacity until the replacement school is built at Wilde Lake MS in 2017.

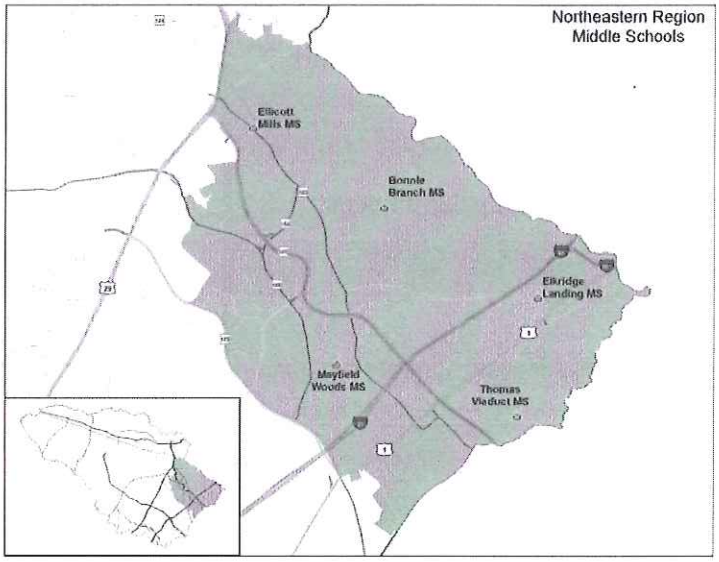


The Columbia West Region capacity utilization is now above 110 percent. This supports the decision to replace Wilde Lake MS, a project which is scheduled to begin in 2015. The new school is planned to be 234 seats larger than the existing one, and will stay within target utilization until 2019 based on the current projection.

Northeastern Region

Need:
Enrollment growth will continue less dramatically than was projected in previous years.

Strategy:
Long-term growth trends in this region are much more favorable with the opening of Thomas Viaduct MS this August. Future needs in the next decade will be monitored.

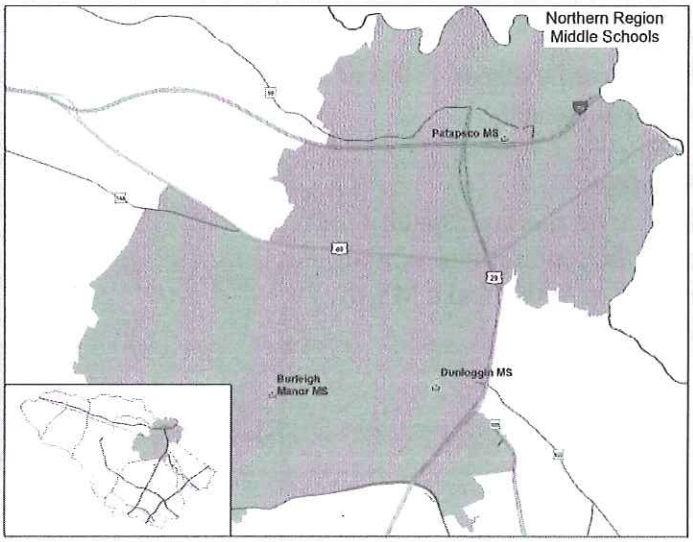


All middle schools in the region will be relieved of overcrowding by the opening of Thomas Viaduct MS, except Ellicott Mills MS. Relocatable classrooms will be required until an alternative solution is implemented.

Northern Region

Need:
Enrollment exceeds 110% of regional capacity after 2020.

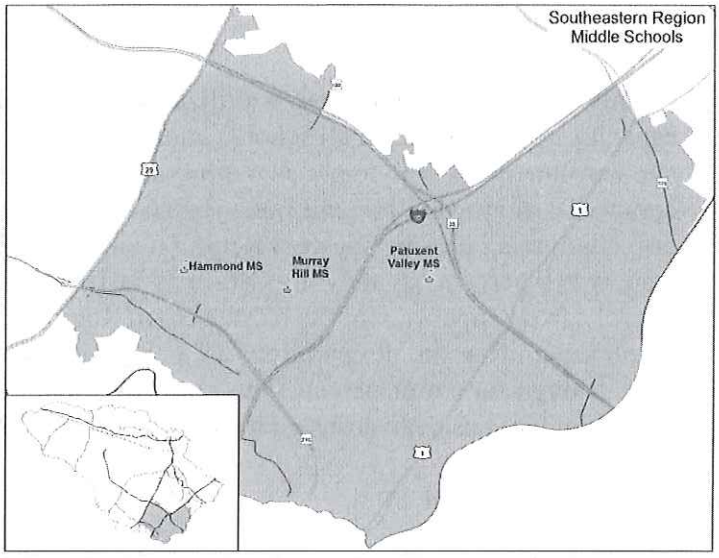
Strategy:
Monitor long-term needs.



In the years beyond 2020, the Northern Region is projected to be above the 110 percent capacity utilization guideline. Dunloggin MS and Patapsco MS are scheduled for systemic renovations in the next few years. Additional capacity should be considered as part of these renovations or the use of temporary capacity may be needed. When continued growth in the adjacent Northeast Region is factored in with the needs of this region, the land bank site on Marriottsville Road will probably be needed to serve as a future middle school.

Southeastern Region

Need:
Significant enrollment growth has been alleviated with the opening of Thomas Viaduct MS this August. Available capacity in this region, as well as adjacent regions, is not sufficient to absorb long-term projected enrollment growth.



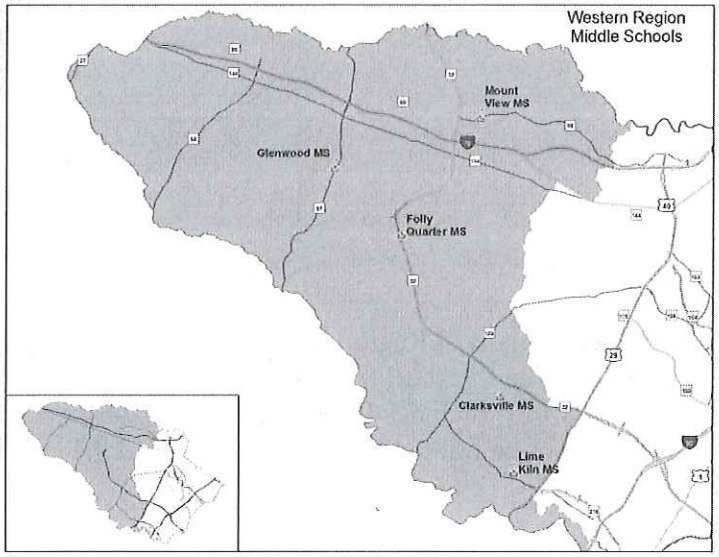
Strategy:
Long-term growth trends in this region should be monitored.

Murray Hill MS and Patuxent Valley MS are projected to exceed 110 percent capacity utilization in 2018. The region will exceed 110 percent utilization in 2019 and enrollment will continue to gradually rise for the foreseeable future. Projected needs beyond this time period will be monitored.

Western Region

Need:
Some capacity exists in this region.

Strategy:
Monitor long-term needs.



Capacity utilization in the region remains within targets throughout the projection. The use of the Marriottsville Road site for a new western middle school will ultimately serve to relieve the Northern and Columbia West Regions.

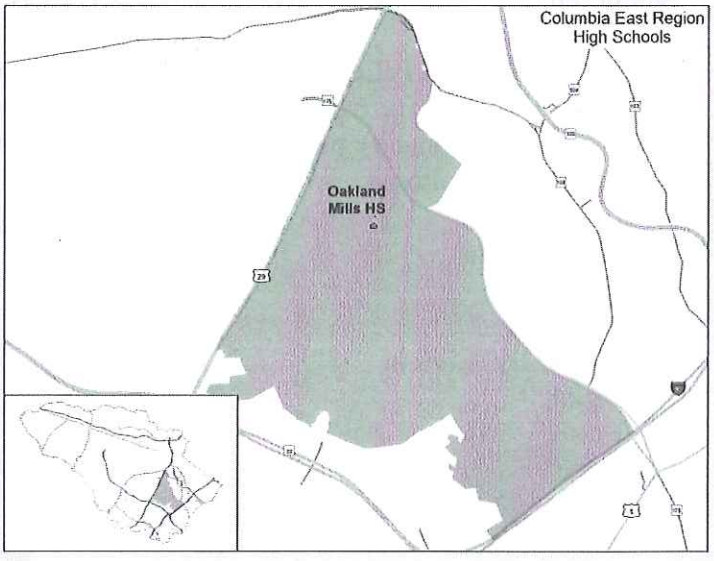
C. High School Section

Countywide high school capacity utilization meets policy targets until 2018. While the capacity exists to balance all schools countywide, the challenge has been that the capacity and enrollment growth do not share the same geography. The Northeastern Region, comprised of Howard HS and Long Reach HS, will likely exceed 110 percent capacity utilization this fall. The Western Region includes Reservoir HS which is projected to exceed 110 percent capacity utilization by 2018. In the long-term (after 2020), a new high school can be supported in the Northeastern Region and there are additional needs in the Southeastern Region. Preparations are being made to augment the land bank with a site large enough for a high school. This site will be somewhat central to the two regions. The capital budget has been adjusted to show a high school in the next decade.

Columbia East Region

Need:
Some capacity exists in this region.

Strategy:
Consider using capacity to help accommodate Route 1 corridor growth.

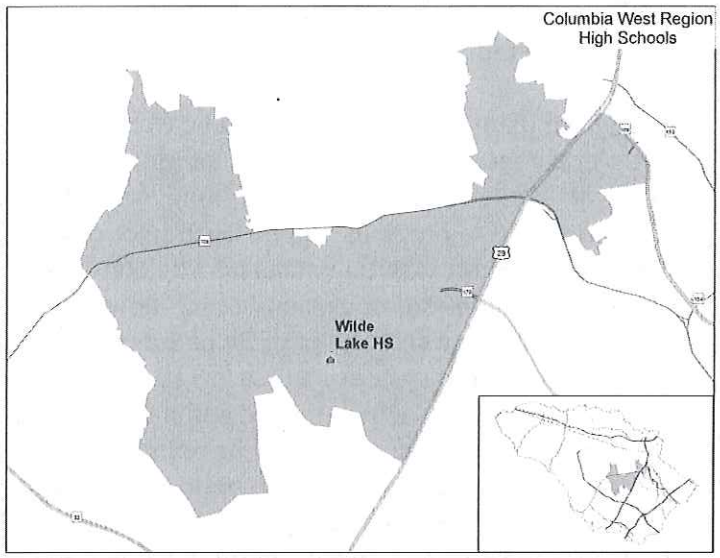


The Columbia East Region high school is Oakland Mills HS. Capacity exists at this school for the foreseeable future. Capacity may be utilized to relieve the Northeastern Region, which includes Long Reach HS and Howard HS. Long-term planning discussions are likely to be framed by future additions to the land bank.

Columbia West Region

Need:
Capacity utilization is below 110% for Wilde Lake HS until 2020, the one school in this region.

Strategy:
Monitor projections and only redistrict into this region if absolutely necessary.

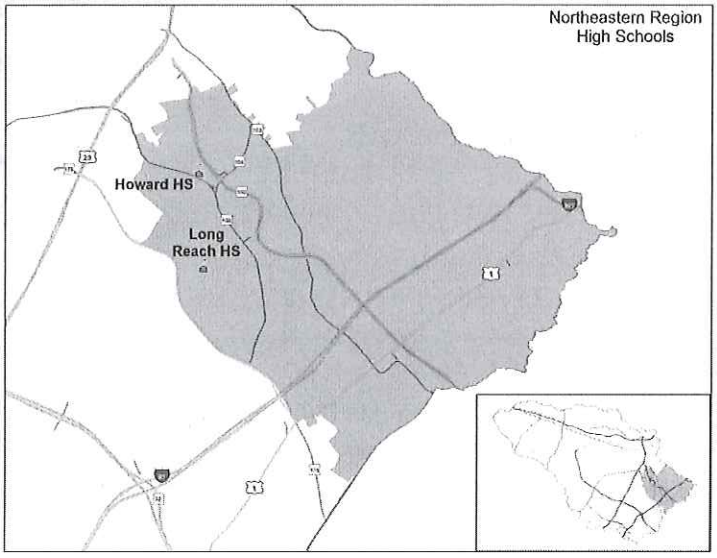


The Columbia West Region high school is Wilde Lake HS. The projection for this school remains between 90–110 percent utilization until 2020. With only a few classrooms of remaining capacity, plans to redistrict students into Wilde Lake HS should be avoided unless absolutely necessary. This projection models the effect of the Columbia Town Center development without the adjustment presented in the addendum. Adequate capacity exists to accommodate growth at Wilde Lake HS until 2020.

Northeastern Region

Need:
Significant enrollment growth is projected. Available capacity in this region is not sufficient to absorb long-term projected enrollment growth.

Strategy:
Evaluate capital planning options of additions and acquisition of a future school site.



Howard HS and Long Reach HS serve the Northeastern Region. Howard HS already is exceeding 110 percent utilization. This fall the region will likely exceed 110 percent capacity utilization and the trend is expected to steadily worsen through the projection, exceeding 120 percent by 2016. The school system has added additional temporary

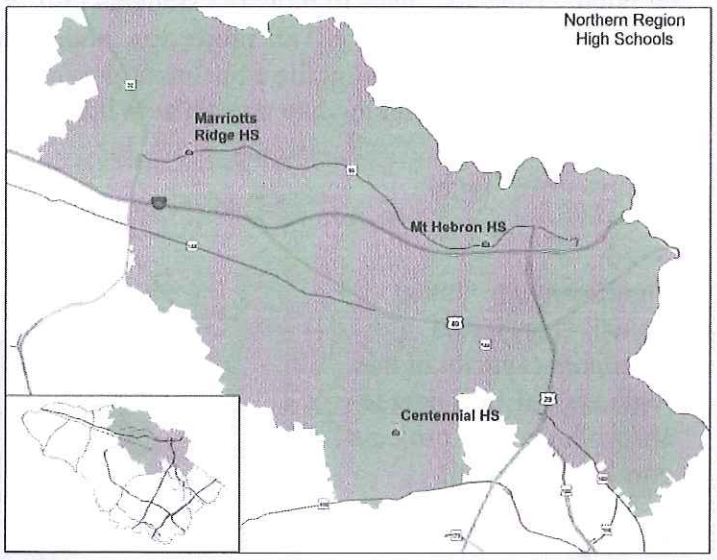
capacity, the best strategy at this time. The installation of a temporary wing at Howard HS is one possibility, but there are site constraints. The movement of regional programs has not been recommended. Space on the campus is confined so a large modular building would make more efficient use of space.

Long-term planning discussions will be framed by the addition of a high school to the land bank. In the meantime, a number of interim strategies remain worthy of further discussion. Redistricting between Howard HS, Long Reach HS, and Oakland Mills HS in 2016 has been presented in previous reports as an interim measure for capacity relief. Other more comprehensive redistricting plans may be considered. Oakland Mills HS represents the closest interim option for capacity relief; however, it can only provide about 150 seats. This is noted in the chart on page 36 and the high school maps for capacity use in 2018; however, the entire system will reach 110 percent capacity in that year in this projection. Previous discussions which looked at the best locations for regional programs and minor changes to school capacity should be revisited. Regardless, these interim measures will not forestall the inevitable need to build a new high school after 2020. For this reason an acquisition to the land bank is planned to include a site large enough for a high school. This site should be somewhat central to the two regions. The capital budget has been adjusted to show a high school in the next decade.

Northern Region

Need:
Capacity needs in the region have been addressed with the expansion of Mt. Hebron HS.

Strategy:
Monitor long-term needs.

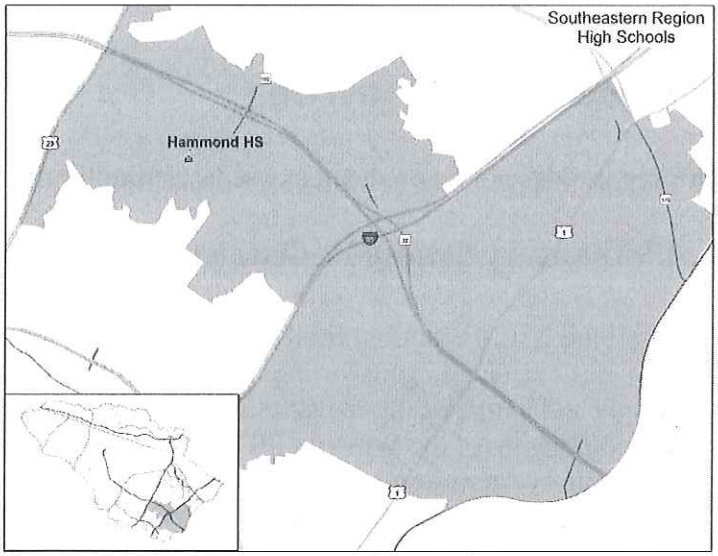


The Northern Region has balanced capacity utilization for most of the projection. Centennial HS and Mt. Hebron HS will need to be monitored given the projected utilization above 110 percent after 2019. Capacity remains at Marriotts Ridge HS for this region.

Southeastern Region

Need:
Capacity is adequate through 2021.

Strategy:
Monitor long-term needs.

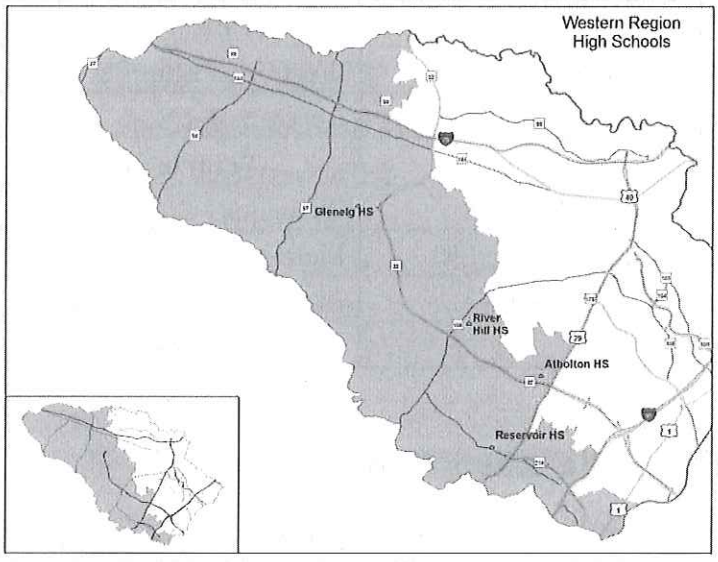


The Southeastern Region exceeds 110 percent capacity utilization in 2019 and steadily increases later in the projection. The existing facility is matched to projected growth within most of the long-range planning period, but future growth supports the recommendations of banking a high school site and adding plans for a facility to the long-range plan.

Western Region

Need:
Relief is needed at Reservoir HS after 2018.

Strategy:
Monitor long-term needs.



The Western Region does not exceed 110 percent capacity utilization, and no redistricting or major capital planning appears to be necessary through most of the decade. Reservoir HS and Atholton HS should be monitored because this projection indicates they will exceed 110 percent utilization. Atholton HS capacity should also be re-evaluated at the

end of the renovation next year. Some areas of the Reservoir HS attending area are part of the Route 1 corridor; eventually this growth may be addressed with a new high school.

V. Foreseeable Redistricting

This report does not recommend any redistricting for the 2015-2016 school year.

A. Elementary School Redistricting

The June 2012 Feasibility Study offered a plan for elementary redistricting changes that may be considered again for implementation in 2017 (Table 2 includes this scenario). The timing and nature of the redistricting required may change depending upon the timing of the completion of the Waverly ES project. Any plan will need to consider utilizing available Western Region capacity at Bushy Park ES and Triadelphia Ridge ES. Ultimately a new school will need to be built in Turf Valley.

Advancing the construction of Elementary School #42 will allow relief of Ducketts Lane ES prior to projected student enrollment breaking the 1,000 student barrier in 2019. Any redistricting plan would involve a combination of schools including Bollman Bridge ES, Ducketts Lane ES and Forest Ridge ES. Table 2 illustrates one possible scenario for testing purposes only.

Table 2. Foreseeable Elementary School Redistricting (2017-2018)

Sending	Receiving	Approximate # Students
Manor Woods ES	Triadelphia Ridge ES	75
Manor Woods ES	Waverly ES	125
Manor Woods ES	West Friendship ES	25
West Friendship ES	Bushy Park ES	75
	Total in 2017	**300**
Ducketts Lane ES	Elementary School #42	480
Bollman Bridge ES	Elementary School #42	60
Forest Ridge ES	Elementary School #42	60
	Total in 2018	**600**

B. Middle School Redistricting

The opening of Thomas Viaduct MS has eased the near term crowding concerns in the Route 1 corridor. As the next decade approachess continued growth in all areas of the county will need to be addressed, with the exception of the west. By 2020, the entire school system at the middle school level is projected to exceed 110 percent capacity utilization. These needs will be reexamined in future feasibility studies as new capital projects are added to the CIP.

C. High School Redistricting

Redistricting between Howard HS, Long Reach HS, and Oakland Mills HS in 2016 was presented in previous reports as an interim measure for capacity relief. It is likely that the review of the current redistricting process may generate different options and alternatives than those previously presented. Long-term planning discussions are also likely to be framed by future additions to the land bank and planning for a future high school.

Table 3. Foreseeable High School Redistricting

Sending	Receiving	Approximate # Students
Howard HS	Oakland Mills HS / Long Reach HS	200

VI. Scoping Consultant Study

A. Purpose

In the review of the FY 2015 Operating Budget, the Board of Education added a $100,000 initiative entitled, "School Planning Policy and Methods Study including Capacity Analysis." The study is intended to explore alternatives other than the traditional methods of redistricting, including ideas such as open enrollment. The study is also intended to review the current projection methodology, including the use of polygons.

B. Specific Research Goals

Review of Enrollment Projection Methodology – Evaluate and report on the accuracy of current projection methods. Provide comments on where the method could be improved.

Broaden the System's Perspective with Benchmarking – Staff believes the enrollment projection methodology has been serving HCPSS well, but information to put the system'sexperience in context with other school systems is limited. Develop benchmarking presentations which can be repeated each year with the accuracy report.

Evaluate Feeder System – Evaluate best practices and recommended strategies for moving towards a strong feeder system and recommend a strategy.

Consider Redistricting Alternatives – Evaluate best practices for avoiding redistricting. Review strategies for making use of existing capacity in the west outside of traditional "domino-effect" redistricting plans.

Evaluate Income Disparity among Schools– Evaluate current income distribution using measures such as FARM. Consider a strategy for redistribution of income using

redistricting. Compare this strategy to in-school augmentation strategies like the Elementary Model School initiative.

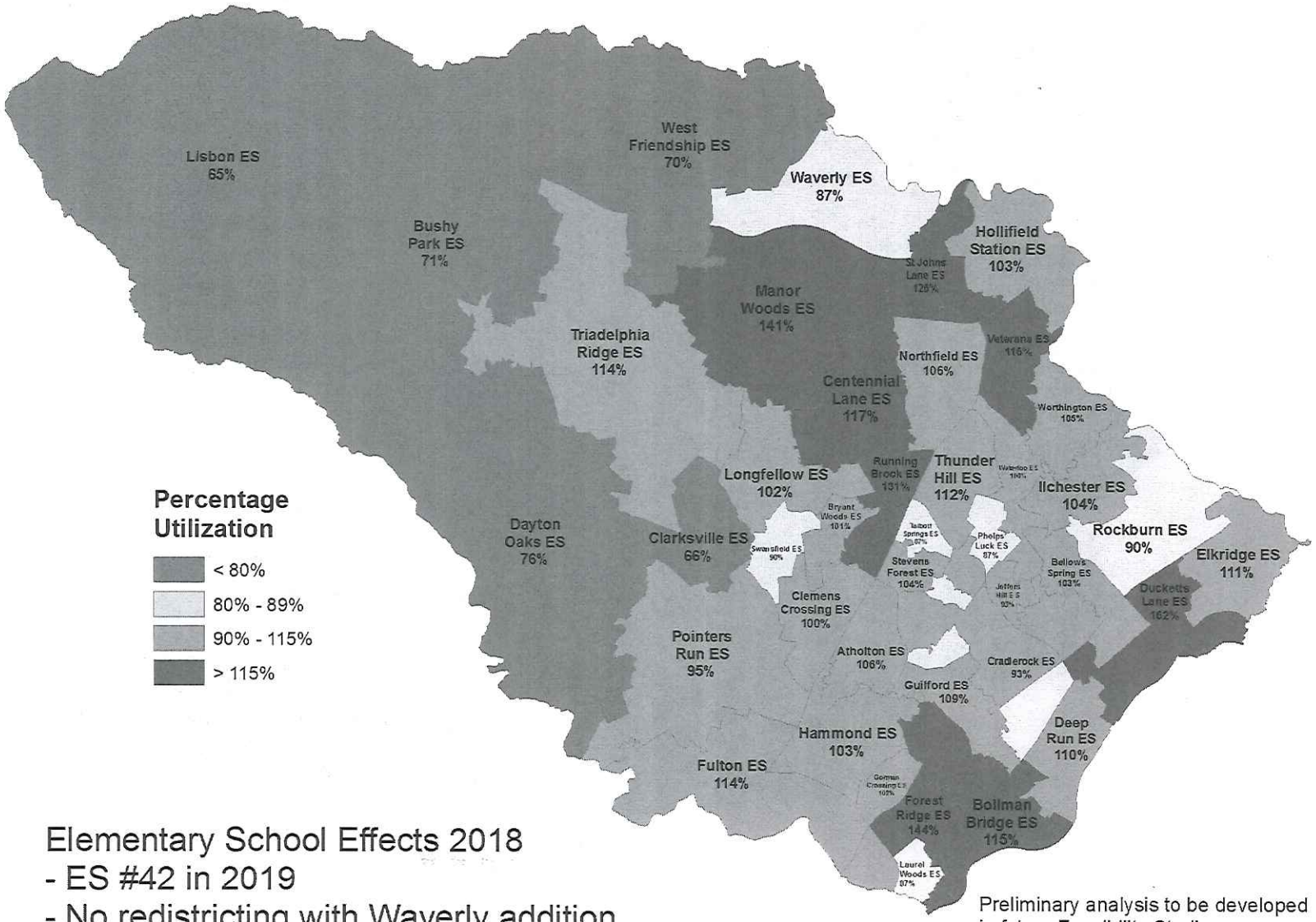
Evaluate Scenario Testing Tools – Review the method HCPSS currently uses for testing redistricting scenarios and provide an evaluation of the effectiveness of this method and compare to tools used in other jurisdictions.

Develop New Scenario Testing Tool – In light of any recommended changes develop a new scenario testing tool. Develop a new scenario testing tool utilizing ArcGIS.

VII. Maps

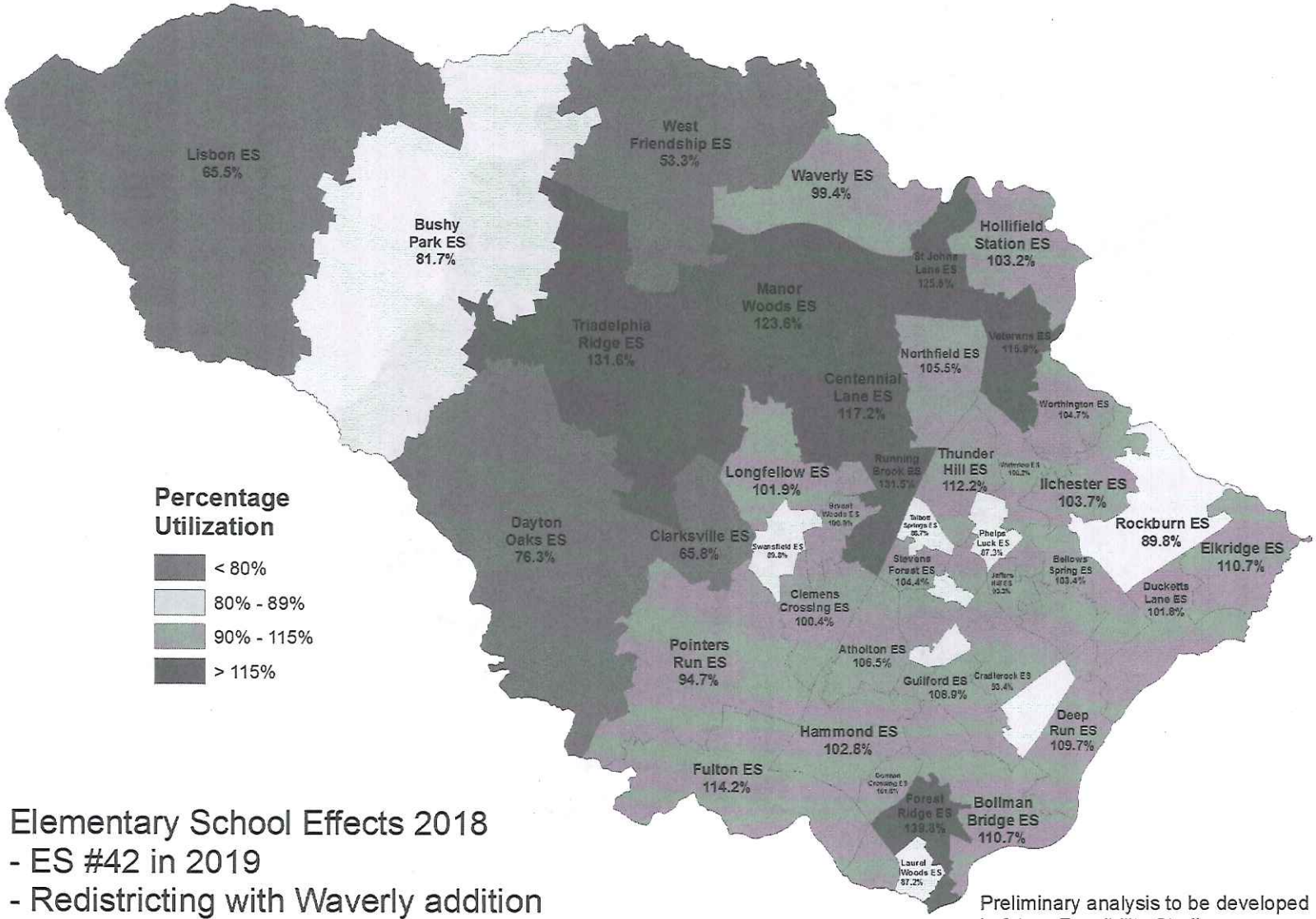
On the following pages six maps illustrate projected growth. The theme of these maps is the effects of capital project and redistricting changes discussed in this report. Conditions in 2018 are modeled with and without these changes for all levels. Specific redistricting plans are not presented, but the trends suggest future redistricting.

In an effort to make the planning process have a transparent and to provide context for the capital budgeting process, specific long-term redistricting plans have been presented in previous feasibility studies. This document does not because plans for future years may require further adjustment from past feasibility studies. Adjustments to the CIP and other recommendations to be adopted after the consultant study. These will be reviewed in the 2015 feasibility study.



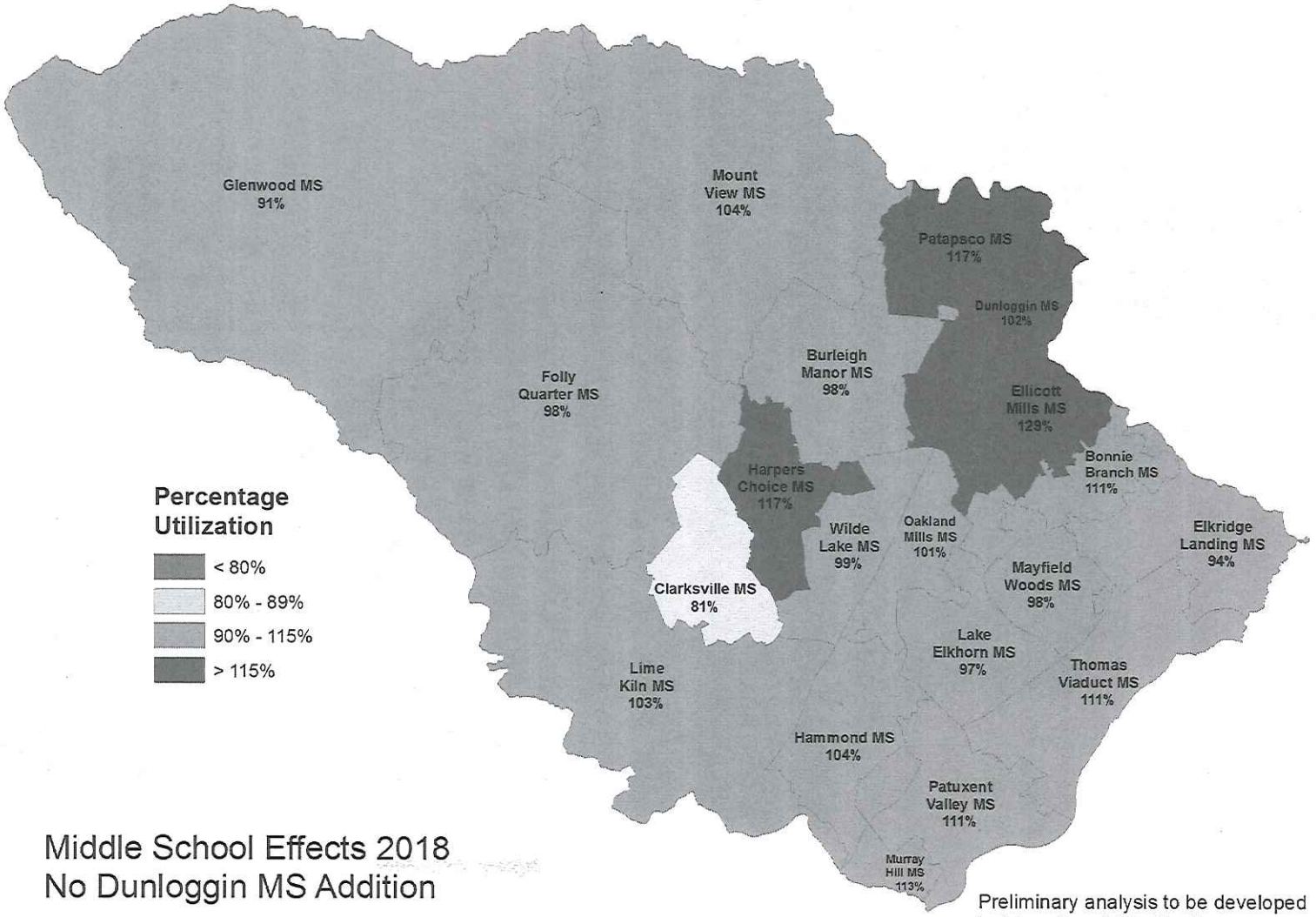
Elementary School Effects 2018
- ES #42 in 2019
- No redistricting with Waverly addition

Preliminary analysis to be developed in future Feasibility Studies



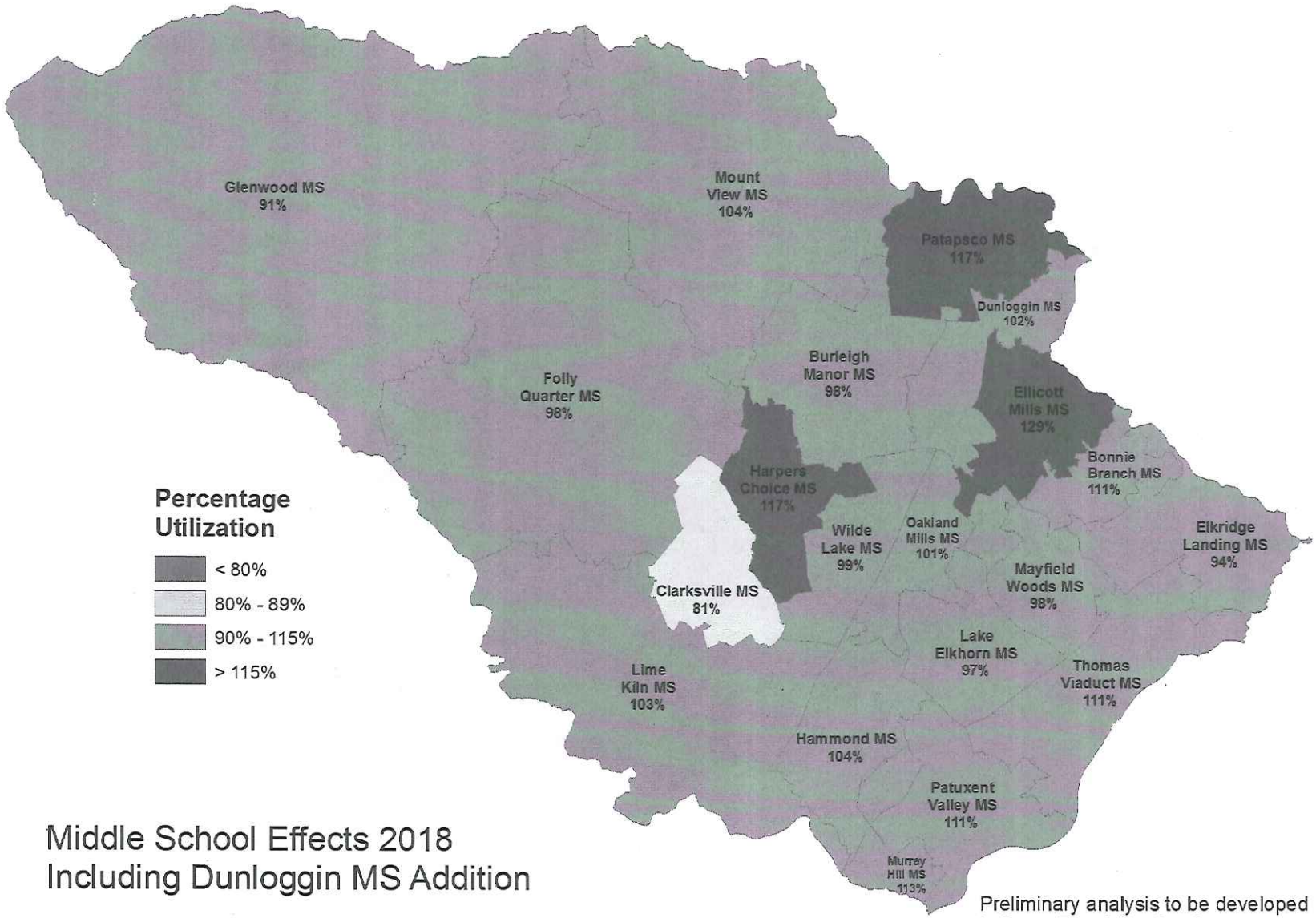
Elementary School Effects 2018
- ES #42 in 2019
- Redistricting with Waverly addition

Preliminary analysis to be developed in future Feasibility Studies



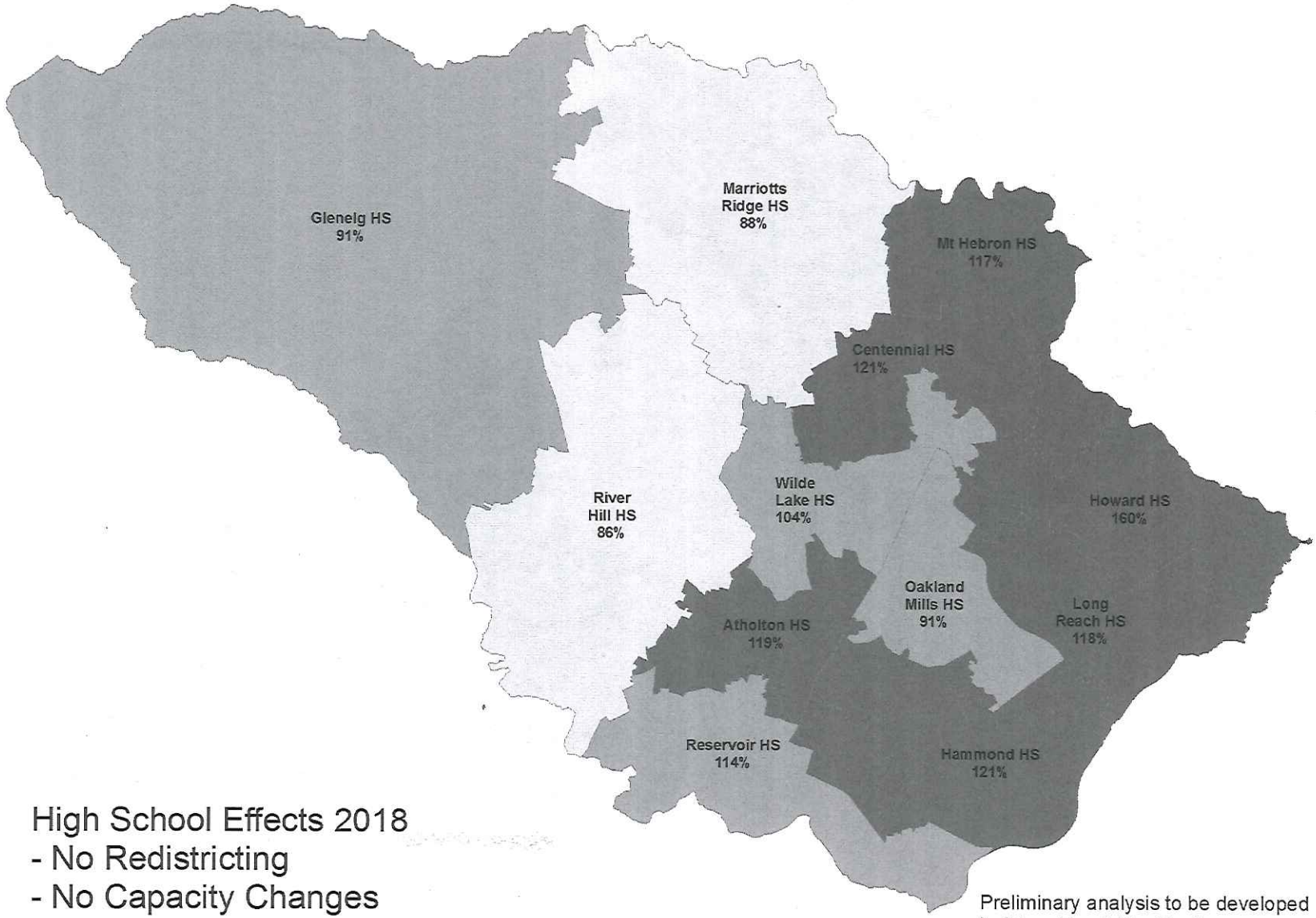
Middle School Effects 2018
No Dunloggin MS Addition

Preliminary analysis to be developed
in future Feasibility Studies



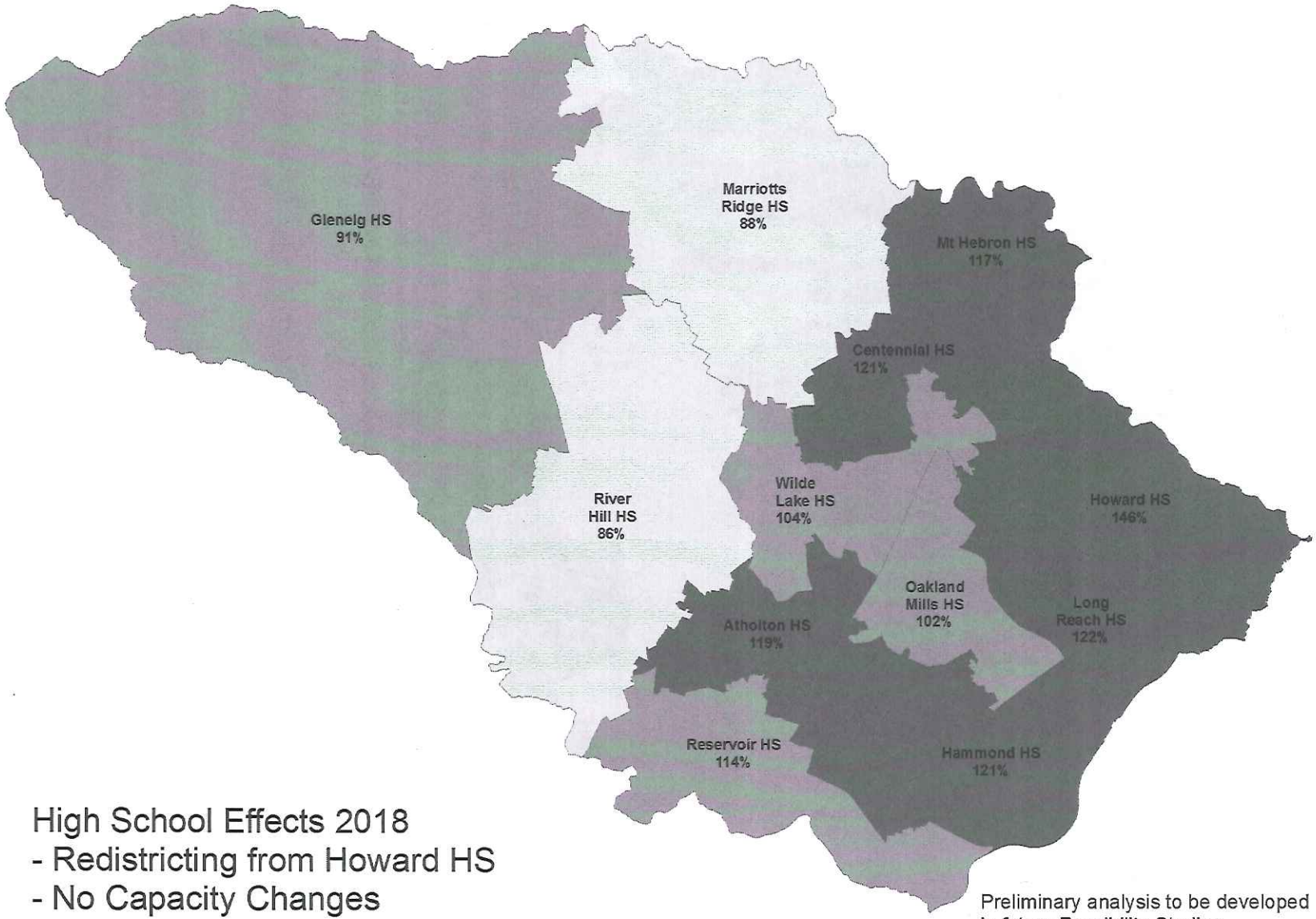
Middle School Effects 2018
Including Dunloggin MS Addition

Preliminary analysis to be developed
in future Feasibility Studies



High School Effects 2018
- No Redistricting
- No Capacity Changes

Preliminary analysis to be developed in future Feasibility Studies



High School Effects 2018
- Redistricting from Howard HS
- No Capacity Changes

Preliminary analysis to be developed in future Feasibility Studies

VIII. Pre- and Post-Measures

The effect of staff-proposed plans on capacity utilization are depicted in tabular form on the following pages. The recommendation in this document is presented for each organizational level (elementary, middle, and high) using a pre-/post-measures format. The pre-measures format shows the effect of projected enrollment without any redistricting. The pre-measures format also shows FY14 capital projects as approved. The post-measures format shows the impact of projected enrollment within a redistricting plan. The post-measures format includes capital projects recommended in this document for the FY15 Capital Budget (as shown in Figure 2). If these projects are not approved, other plans must be developed.

Pre-Measures

ELEMENTARY SCHOOLS - Data for Demonstrative Purposes Only

Capacity Utilization Rates with Board of Education's Approved FY 2015 Capital Budget Projects - Not Test for APFO

Chart reflects May 2014 Projections, Board of Education's FY 2015 approved capacities, and no redistricting.

		Capacity				2015-16		2016-17		2017-18		2018-19		2019-20		2020-21		2021-22		2022-23		2023-24		2024-25		2025-26	
Columbia - East		2015	2016	2017	2018	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.
Cradlerock ES		487	487	487	487	465	95.5	460	94.5	455	93.4	463	95.1	450	92.4	446	91.6	446	91.6	443	91.0	462	94.9	479	98.4	497	102.1
Jeffers Hill ES		421	421	421	421	424	100.7	417	99.0	393	93.3	384	91.2	387	91.9	392	93.1	396	94.1	396	94.1	402	95.5	405	96.2	410	97.4
Phelps Luck ES		640	640	640	640	571	89.2	574	89.7	559	87.3	544	85.0	546	85.3	549	85.8	557	87.0	561	87.7	558	87.2	564	88.1	567	88.6
Stevens Forest ES		433	433	433	433	430	99.3	439	101.4	452	104.4	455	105.1	454	104.8	460	106.2	463	106.9	469	108.3	467	107.9	470	108.5	474	109.5
Talbott Springs ES		443	443	443	443	405	91.4	395	89.2	384	86.7	381	86.0	386	87.1	382	86.2	381	86.0	384	86.7	391	88.3	395	89.2	399	90.1
Thunder Hill ES		468	468	468	468	530	113.2	529	113.0	525	112.2	523	111.8	518	110.7	522	111.5	520	111.1	527	112.6	536	114.5	542	115.8 C	545	116.5 C
Region Totals		**2892**	**2892**	**2892**	**2892**	**2825**	**97.7**	**2814**	**97.3**	**2768**	**95.7**	**2750**	**95.1**	**2741**	**94.8**	**2751**	**95.1**	**2763**	**95.5**	**2780**	**96.1**	**2816**	**97.4**	**2855**	**98.7**	**2892**	**100.0**
Columbia - West																											
Bryant Woods ES		355	355	355	355	343	96.6	351	98.9	358	100.8	371	104.5	379	106.8	381	107.3	384	108.2	389	109.6	390	109.9	392	110.4	397	111.8
Clemens Crossing ES		522	522	522	522	518	99.2	525	100.6	524	100.4	524	100.4	520	99.6	530	101.5	524	100.4	521	99.8	505	96.7	497	95.2	493	94.4
Longfellow ES		418	418	418	418	437	104.5	438	104.8	426	101.9	442	105.7	435	104.1	432	103.3	432	103.3	429	102.6	434	103.8	439	105.0	444	106.2
Running Brook ES		505	505	505	505	551	109.1	609	120.6 C	664	131.5 C	727	144.0 C	779	154.3 C	837	165.7 C	894	177.0 C	950	188.1 C	995	197.0 C	1023	202.6 C	1047	207.3 C
Swansfield ES	A	528	528	528	628	576	109.1	573	108.5	564	106.8	566	90.1	557	88.7	557	88.7	554	88.2	562	89.5	565	90.0	571	90.9	576	91.7
Region Totals		**2328**	**2328**	**2328**	**2428**	**2425**	**104.2**	**2496**	**107.2**	**2536**	**108.9**	**2630**	**108.3**	**2670**	**110.0**	**2737**	**112.7**	**2788**	**114.8**	**2851**	**117.4 C**	**2889**	**119.0 C**	**2922**	**120.3 C**	**2957**	**121.8 C**
Northeastern																											
Bellows Spring ES		762	762	762	762	683	89.6	734	96.3	788	103.4	841	110.4	886	116.3 C	917	120.3 C	936	122.8 C	938	123.1 C	923	121.1 C	927	121.7 C	922	121.0 C
Deep Run ES	A	601	701	701	701	688	114.5	736	105.0	769	109.7	817	116.5 C	818	116.7 C	845	120.5 C	867	123.7 C	867	123.7 C	870	124.1 C	868	123.8 C	862	123.0 C
Ducketts Lane ES		600	600	600	600	774	129.0 C	859	143.2 C	970	161.7 C	1091	181.8 C	1178	196.3 C	1256	209.3 C	1308	218.0 C	1336	222.7 C	1314	219.0 C	1282	213.7 C	1251	208.5 C
Elkridge ES		779	779	779	779	826	106.0	851	109.2	862	110.7	886	113.7	894	114.8	896	115.0 C	898	115.3 C	909	116.7 C	924	118.6 C	946	121.4 C	969	124.4 C
Ilchester ES		617	617	617	617	694	112.5	671	108.8	640	103.7	601	97.4	579	93.8	584	94.7	601	97.4	639	103.6	671	108.8	691	112.0	726	117.7 C
Rockburn ES		667	667	667	667	619	92.8	604	90.6	599	89.8	610	91.5	597	89.5	614	92.1	651	97.6	687	103.0	712	106.7	733	109.9	756	113.3
Veterans ES		788	788	788	788	858	108.9	885	112.3	913	115.9 C	926	117.5 C	923	117.1 C	911	115.6 C	882	111.9	870	110.4	880	111.7	884	112.2	894	113.5
Waterloo ES		594	594	594	594	587	98.8	622	104.7	643	108.2	670	112.8	674	113.5	685	115.3 C	700	117.8 C	701	118.0 C	703	118.4 C	712	119.9 C	721	121.4 C
Worthington ES		516	516	516	516	551	106.8	542	105.0	540	104.7	527	102.1	523	101.4	508	98.4	489	94.8	502	97.3	512	99.2	534	103.5	554	107.4
Region Totals		**5924**	**6024**	**6024**	**6024**	**6280**	**106.0**	**6504**	**108.0**	**6724**	**111.6**	**6969**	**115.7 C**	**7072**	**106.8**	**7216**	**108.9**	**7332**	**110.7**	**7449**	**112.5**	**7509**	**113.4**	**7577**	**114.4**	**7655**	**115.6 C**
Northern																											
Centennial Lane ES		628	628	628	628	693	110.4	720	114.6	736	117.2 C	756	120.4 C	790	125.8 C	810	129.0 C	814	129.6 C	818	130.3 C	822	130.9 C	826	131.5 C	831	132.3 C
Hollifield Station ES		688	688	688	688	685	99.6	693	100.7	710	103.2	730	106.1	748	108.7	792	115.1 C	823	119.6 C	845	122.8 C	851	123.7 C	860	125.0 C	852	123.8 C
Manor Woods ES		647	647	647	647	738	114.1	811	125.3 C	914	141.3 C	1025	158.4 C	1126	174.0 C	1230	190.1 C	1307	202.0 C	1356	209.6 C	1367	211.3 C	1354	209.3 C	1313	202.9 C
Northfield ES		672	672	672	672	706	105.1	703	104.6	709	105.5	714	106.3	721	107.3	727	108.2	738	109.8	742	110.4	764	113.7	783	116.5 C	828	123.2 C
St Johns Lane ES		597	597	597	597	731	122.4 C	726	121.6 C	750	125.6 C	762	127.6 C	751	125.8 C	773	129.5 C	774	129.6 C	784	131.3 C	780	130.7 C	787	131.8 C	809	135.5 C
Waverly ES	A	675	675	775	775	724	107.3	714	105.8	673	86.8	645	83.2	635	81.9	614	79.2	609	78.6	613	79.1	621	80.1	634	81.8	661	85.3
Region Totals		**3907**	**3907**	**4007**	**4007**	**4277**	**109.5**	**4367**	**111.8**	**4492**	**112.1**	**4632**	**115.6 C**	**4771**	**119.1 C**	**4946**	**123.4 C**	**5065**	**126.4 C**	**5158**	**128.7 C**	**5205**	**129.9 C**	**5244**	**130.9 C**	**5294**	**132.1 C**
Southeastern																											
Atholton ES		387	387	387	387	392	101.3	403	104.1	412	106.5	403	104.1	416	107.5	416	107.5	419	108.3	422	109.0	425	109.8	428	110.6	434	112.1
Bollman Bridge ES		663	663	663	663	710	107.1	722	108.9	763	115.1 C	794	119.8 C	841	126.8 C	870	131.2 C	893	134.7 C	903	136.2 C	919	138.6 C	934	140.9 C	938	141.5 C
Forest Ridge ES		626	626	626	626	815	130.2 C	850	135.8 C	901	143.9 C	935	149.4 C	979	156.4 C	1017	162.5 C	1024	163.6 C	1048	167.4 C	1078	172.2 C	1085	173.3 C	1075	171.7 C
Gorman Crossing ES		713	713	713	713	690	96.8	725	101.7	726	101.8	739	103.6	736	103.2	745	104.5	744	104.3	751	105.3	741	103.9	731	102.5	724	101.5
Guilford ES		462	462	462	462	494	106.9	512	110.8	503	108.9	498	107.8	507	109.7	514	111.3	505	109.3	511	110.6	511	110.6	518	112.1	530	114.7
Hammond ES		597	597	597	597	612	102.5	612	102.5	614	102.8	622	104.2	645	108.0	689	115.4 C	705	118.1 C	713	119.4 C	732	122.6 C	755	126.5 C	780	130.7 C
Laurel Woods ES	A	640	640	640	640	544	85.0	541	84.5	558	87.2	573	89.5	559	87.3	547	85.5	558	87.2	552	86.3	554	86.6	555	86.7	558	87.2
New ES #42	NS	0	0	0	0																						
Region Totals		**4088**	**4088**	**4088**	**4088**	**4257**	**104.1**	**4365**	**106.8**	**4477**	**109.5**	**4564**	**111.6**	**4683**	**114.6**	**4798**	**117.4 C**	**4848**	**118.6 C**	**4900**	**119.9 C**	**4960**	**121.3 C**	**5006**	**122.5 C**	**5039**	**123.3 C**
Western																											
Bushy Park ES		788	788	788	788	572	72.6	561	71.2	562	71.3	569	72.2	565	71.7	575	73.0	573	72.7	583	74.0	573	72.7	581	73.7	600	76.1
Clarksville ES		634	634	634	634	459	72.4	442	69.7	417	65.8	394	62.1	382	60.3	378	59.6	377	59.5	384	60.6	384	60.6	387	61.0	391	61.7
Dayton Oaks ES		788	788	788	788	594	75.4	617	78.3	601	76.3	576	73.1	545	69.2	531	67.4	540	68.5	520	66.0	531	67.4	535	67.9	539	68.4
Fulton ES		772	772	772	772	770	99.7	838	108.5	882	114.2	918	118.9 C	929	120.3 C	929	120.3 C	912	118.1 C	896	116.1 C	853	110.5	838	108.5	823	106.6
Lisbon ES		553	553	553	553	368	66.5	357	64.6	362	65.5	357	64.6	346	62.6	344	62.2	344	62.2	355	64.2	363	65.6	369	66.7	371	67.1
Pointers Run ES		776	776	776	776	701	90.3	723	93.2	735	94.7	749	96.5	729	93.9	734	94.6	747	96.3	742	95.6	744	95.9	748	96.4	758	97.7
Triadelphia Ridge ES		544	544	544	544	534	98.2	582	107.0	619	113.8	641	117.8 C	638	117.3 C	651	119.7 C	650	119.5 C	666	122.4 C	661	121.5 C	657	120.8 C	655	120.4 C
West Friendship ES		396	396	396	396	281	71.0	279	70.5	276	69.7	261	65.9	252	63.6	244	61.6	249	62.9	245	61.9	252	63.6	257	64.9	262	66.2
Region Totals		**5251**	**5251**	**5251**	**5251**	**4279**	**81.5**	**4399**	**83.8**	**4454**	**84.8**	**4465**	**85.0**	**4386**	**83.5**	**4386**	**83.5**	**4392**	**83.6**	**4391**	**83.6**	**4361**	**83.1**	**4372**	**83.3**	**4399**	**83.8**
Countywide Totals		**24390**	**24490**	**24590**	**24690**	**24343**	**98.8**	**24945**	**101.9**	**25451**	**103.5**	**26010**	**105.3**	**26323**	**104.1**	**26834**	**106.1**	**27188**	**107.5**	**27529**	**108.9**	**27740**	**109.7**	**27976**	**110.6**	**28236**	**111.6**

'A' includes additions as reflected in FY 2015 CIP for grades K-5

'NS' New School proposed in FY 2015 Capital Budget

Pre-Measures

MIDDLE SCHOOLS - Data for Demonstrative Purposes Only

Capacity Utilization Rates with Board of Education's Approved FY 2015 Capital Budget Projects - Not Test for APFO

Chart reflects May 2014 Projections, Board of Education's FY 2015 approved capacities, and no redistricting.

		Capacity				2015-16			2016-17			2017-18			2018-19			2019-20			2020-21			2021-22			2022-23			2023-24			2024-25			2025-26		
Columbia - East		2015	2016	2017	2018	Proj	% Util.		Proj	% Util.		Proj	% Util.		Proj	% Util.		Proj	% Util.		Proj	% Util.		Proj	% Util.		Proj	% Util.		Proj	% Util.		Proj	% Util.		Proj	% Util.	
Lake Elkhorn MS		643	643	643	643	554	86.2		563	87.6		604	93.9		622	96.7		626	97.4		620	96.4		625	97.2		624	97.0		611	95.0		611	95.0		610	94.9	
Oakland Mills MS		506	506	506	506	486	96.0		484	95.7		486	96.0		512	101.2		518	102.4		519	102.6		516	102.0		513	101.4		520	102.8		521	103.0		528	104.3	
Region MS Totals		1149	1149	1149	1149	1040	90.5		1047	91.1		1090	94.9		1134	98.7		1144	99.6		1139	99.1		1141	99.3		1137	99.0		1131	98.4		1132	98.5		1138	99.0	
Columbia - West																																						
Harpers Choice MS		506	506	506	506	559	110.5		574	113.4		598	118.2	C	592	117.0	C	612	120.9	C	591	116.8	C	616	121.7	C	596	117.8	C	590	116.6	C	584	115.4	C	587	116.0	C
Wilde Lake MS	R	467	467	701	701	573	122.7	C	599	128.3	C	670	95.6		693	98.9		741	105.7		740	105.6		768	109.6		787	112.3		834	119.0	C	875	124.8	C	922	131.5	C
Region MS Totals		973	973	1207	1207	1132	116.3	C	1173	120.6	C	1268	105.1		1285	106.5		1353	112.1		1331	110.3		1384	114.7		1383	114.6		1424	118.0	C	1459	120.9	C	1509	125.0	C
Northeastern																																						
Bonnie Branch MS		662	662	662	662	641	96.8		655	98.9		693	104.7		735	111.0		749	113.1		699	105.6		667	100.8		649	98.0		657	99.2		650	98.2		657	99.2	
Elkridge Landing MS		779	779	779	779	752	96.5		741	95.1		763	97.9		734	94.2		742	95.3		747	95.9		782	100.4		798	102.4		816	104.7		838	107.6		845	108.5	
Ellicott Mills MS		662	662	662	662	791	119.5	C	802	121.1	C	840	126.9	C	852	128.7	C	883	133.4	C	909	137.3	C	937	141.5	C	929	140.3	C	931	140.6	C	917	138.5	C	926	139.9	C
Mayfield Woods MS		798	798	798	798	666	83.5		698	87.5		757	94.9		780	97.7		851	106.6		863	108.1		901	112.9		916	114.8		964	120.8	C	1007	126.2	C	1021	127.9	C
Thomas Viaduct MS	NS	662	662	662	662	574	86.7		629	95.0		700	105.7		733	110.7		803	121.3	C	833	125.8	C	891	134.6	C	899	135.8	C	966	145.9	C	1026	155.0	C	1093	165.1	C
Region MS Totals		3563	3563	3563	3563	3424	96.1		3525	98.9		3753	105.3		3834	107.6		4028	113.1		4051	113.7		4178	117.3	C	4191	117.6	C	4334	121.6	C	4438	124.6	C	4542	127.5	C
Northern																																						
Burleigh Manor MS		779	779	779	779	774	99.4		784	100.6		769	98.7		767	98.5		782	100.4		808	103.7		839	107.7		892	114.5		938	120.4	C	976	125.3	C	999	128.2	C
Dunloggin MS	A	565	565	565	565	628	111.2		668	118.2	C	674	119.3	C	674	119.3	C	678	120.0	C	689	121.9	C	712	126.0	C	716	126.7	C	722	127.8	C	720	127.4	C	721	127.6	C
Patapsco MS		643	643	643	643	697	108.4		703	109.3		731	113.7		752	117.0	C	768	119.4	C	762	118.5	C	773	120.2	C	753	117.1	C	786	122.2	C	789	122.7	C	812	126.3	C
Region MS Totals		1987	1987	1987	1987	2099	105.6		2155	108.5		2174	109.4		2193	110.4		2228	112.1		2259	113.7		2324	117.0	C	2361	118.8	C	2446	123.1	C	2485	125.1	C	2532	127.4	C
Southeastern																																						
Hammond MS		604	604	604	604	560	92.7		596	98.7		602	99.7		629	104.1		654	108.3		682	112.9		685	113.4		709	117.4	C	738	122.2	C	758	125.5	C	771	127.6	C
Murray Hill MS		662	662	662	662	644	97.3		689	104.1		727	109.8		746	112.7		810	122.4	C	843	127.3	C	839	126.7	C	800	120.8	C	792	119.6	C	804	121.5	C	804	121.5	C
Patuxent Valley MS		760	760	760	760	685	90.1		766	100.8		758	99.7		844	111.1		838	110.3		873	114.9		878	115.5	C	911	119.9	C	948	124.7	C	976	128.4	C	1018	133.9	C
Region MS Totals		2026	2026	2026	2026	1889	93.2		2051	101.2		2087	103.0		2219	109.5		2302	113.6		2398	118.4	C	2402	118.6	C	2420	119.4	C	2478	122.3	C	2538	125.3	C	2593	128.0	C
Western																																						
Clarksville MS		643	643	643	643	602	93.6		579	90.0		543	84.4		521	81.0		537	83.5		514	79.9		490	76.2		470	73.1		476	74.0		482	75.0		479	74.5	
Folly Quarter MS		662	662	662	662	606	91.5		610	92.1		632	95.5		649	98.0		706	106.6		710	107.3		704	106.3		700	105.7		723	109.2		732	110.6		719	108.6	
Glenwood MS		545	545	545	545	565	103.7		544	99.8		533	97.8		497	91.2		521	95.6		515	94.5		523	96.0		485	89.0		493	90.5		487	89.4		512	93.9	
Lime Kiln MS		701	701	701	701	720	102.7		728	103.9		722	103.0		724	103.3		774	110.4		779	111.1		786	112.1		788	112.4		804	114.7		811	115.7	C	797	113.7	
Mount View MS		798	798	798	798	762	95.5		779	97.6		796	99.7		832	104.3		848	106.3		867	108.6		855	107.1		875	109.6		882	110.5		922	115.5	C	938	117.5	C
Region MS Totals		3349	3349	3349	3349	3255	97.2		3240	96.7		3226	96.3		3223	96.2		3386	101.1		3385	101.1		3358	100.3		3318	99.1		3378	100.9		3434	102.5		3445	102.9	
Countywide Totals		13047	13047	13281	13281	12839	98.4		13191	101.1		13598	102.4		13888	104.6		14441	108.7		14563	109.7		14787	111.3		14810	111.5		15191	114.4		15486	116.6		15759	118.7	

'A' includes additions as reflected in FY 2015 CIP for grades 6-8

'R' = Replacement school scheduled to open August 2017

'NS' = New middle school (Thomas Viduct Middle School) underconstruction to open August 2014

Pre-Measures

HIGH SCHOOLS - Data for Demonstrative Purposes Only

Capacity Utilization Rates with Board of Education's Approved FY 2015 Capital Budget Projects - Not Test for APFO

Chart reflects May 2014 Projections, Board of Education's FY 2015 approved capacities, and no redistricting.

	Capacity				2015-16		2016-17		2017-18		2018-19		2019-20		2020-21		2021-22		2022-23		2023-24		2024-25		2025-26
Columbia - East	**2015**	**2016**	**2017**	**2018**	**Proj**	**% Util.**	**Proj**	**% Util.**	**Proj**	**% Util.**	**Proj**	**% Util.**	**Proj**	**% Util.**	**Proj**	**% Util.**	**Proj**	**% Util.**	**Proj**	**% Util.**	**Proj**	**% Util.**	**Proj**	**% Util.**	**Proj**	**% Util.**
Oakland Mills HS	1400	1400	1400	1400	1161	82.9	1240	88.6	1279	91.4	1280	91.4	1355	96.8	1369	97.8	1400	100.0	1449	103.5	1451	103.6	1455	103.9	1461	104.4
Columbia - West																										
Wilde Lake HS	1424	1424	1424	1424	1335	93.8	1389	96.1	1439	101.1	1483	104.1	1531	107.5	1618	113.6	1629	114.4	1680	118.0	1711	120.2	1709	120.0	1748	122.8
Northeastern																										
Howard HS	1420	1420	1420	1420	1867	131.5	1997	140.6	2138	150.6	2270	159.9	2341	164.9	2415	170.1	2465	173.6	2536	178.6	2579	181.6	2569	180.9	2611	183.9
Long Reach HS	1488	1488	1488	1488	1494	100.4	1582	106.3	1678	112.8	1762	118.4	1868	125.5	1986	133.5	2026	136.2	2166	145.6	2233	150.1	2261	151.9	2389	160.6
Region HS Totals	2908	2908	2908	2908	3361	115.6	3579	123.1	3816	131.2	4032	138.7	4209	144.7	4401	151.3	4491	154.4	4702	161.7	4812	165.5	4830	166.1	5000	171.9
Northern																										
Centennial HS	1360	1360	1360	1360	1447	106.4	1495	109.9	1588	116.8	1640	120.6	1651	121.4	1686	122.5	1680	123.5	1688	124.1	1728	127.1	1795	132.0	1846	135.7
Marriotts Ridge HS	1615	1615	1615	1615	1258	77.9	1303	80.7	1374	85.1	1428	88.3	1428	88.4	1464	90.7	1497	92.7	1518	94.0	1545	95.7	1551	96.0	1563	96.8
Mt. Hebron HS	1400	1400	1400	1400	1460	104.3	1542	110.1	1583	113.1	1639	117.1	1735	123.9	1755	125.4	1805	128.9	1860	132.9	1852	132.3	1888	134.9	1893	135.2
Region HS Totals	4375	4375	4375	4375	4165	95.2	4340	99.2	4545	103.9	4705	107.5	4814	110.0	4885	111.7	4982	113.9	5066	115.8	5125	117.1	5234	119.6	5302	121.2
Southeastern																										
Hammond HS	1220	1220	1220	1220	1307	107.1	1338	109.7	1406	115.2	1480	121.3	1601	131.2	1693	138.8	1779	145.8	1878	153.9	1896	155.4	1969	161.4	2007	164.5
Western																										
Atholton HS	1360	1360	1360	1360	1467	107.9	1471	108.2	1550	114.0	1617	118.9	1628	119.7	1700	125.0	1734	127.5	1773	130.4	1824	134.1	1839	135.2	1868	137.4
Glenelg HS	1420	1420	1420	1420	1275	89.8	1239	87.3	1227	86.4	1280	90.8	1278	90.0	1274	89.7	1290	90.8	1290	90.8	1302	91.7	1320	93.0	1309	92.2
Reservoir HS	1551	1551	1551	1551	1547	99.7	1575	101.5	1635	105.4	1761	113.5	1824	117.6	1882	121.3	1944	125.3	2019	130.2	2066	133.2	2113	136.2	2137	137.8
River Hill HS	1488	1488	1488	1488	1286	86.4	1255	84.3	1281	86.1	1276	85.8	1250	84.0	1260	84.7	1249	83.9	1266	85.1	1285	85.4	1271	85.4	1272	85.5
Region HS Totals	5819	5819	5819	5819	5575	95.8	5540	95.2	5693	97.8	5944	102.1	5980	102.8	6116	105.1	6217	106.8	6348	109.1	6477	111.3	6543	112.4	6586	113.2
Countywide Totals	17146	17146	17146	17146	16904	98.6	17406	101.5	18178	106.0	18924	110.4	19490	113.7	20082	117.1	20498	119.5	21123	123.2	21472	125.2	21740	126.8	22104	128.9

Post-Measures
Aggregate Plan

ELEMENTARY SCHOOLS - Data for Demonstrative Purposes Only

Capacity Utilization Rates with Proposed FY 2016 Capital Budget Projects - Not Test for APFO

Chart reflects May 2014 Projections, Board of Education's FY 2016 Requested capacities and estimated redistricting.

		Capacity				2015-16		2016-17		2017-18		2018-19		2019-20		2020-21		2021-22		2022-23		2023-24		2024-25		2025-26	
Columbia - East		2015	2016	2017	2018	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.
Cradlerock ES		487	487	487	487	465	95.5	460	94.5	455	93.4	463	95.1	450	92.4	446	91.6	446	91.6	443	91.0	462	94.9	479	98.4	497	102.1
Jeffers Hill ES		421	421	421	421	424	100.7	417	99.0	393	93.3	384	91.2	387	91.9	392	93.1	396	94.1	396	94.1	402	95.5	405	96.2	410	97.4
Phelps Luck ES		640	640	640	640	571	89.2	574	89.7	559	87.3	544	85.0	546	85.3	549	85.8	557	87.0	561	87.7	558	87.2	564	88.1	567	88.6
Stevens Forest ES		433	433	433	433	430	99.3	439	101.4	452	104.4	455	105.1	454	104.8	460	106.2	463	106.9	469	108.3	467	107.9	470	108.5	474	109.5
Talbott Springs ES		443	443	443	443	405	91.4	395	89.2	384	86.7	381	86.0	386	87.1	382	86.2	381	86.0	384	86.7	391	88.3	395	89.2	399	90.1
Thunder Hill ES		468	468	468	468	530	113.2	529	113.0	525	112.2	523	111.8	518	110.7	522	111.5	520	111.1	527	112.6	536	114.5	542	115.8 C	545	116.5 C
Region Totals		**2892**	**2892**	**2892**	**2892**	**2825**	97.7	**2814**	97.3	**2768**	95.7	**2750**	95.1	**2741**	94.8	**2751**	95.1	**2763**	95.5	**2780**	96.1	**2816**	97.4	**2855**	98.7	**2892**	100.0
Columbia - West																											
Bryant Woods ES		355	355	355	355	343	96.6	351	98.9	358	100.8	371	104.5	379	106.8	381	107.3	384	108.2	389	109.6	390	109.9	392	110.4	397	111.8
Clemens Crossing ES		522	522	522	522	518	99.2	525	100.6	524	100.4	524	100.4	520	99.6	530	101.5	524	100.4	521	99.8	505	96.7	497	95.2	493	94.4
Longfellow ES		418	418	418	418	437	104.5	438	104.8	426	101.9	442	105.7	435	104.1	432	103.3	432	103.3	429	102.6	434	103.8	439	105.0	444	106.2
Running Brook ES		505	505	505	505	551	109.1	609	120.6 C	664	131.5 C	727	144.0 C	779	154.3 C	837	165.7 C	894	177.0 C	950	188.1 C	995	197.0 C	1023	202.6 C	1047	207.3 C
Swansfield ES	A	528	528	528	628	576	109.1	573	108.5	564	106.8	566	90.1	557	88.7	557	88.7	554	88.2	562	89.5	565	90.0	571	90.9	576	91.7
Region Totals		**2328**	**2328**	**2328**	**2428**	**2425**	104.2	**2496**	107.2	**2536**	108.9	**2630**	108.3	**2670**	110.0	**2737**	112.7	**2788**	114.8	**2851**	117.4 C	**2889**	119.0 C	**2922**	120.3 C	**2957**	121.8 C
Northeastern																											
Bellows Spring ES		762	762	762	762	683	89.6	734	96.3	788	103.4	841	110.4	886	116.3 C	917	120.3 C	936	122.8 C	938	123.1 C	923	121.1 C	927	121.7 C	922	121.0 C
Deep Run ES	A	601	701	701	701	688	114.5	736	105.0	769	109.7	817	116.5 C	818	116.7 C	845	120.5 C	867	123.7 C	867	123.7 C	870	124.1 C	868	123.8 C	862	123.0 C
Ducketts Lane ES		600	600	600	600	774	129.0 C	859	143.2 C	970	161.7 C	611	101.8	698	116.3 C	776	129.3 C	828	138.0 C	856	142.7 C	834	139.0 C	802	133.7 C	771	128.5 C
Elkridge ES		779	779	779	779	826	106.0	851	109.2	862	110.7	886	113.7	894	114.8	896	115.0 C	898	115.3 C	909	116.7 C	924	118.6 C	946	121.4 C	969	124.4 C
Ilchester ES		617	617	617	617	694	112.5	671	108.8	640	103.7	601	97.4	579	93.8	584	94.7	601	97.4	639	103.6	671	108.8	691	112.0	726	117.7 C
Rockburn ES		667	667	667	667	619	92.8	604	90.6	599	89.8	610	91.5	597	89.5	614	92.1	651	97.6	687	103.0	712	106.7	733	109.9	756	113.3
Veterans ES		788	788	788	788	858	108.9	885	112.3	913	115.9 C	926	117.5 C	923	117.1 C	911	115.6 C	882	111.9	870	110.4	880	111.7	884	112.2	894	113.5
Waterloo ES		594	594	594	594	587	98.8	622	104.7	643	108.2	670	112.8	674	113.5	685	115.3 C	700	117.8 C	701	118.0 C	703	118.4 C	712	119.9 C	721	121.4 C
Worthington ES		516	516	516	516	551	106.8	542	105.0	540	104.7	527	102.1	523	101.4	508	98.4	489	94.8	502	97.3	512	99.2	534	103.5	554	107.4
Region Totals		**5924**	**6024**	**6024**	**6024**	**6280**	106.0	**6504**	108.0	**6724**	111.6	**6489**	107.7	**6592**	99.5	**6736**	101.7	**6852**	103.4	**6969**	105.2	**7029**	106.1	**7097**	107.1	**7175**	108.3
Northern																											
Centennial Lane ES		628	628	628	628	693	110.4	720	114.6	736	117.2 C	756	120.4 C	790	125.8 C	810	129.0 C	814	129.6 C	818	130.3 C	822	130.9 C	826	131.5 C	831	132.3 C
Hollifield Station ES		688	688	688	688	685	99.6	693	100.7	710	103.2	730	106.1	748	108.7	792	115.1 C	823	119.6 C	845	122.8 C	851	123.7 C	860	125.0 C	852	123.8 C
Manor Woods ES		647	647	647	647	738	114.1	811	125.3 C	689	106.5	800	123.6 C	901	139.3 C	1005	155.3 C	1082	167.2 C	1131	174.8 C	1142	176.5 C	1129	174.5 C	1088	168.2 C
Northfield ES		672	672	672	672	706	105.1	703	104.6	709	105.5	714	106.3	721	107.3	727	108.2	738	109.8	742	110.4	764	113.7	783	116.5 C	828	123.2 C
St Johns Lane ES		597	597	597	597	731	122.4 C	726	121.6 C	750	125.6 C	762	127.6 C	751	125.8 C	773	129.5 C	774	129.6 C	784	131.3 C	780	130.7 C	787	131.8 C	809	135.5 C
Waverly ES	A	675	675	775	775	724	107.3	714	105.8	798	103.0	770	99.4	760	98.1	739	95.4	734	94.7	738	95.2	746	96.3	759	97.9	786	101.4
Region Totals		**3907**	**3907**	**4007**	**4007**	**4277**	109.5	**4367**	111.8	**4392**	109.6	**4532**	113.1	**4671**	116.6 C	**4845**	120.9 C	**4965**	123.9 C	**5058**	126.2 C	**5105**	127.4 C	**5144**	128.4 C	**5194**	129.6 C
Southeastern																											
Atholton ES		387	387	387	387	392	101.3	403	104.1	412	106.5	403	104.1	416	107.5	416	107.5	419	108.3	422	109.0	425	109.8	428	110.6	434	112.1
Bollman Bridge ES		663	663	663	663	710	107.1	722	108.9	763	115.1 C	734	110.7	781	117.8 C	810	122.2 C	833	125.6 C	843	127.1 C	859	129.6 C	874	131.8 C	878	132.4 C
Forest Ridge ES		626	626	626	626	815	130.2 C	850	135.8 C	901	143.9 C	875	139.8 C	919	146.8 C	957	152.9 C	964	154.0 C	988	157.8 C	1018	162.6 C	1025	163.7 C	1015	162.1 C
Gorman Crossing ES		713	713	713	713	690	96.8	725	101.7	726	101.8	739	103.6	736	103.2	745	104.5	744	104.3	751	105.3	741	103.9	731	102.5	724	101.5
Guilford ES		462	462	462	462	494	106.9	512	110.8	503	108.9	498	107.8	507	109.7	514	111.3	505	109.3	511	110.6	511	110.6	518	112.1	530	114.7
Hammond ES		597	597	597	597	612	102.5	612	102.5	614	102.8	622	104.2	645	108.0	689	115.4 C	705	118.1 C	713	119.4 C	732	122.6 C	755	126.5 C	780	130.7 C
Laurel Woods ES	A	640	640	640	640	544	85.0	541	84.5	558	87.2	573	89.5	559	87.3	547	85.5	558	87.2	552	86.3	554	86.6	555	86.7	558	87.2
New ES #42	NS	0	0	0	600							600	100.0	600	100.0	600	100.0	600	100.0	600	100.0	600	100.0	600	100.0	600	100.0
Region Totals		**4088**	**4088**	**4088**	**4688**	**4257**	104.1	**4365**	106.8	**4477**	109.5	**5044**	107.6	**5163**	110.1	**5278**	112.6	**5328**	113.7	**5380**	114.8	**5440**	116.0 C	**5486**	117.0 C	**5519**	117.7 C
Western																											
Bushy Park ES		788	788	788	788	572	72.6	561	71.2	637	80.8	644	81.7	640	81.2	650	82.5	648	82.2	658	83.5	648	82.2	656	83.2	675	85.7
Clarksville ES		634	634	634	634	459	72.4	442	69.7	417	65.8	394	62.1	382	60.3	378	59.6	377	59.5	384	60.6	384	60.6	387	61.0	391	61.7
Dayton Oaks ES		788	788	788	788	594	75.4	617	78.3	601	76.3	576	73.1	545	69.2	531	67.4	540	68.5	520	66.0	531	67.4	535	67.9	539	68.4
Fulton ES		772	772	772	772	770	99.7	838	108.5	882	114.2	918	118.9 C	929	120.3 C	929	120.3 C	912	118.1 C	896	116.1 C	853	110.5	838	108.5	823	106.6
Lisbon ES		553	553	553	553	368	66.5	357	64.6	362	65.5	357	64.6	346	62.6	344	62.2	344	62.2	355	64.2	363	65.6	369	66.7	371	67.1
Pointers Run ES		776	776	776	776	701	90.3	723	93.2	735	94.7	749	96.5	729	93.9	734	94.6	747	96.3	742	95.6	744	95.9	748	96.4	758	97.7
Triadelphia Ridge ES		544	544	544	544	534	98.2	582	107.0	694	127.6 C	716	131.6 C	713	131.1 C	726	133.5 C	725	133.3 C	741	136.2 C	736	135.3 C	732	134.6 C	730	134.2 C
West Friendship ES		396	396	396	396	281	71.0	279	70.5	226	57.1	211	53.3	202	51.0	194	49.0	199	50.3	195	49.2	202	51.0	207	52.3	212	53.5
Region Totals		**5251**	**5251**	**5251**	**5251**	**4279**	81.5	**4399**	83.8	**4554**	86.7	**4565**	86.9	**4486**	85.4	**4486**	85.4	**4492**	85.5	**4491**	85.5	**4461**	85.0	**4472**	85.2	**4499**	85.7
Countywide Totals		24390	24490	24590	25290	24343	99.8	24945	101.9	25451	103.5	26010	102.8	26323	101.7	26834	103.6	27188	105.0	27529	106.3	27740	107.1	27976	108.1	28236	109.1

'A' includes additions as reflected in FY 2016 CIP for grades K-5
'NS' New School proposed in FY 2016 Capital Budget

Post-Measures	MIDDLE SCHOOLS - Data for Demonstrative Purposes Only																													
Aggregate Plan	Capacity Utilization Rates with Proposed FY 2016 Capital Budget Projects - Not Test for APFO																													
Chart reflects May 2014 Projections, Board of Education's FY 2016 Requested capacities and estimated redistricting.																														
		Capacity				2015-16			2016-17			2017-18			2018-19			2019-20			2020-21			2021-22			2022-23			2023-24			2024-25			2025-26		
Columbia - East		2015	2016	2017	2018	Proj	% Util.		Proj	% Util.		Proj	% Util.		Proj	% Util.		Proj	% Util.		Proj	% Util.		Proj	% Util.		Proj	% Util.		Proj	% Util.		Proj	% Util.	
Lake Elkhorn MS		643	643	643	643	554	86.2		563	87.6		604	93.9		622	96.7		626	97.4		620	96.4		625	97.2		624	97.0		611	95.0		611	95.0		610	94.9	
Oakland Mills MS		506	506	506	506	486	96.0		484	95.7		486	96.0		512	101.2		518	102.4		519	102.6		516	102.0		513	101.4		520	102.8		521	103.0		528	104.3	
Region MS Totals		1149	1149	1149	1149	1040	90.5		1047	91.1		1090	94.9		1134	98.7		1144	99.6		1139	99.1		1141	99.3		1137	99.0		1131	98.4		1132	98.5		1138	99.0	
Columbia - West																																						
Harpers Choice MS		506	506	506	506	559	110.5		574	113.4		598	118.2	C	592	117.0	C	612	120.9	C	591	116.8	C	616	121.7	C	596	117.8	C	590	116.6	C	584	115.4	C	587	116.0	C
Wilde Lake MS	R	467	467	701	701	573	122.7	C	599	128.3	C	670	95.6		693	98.9		741	105.7		740	105.6		768	109.6		787	112.3		834	119.0	C	875	124.8	C	922	131.5	C
Region MS Totals		973	973	1207	1207	1132	116.3	C	1173	120.6	C	1268	105.1		1285	106.5		1353	112.1		1331	110.3		1384	114.7		1383	114.6		1424	118.0	C	1459	120.9	C	1509	125.0	C
Northeastern																																						
Bonnie Branch MS		662	662	662	662	641	96.8		655	98.9		693	104.7		735	111.0		749	113.1		699	105.6		667	100.8		649	98.0		657	99.2		650	98.2		657	99.2	
Elkridge Landing MS		779	779	779	779	752	96.5		741	95.1		763	97.9		734	94.2		742	95.3		747	95.9		782	100.4		798	102.4		816	104.7		838	107.6		845	108.5	
Ellicott Mills MS	A	662	662	662	662	791	119.5	C	802	121.1	C	840	126.9	C	852	128.7	C	883	110.7		909	113.9		937	117.4	C	929	116.4	C	931	116.7	C	917	114.9		926	116.0	C
Mayfield Woods MS		798	798	798	798	666	83.5		698	87.5		757	94.9		780	97.7		851	106.6		863	108.1		901	112.9		916	114.8		964	120.8	C	1007	126.2	C	1021	127.9	C
Thomas Viaduct MS	NS	662	662	662	662	574	86.7		629	95.0		700	105.7		733	110.7		803	121.3	C	833	125.8	C	891	134.6	C	899	135.8	C	966	145.9	C	1026	155.0	C	1093	165.1	C
Region MS Totals		3563	3563	3563	3563	3424	96.1		3525	98.9		3753	105.3		3834	107.6		4028	108.9		4051	109.5		4178	112.9		4191	113.3		4334	117.2	C	4438	120.0	C	4542	122.8	C
Northern																																						
Burleigh Manor MS		779	779	779	779	774	99.4		784	100.6		769	98.7		767	98.5		782	100.4		808	103.7		839	107.7		892	114.5		938	120.4	C	976	125.3	C	999	128.2	C
Dunloggin MS	A	565	565	565	662	628	111.2		668	118.2	C	674	119.3	C	674	101.8		678	102.4		689	104.1		712	107.6		716	108.2		722	109.1		720	108.8		721	108.9	
Patapsco MS		643	643	643	643	697	108.4		703	109.3		731	113.7		752	117.0	C	768	119.4	C	782	118.5	C	773	120.2	C	753	117.1	C	786	122.2	C	789	122.7	C	812	126.3	C
Region MS Totals		1987	1987	1987	2084	2099	105.6		2155	108.5		2174	109.4		2193	105.2		2228	106.9		2259	108.4		2324	111.5		2361	113.3		2446	117.4	C	2485	119.2	C	2532	121.5	C
Southeastern																																						
Hammond MS		604	604	604	604	560	92.7		596	98.7		602	99.7		629	104.1		654	108.3		682	112.9		685	113.4		709	117.4	C	738	122.2	C	758	125.5	C	771	127.6	C
Murray Hill MS		662	662	662	662	644	97.3		689	104.1		727	109.8		746	112.7		810	122.4	C	843	127.3	C	839	126.7	C	800	120.8	C	792	119.6	C	804	121.5	C	804	121.5	C
Patuxent Valley MS		760	760	760	760	685	90.1		766	100.8		758	99.7		844	111.1		838	110.3		873	114.9		878	115.5	C	911	119.9	C	948	124.7	C	976	128.4	C	1018	133.9	C
Region MS Totals		2026	2026	2026	2026	1889	93.2		2051	101.2		2087	103.0		2219	109.5		2302	113.6		2398	118.4	C	2402	118.6	C	2420	119.4	C	2478	122.3	C	2538	125.3	C	2593	128.0	C
Western																																						
Clarksville MS		643	643	643	643	602	93.6		579	90.0		543	84.4		521	81.0		537	83.5		514	79.9		490	76.2		470	73.1		476	74.0		482	75.0		479	74.5	
Folly Quarter MS		662	662	662	662	606	91.5		610	92.1		632	95.5		649	98.0		706	106.6		710	107.3		704	106.3		700	105.7		723	109.2		732	110.6		719	108.6	
Glenwood MS		545	545	545	545	565	103.7		544	99.8		533	97.8		497	91.2		521	95.6		515	94.5		523	96.0		485	89.0		493	90.5		487	89.4		512	93.9	
Lime Kiln MS		701	701	701	701	720	102.7		728	103.9		722	103.0		724	103.3		774	110.4		779	111.1		786	112.1		788	112.4		804	114.7		811	115.7	C	797	113.7	
Mount View MS		798	798	798	798	762	95.5		779	97.6		796	99.7		832	104.3		848	106.3		867	108.6		855	107.1		875	109.6		882	110.5		922	115.5	C	938	117.5	C
Region MS Totals		3349	3349	3349	3349	3255	97.2		3240	96.7		3226	96.3		3223	96.2		3386	101.1		3385	101.1		3358	100.3		3318	99.1		3378	100.9		3434	102.5		3445	102.9	
Countywide Totals		13047	13047	13281	13378	12839	98.4		13191	101.1		13598	102.4		13888	103.8		14441	106.9		14563	107.8		14787	109.4		14810	109.6		15191	112.4		15486	114.6		15759	116.6	

'A' includes additions as reflected in FY 2016 CIP for grades 6-8

'R' = Replacement school scheduled to open August 2017

'NS' = New middle school (Thomas Viduct Middle School) underconstruction to open August 2014

Post-Measures

HIGH SCHOOLS - Data for Demonstrative Purposes Only

Aggregate Plan

Capacity Utilization Rates with Proposed FY 2016 Capital Budget Projects - Not Test for APFO

Chart reflects May 2014 Projections, Board of Education's FY 2016 Requested capacities and estimated redistricting.

	Capacity				2015-16		2016-17		2017-18		2018-19		2019-20		2020-21		2021-22		2022-23		2023-24		2024-25		2025-26	
Columbia - East	2015	2016	2017	2018	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.	Proj	% Util.
Oakland Mills HS	1400	1400	1400	1400	1161	82.9	1390	99.3	1429	102.1	1430	102.1	1505	107.5	1519	108.5	1550	110.7	1599	114.2	1601	114.4	1605	114.6	1611	115.1
Columbia - West																										
Wilde Lake HS	1424	1424	1424	1424	1335	93.8	1369	96.1	1439	101.1	1483	104.1	1531	107.5	1618	113.6	1629	114.4	1680	118.0	1711	120.2	1709	120.0	1748	122.8
Northeastern																										
Howard HS	1420	1420	1420	1420	1867	131.5	1797	126.5	1938	136.5	2070	145.8	2141	150.8	2215	156.0	2265	159.5	2336	164.5	2379	167.5	2369	166.8	2411	169.8
Long Reach HS	1488	1488	1488	1488	1494	100.4	1632	109.7	1728	116.1	1812	121.8	1918	128.9	2036	136.8	2076	139.5	2216	148.9	2283	153.4	2311	155.3	2439	163.9
Region HS Totals	2908	2908	2908	2908	3361	115.6	3429	117.9	3666	126.1	3882	133.5	4059	139.6	4251	146.2	4341	149.3	4552	156.5	4662	160.3	4680	160.9	4850	166.8
Northern																										
Centennial HS	1360	1360	1360	1360	1447	106.4	1495	109.9	1588	116.8	1640	120.6	1651	121.4	1666	122.5	1680	123.5	1688	124.1	1728	127.1	1795	132.0	1846	135.7
Marriotts Ridge HS	1615	1615	1615	1615	1258	77.9	1303	80.7	1374	85.1	1426	88.3	1428	88.4	1464	90.7	1497	92.7	1518	94.0	1545	95.7	1551	96.0	1563	96.8
Mt Hebron HS	1400	1400	1400	1400	1460	104.3	1542	110.1	1583	113.1	1639	117.1	1735	123.9	1755	125.4	1805	128.9	1860	132.9	1852	132.3	1888	134.9	1893	135.2
Region HS Totals	4375	4375	4375	4375	4165	95.2	4340	99.2	4545	103.9	4705	107.5	4814	110.0	4885	111.7	4982	113.9	5066	115.8	5125	117.1	5234	119.6	5302	121.2
Southeastern																										
Hammond HS	1220	1220	1220	1220	1307	107.1	1338	109.7	1406	115.2	1480	121.3	1601	131.2	1693	138.8	1779	145.8	1878	153.9	1896	155.4	1969	161.4	2007	164.5
Western																										
Atholton HS	1360	1360	1360	1360	1467	107.9	1471	108.2	1550	114.0	1617	118.9	1628	119.7	1700	125.0	1734	127.5	1773	130.4	1824	134.1	1839	135.2	1868	137.4
Glenelg HS	1420	1420	1420	1420	1275	89.8	1239	87.3	1227	86.4	1290	90.8	1278	90.0	1274	89.7	1290	90.8	1290	90.8	1302	91.7	1320	93.0	1309	92.2
Reservoir HS	1551	1551	1551	1551	1547	99.7	1575	101.5	1635	105.4	1761	113.5	1824	117.6	1882	121.3	1944	125.3	2019	130.2	2066	133.2	2113	136.2	2137	137.8
River Hill HS	1488	1488	1488	1488	1286	86.4	1255	84.3	1281	86.1	1276	85.8	1250	84.0	1260	84.7	1249	83.9	1266	85.1	1285	86.4	1271	85.4	1272	85.5
Region HS Totals	5819	5819	5819	5819	5575	95.8	5540	95.2	5693	97.8	5944	102.1	5980	102.8	6116	105.1	6217	106.8	6348	109.1	6477	111.3	6543	112.4	6586	113.2
Countywide Totals	17146	17146	17146	17146	16904	98.6	17406	101.5	18178	106.0	18924	110.4	19490	113.7	20082	117.1	20498	119.5	21123	123.2	21472	125.2	21740	126.8	22104	128.9

Columbia Town Center School Analysis

Attachment to the June 2014 Feasibility Study

Written and Prepared by
HCPSS Office of School Planning

Reviewed by and Developed in Consultation with
Howard County Department of Planning and Zoning Division of Research

For information contact:

Joel A. Gallihue, Manager of School Planning
10910 Clarksville Pike
Ellicott City, MD 21042
410-313-7184

Jeff Bronow, Chief of Research
Howard County Department of Planning and Zoning
3430 Court House Drive, Ellicott City, MD 21043
410-313-4370

Table of Contents

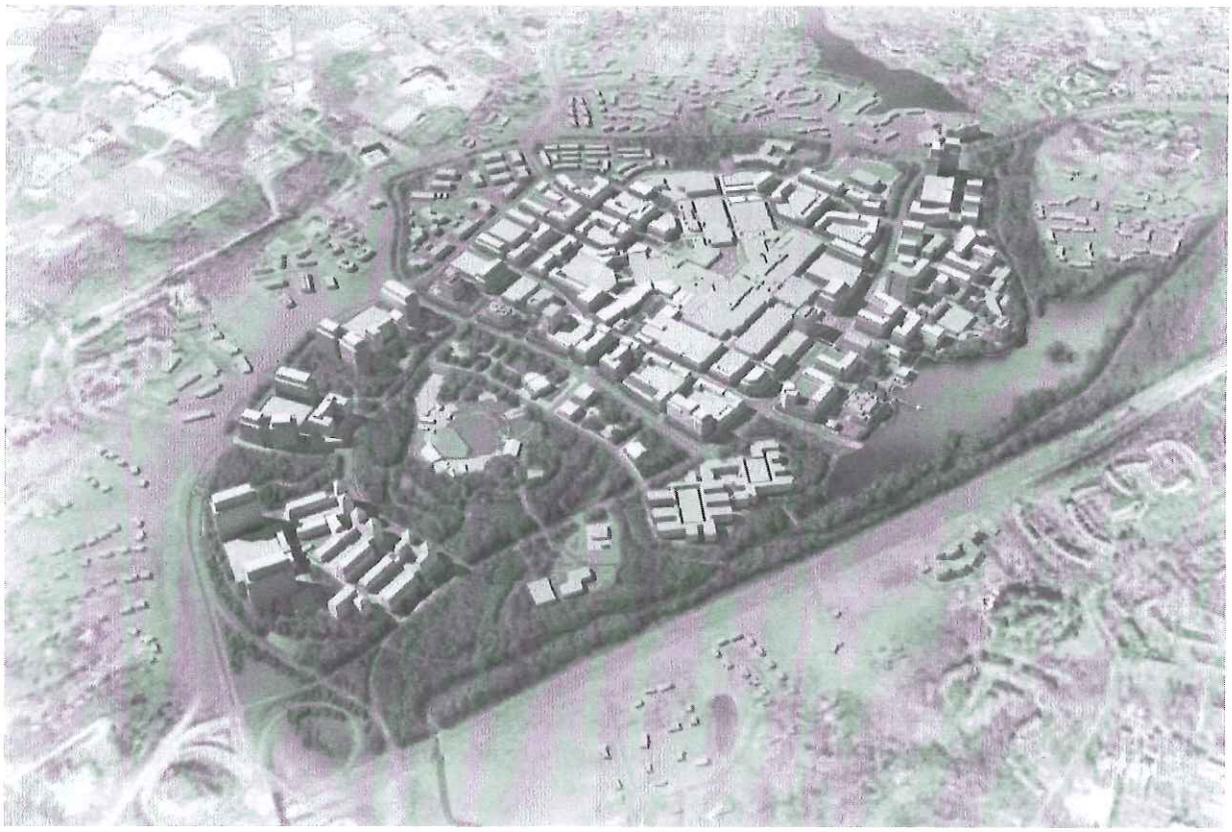
I. Introduction

In February 2010, the Howard County Council adopted a General Plan Amendment for Downtown Columbia, also known as the Downtown Columbia Plan. In the two years preceding adoption, the review of this plan included discussion about the need for schools. Student yield analysis studies based on existing apartment and condominium (condo) buildings in Howard County showed that there would be some need, but also raised questions about whether students generated from future housing in Downtown Columbia would occur to the same extent given that the type of planned housing there (new high rise apartments and condos in a mixed use environment) is unique and doesn't currently exist in Howard County.

The adoption of this plan came when the HCPSS had only just begun the process of realigning the long-term capital facilities plan and redistricting to respond to growing needs in the eastern part of the county. The HCPSS had just opened facilities in the west (Bushy Park ES) and northeast (Veterans ES). The only new planned capacity in the east at that time that was not associated with the full-day kindergarten mandate was the expansion of Elkridge ES. Planning for expansion of Bellows Spring ES was in discussion. Incorporating Downtown Columbia growth into future capital plans would require consensus about the anticipated impact of that growth.

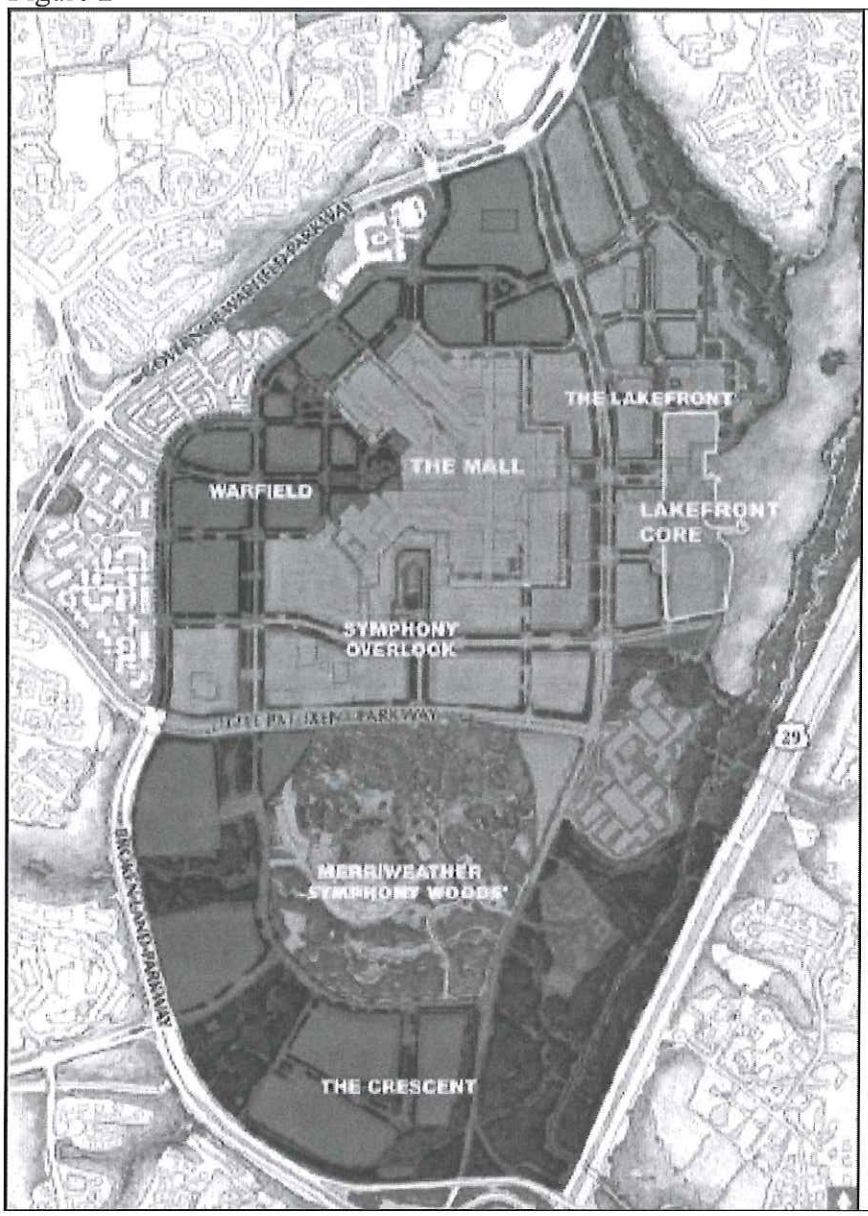
The planned revitalization of Downtown Columbia intends to bring mixed-use development to Downtown in the form of six neighborhoods. The residential element of these mixed-use neighborhoods will consist of 5,500 new multi-family residential units, including both condo and rental.

Figure 1



The image in Figure 2 is an aerial illustration representing a conceptual rendering of the future redevelopment of Downtown Columbia The existing mall remains central but it will be surrounded with new mixed-use neighborhoods to be built around it over the next 20 to 30 years

Figure 2



The new neighborhoods identified in the Downtown Columbia Plan are shown to the left (Exhibit E of the General Plan Amendment). The first residential projects are currently under construction in Warfield located north and west of the mall and shown in purple. Initial plans for The Crescent were recently submitted to the Department of Planning and Zoning.

In the discussions that led to the approval of the Downtown Columbia Plan the question of school needs arose. The minutes of the Board of Education meeting on December 17, 2009 indicate that the Board members agreed that it would be prudent to expect a minimum of one school site for the Downtown Columbia development. On the other side of that concern was a belief that the downtown units would be of a higher value and incorporated into a mixed-use community and therefore tend to attract occupants with fewer children. Some have cited comparable developments in Montgomery County and Northern Virginia, where pupil yields are fairly low. Pupil yields in the existing apartments in Downtown Columbia are also very low, but at the time it wasn't possible to be certain what the pupil generation rates would be for the new development, so decision making checkpoints were put into the Plan stipulating further analysis

when measurable yield data became available during the initial construction phases. A further component of this perspective is that the Rouse Company had provided nearby school sites in the early stages of development in Columbia several decades ago which are still available to serve enrollment growth with new schools.

The approval of the Downtown Columbia Plan included adoption of timed or triggered commitments called Community Enhancements, Programs, and Public Amenities (CEPPAs). The CEPPA relevant to the school system is #17 which states, "GGP[1] shall, if deemed necessary by the Board of Education, reserve an adequate school site or provide an equivalent location within Downtown Columbia." This CEPPA must be satisfied by the Downtown Columbia developer prior to the approval of the site development plan for the 1,375th new residential unit. (25 percent of the total 5,500 units)

In anticipation of CEEPA #17, the Educational Facilities section of the Downtown Columbia Plan first calls for the HCPSS and Department of Planning and Zoning (DPZ) to study all available options for school system needs and characterize the best options for a range of possible pupil yields in a Columbia Town Center School Analysis. This analysis, which is provided here, must be approved by the Board of Education. Later, when 10 percent of the new residential units planned for Downtown Columbia (550 units of the total 5,500) are built and occupied, the Plan stipulates that HCPSS will consider updated enrollments and, subject to Board of Education approval, select the most appropriate yield ratio and associated option outlined in the Columbia Town Center School Analysis for implementation. This is followed by the application of CEPPA #17 stated above at the 25 percent unit threshold.

Since the Feasibility Study is a long-range planning document, it is well suited to host this Columbia Town Center School Analysis as an addendum. The goal of this analysis is to lay out the options for dealing with a range of enrollment growth estimates associated with Downtown Columbia development.

II. Current Development Status in Downtown Columbia

Construction has begun in Downtown Columbia in the Warfield neighborhood adjacent to the Columbia Mall. A 380 rental apartment complex known as The Metropolitan (Figure 3) is currently being built and is expected to be completed and ready for occupancy at the end of 2014 or early 2015. This mixed-use building also includes retail space on the ground floor. There are two other mixed use buildings still under plan review in the Warfield neighborhood that will be located adjacent to this first building. One of these buildings will include 267 residential units and the other 170 residential units. Both will also include retail space on their ground floors. It is anticipated that these two buildings will be ready for occupancy in 2017. The total for all three buildings includes 817 residential units.

[1] General Growth Properties was the successor to the Rouse Company. The land development unit was later divested and now called Howard Hughes Company.

Figure 3

Construction of "The Metropolitan" seen from this vehicular entrance to the mall helps to illustrate the changes coming to Downtown Columbia

A second Downtown Columbia neighborhood, called The Crescent, is also at the beginning of the planning stages. The Neighborhood Design Guidelines for this project just recently went to the Department of Planning and Zoning's Design Advisory Panel for initial review in May 2014. The Final Development Plan (FDP) for this neighborhood was recently submitted to DPZ in the first week of June. This FDP includes 2,300 residential units with construction phased over the next 10 years. Site development plan approvals, the last plan approval stage required prior to the issuance of building permits, for the various portions of The Crescent neighborhood will then be submitted for review.

In addition to development in these two neighborhoods, there is a 160 unit residential condo building planned in The Lakefront neighborhood. This building was known as the WCI Tower, and was approved back in 2006, but faced a lengthy appeals process and the company has since undergone bankruptcy. There is now a new owner of that site, which is now referred to as Little Patuxent Square. In addition to the residential units, Little Patuxent Square also includes office and retail space. Exact timing of construction of this building is currently uncertain. This plan

is not included in the 5,500 units given it had been grandfathered prior to the adoption of the Downtown Columbia Plan.

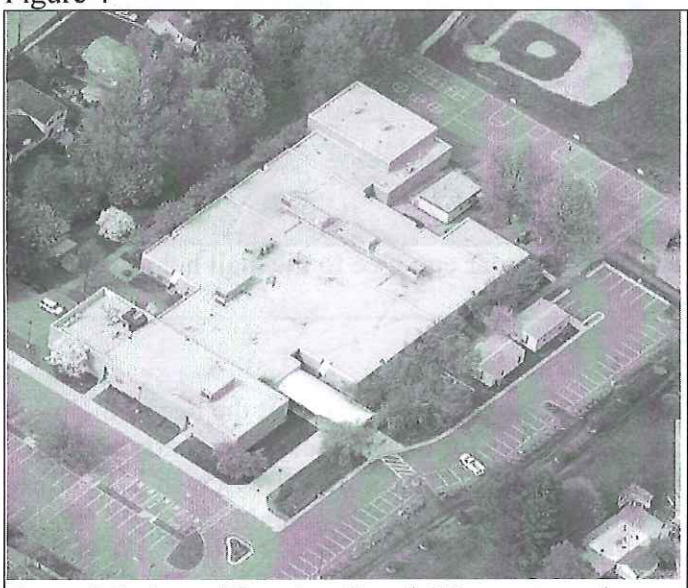
Other recent development activity in Downtown Columbia, including recently completed, under construction, or in the planning stages include the redevelopment of Merriweather-Symphony Woods, a retail expansion in The Mall, the Merrill Lynch Building renovation, the Howard Hughes headquarters building renovation which will include Whole Foods and a fitness center, the renovation of Clyde's Restaurant, and the addition of the new Petit Louis Bistro restaurant. All of these projects do not contain a residential component, but clearly show that the redevelopment of Downtown Columbia is well under way.

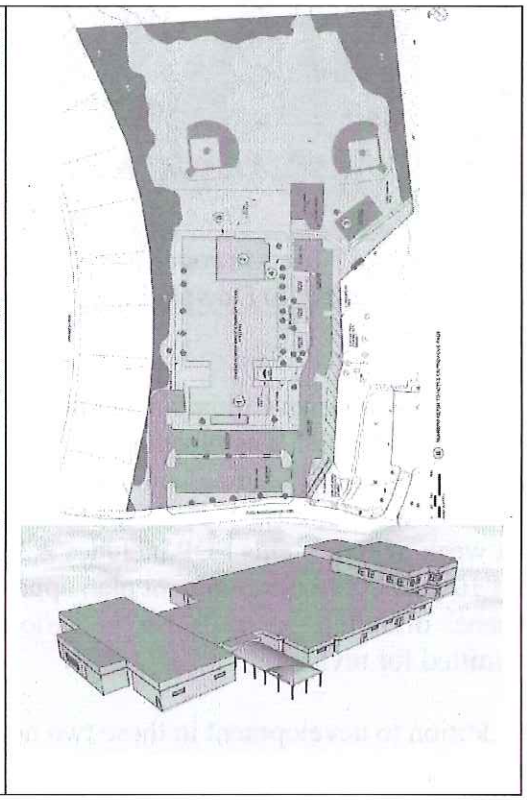
III. Existing Facilities

A. Running Brook Elementary School

Running Brook ES is located at 5215 West Running Brook. This school was constructed in 1970 and has been renovated three times since then to maintain the facility, increase capacity, and respond to changes in program delivery. The current capacity of the facility is 405 seats (K–5), with separate space dedicated to Prekindergarten and early childhood programming.

Figure 4



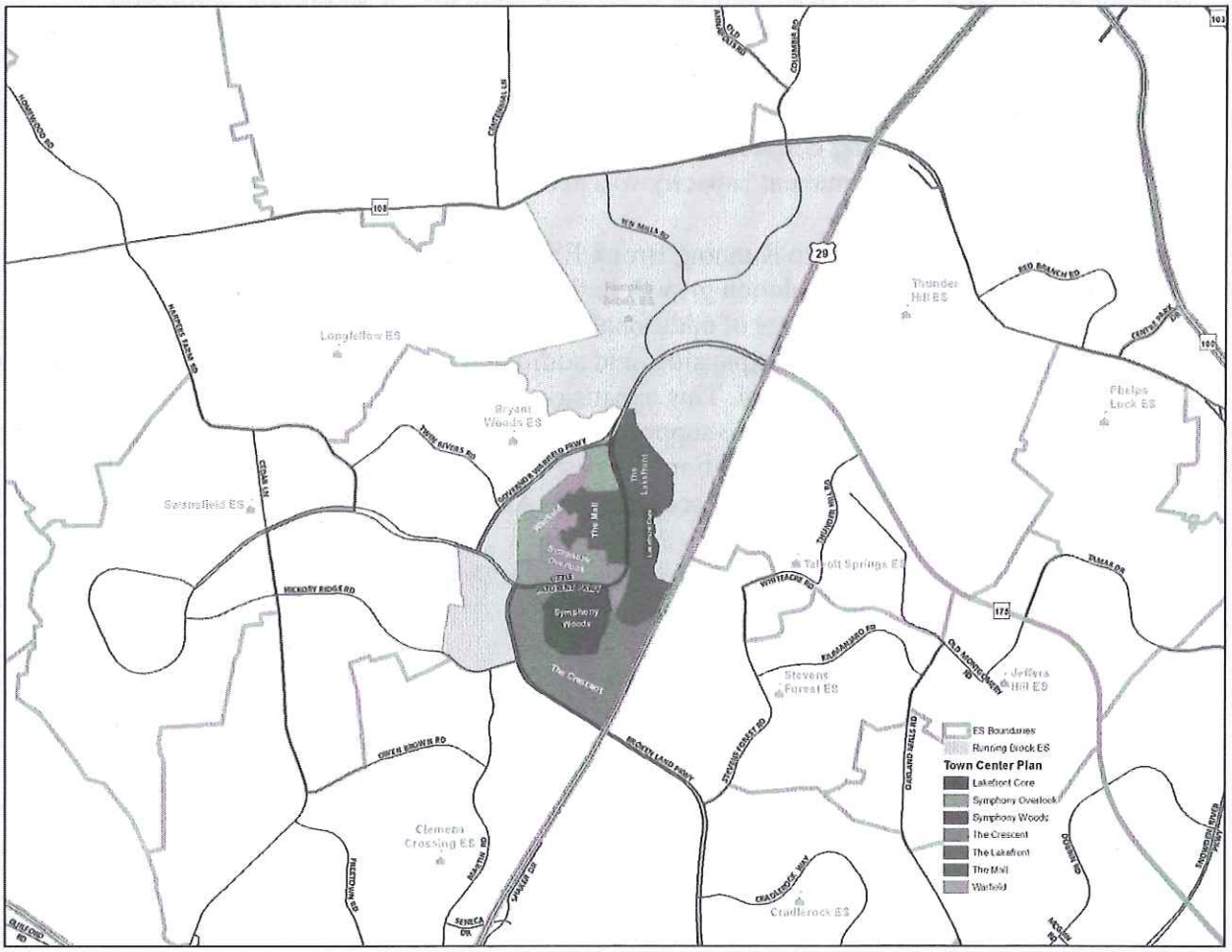


An aerial view of Running Brook ES as presently configured is shown above. The project includes a cafetorium expansion in the front and a two-story classroom addition in the rear as shown in the pictures to the right (photo from pictometry, illustrative drawings from SMG Architects).

On September 30, 2013, the annual official enrollment report submitted to the state reported 462 students in Grades K–5 and 30 students in Prekindergarten which represents significant overcrowding based upon the current capacity of 405 students. A systemwide analysis of school facilities[2] conducted in 2009 determined that this facility possessed about 66 percent of the net square footage required by the 1994 elementary educational facility specifications. The required educational program is being delivered at this facility with the aid of six relocatable classroom facilities, but additional permanent capacity was necessary.

A $6.2 million dollar addition to Running Brook ES is underway to address the existing deficiencies and continued population growth in the Columbia West school region. The project will provide an estimated 100 seats of additional classroom space by adding a two-story classroom addition, a cafetorium expansion, and additional core infrastructure space necessary to operate effectively as a larger school. This expansion will also improve the utility and effectiveness of the existing academic support spaces. As reported in the monthly construction report presented to the Board of Education this past April, the project was approximately 34 percent complete and will be ready for occupancy in August 2014.

Figure 5



Downtown Columbia is assigned to Running Brook ES. The Downtown Columbia neighborhoods are shown in different colors for reference and the balance of the Running Brook ES attendance area is shown in yellow. Other adjacent school attending areas are shown with a blue outline.

Figure 6

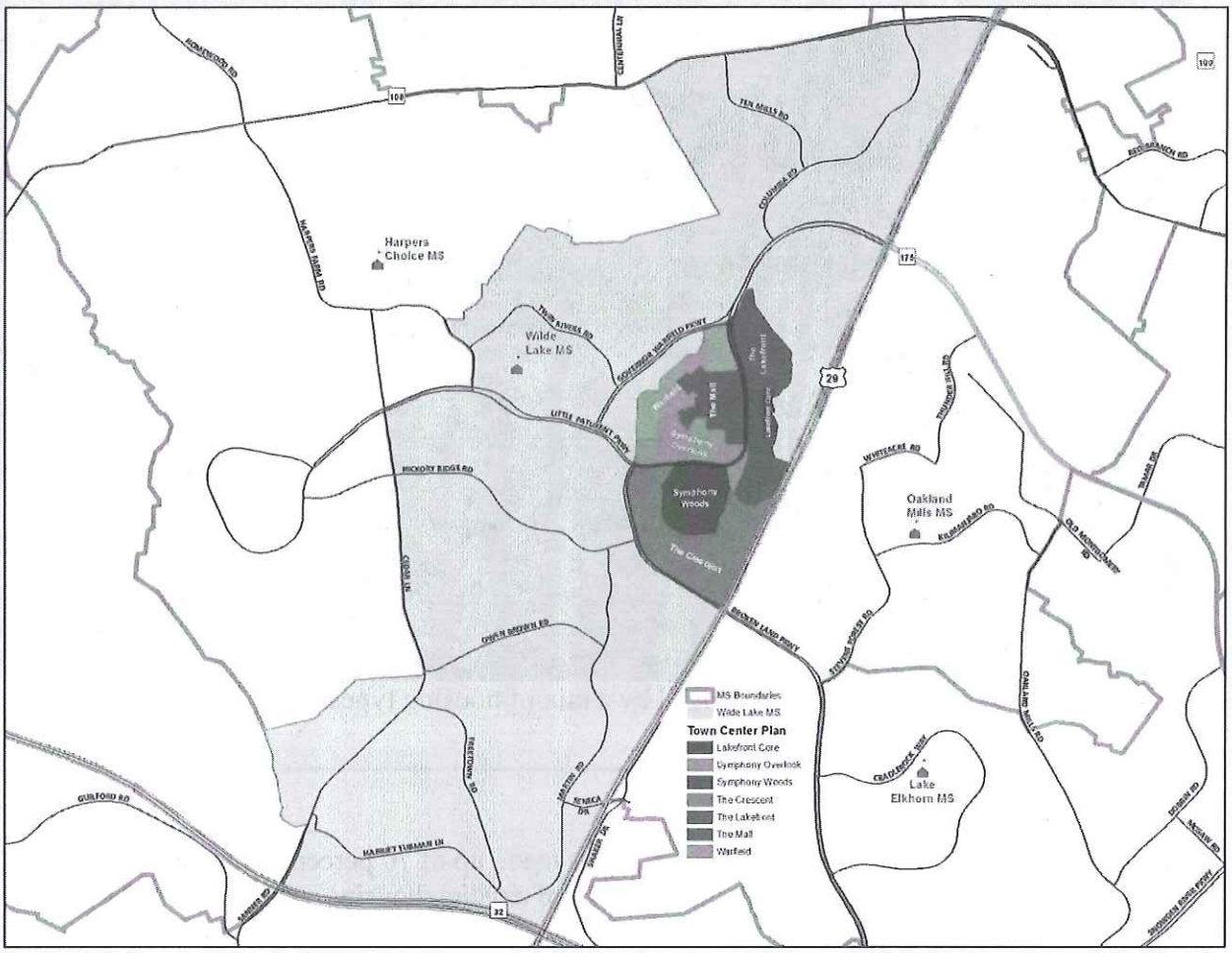
Running Brook ES is presently surrounded by a mix of housing types.

The Running Brook ES attending area is presently made up of 70 percent multi-family housing of either condos or rental apartments. The balance of existing housing stock is 20 percent town home and 10 percent single-family detached. The only new units in the Running Brook ES attendance area will be those in the Downtown Columbia Plan.

B. Wilde Lake MS

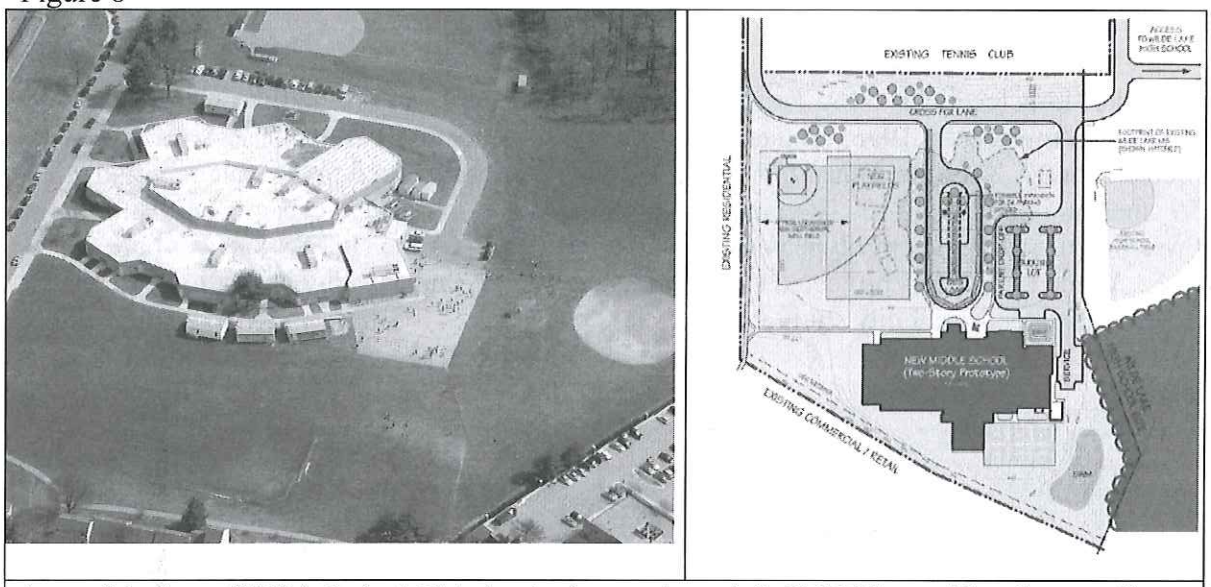
Wilde Lake MS is located at 10481 Cross Fox Lane. The school is set in a campus with Wilde Lake HS adjacent to the Wilde Lake Village Center. This single-story school building with masonry exterior wall construction was constructed in 1969 with an open classroom design. The school has been renovated two times since then to maintain the facility and respond to changes in program delivery. The current capacity of the facility is 467 seats (Grades 6–8).

Figure 7



Downtown Columbia is assigned to Wilde Lake MS. The Downtown Columbia neighborhoods are shown in different colors for reference and the balance of the Wilde Lake MS attendance area is shown in yellow. Other adjacent school attending areas are shown with a blue outline.

Figure 8



An aerial view of Wilde Lake MS today is shown above left. HCPSS considered expanding the school during a renovation but the Board of Education adopted a plan to replace this school with a new building on the same site and then raze the existing building. The picture to the right illustrates the adopted school replacement strategy with the new building set in the rear of the site. Parking, circulation and playfields for the new building would be built where the existing building is now sited (photo from pictometry, illustrative drawing from TCA Architects).

On September 30, 2013, the annual official enrollment report submitted to the state reported 546 students in Grades 6–8. A system wide analysis of school facilities[3] determined that this facility possessed about 77 percent of the net square footage required by the 1994 middle school educational facility specifications. The required educational program is being delivered at this facility with the aid of four relocatable classroom facilities. The June 2014 Feasibility Study indicates that when the significantly larger Wilde Lake MS replacement school is completed in 2017, it will open at near capacity.

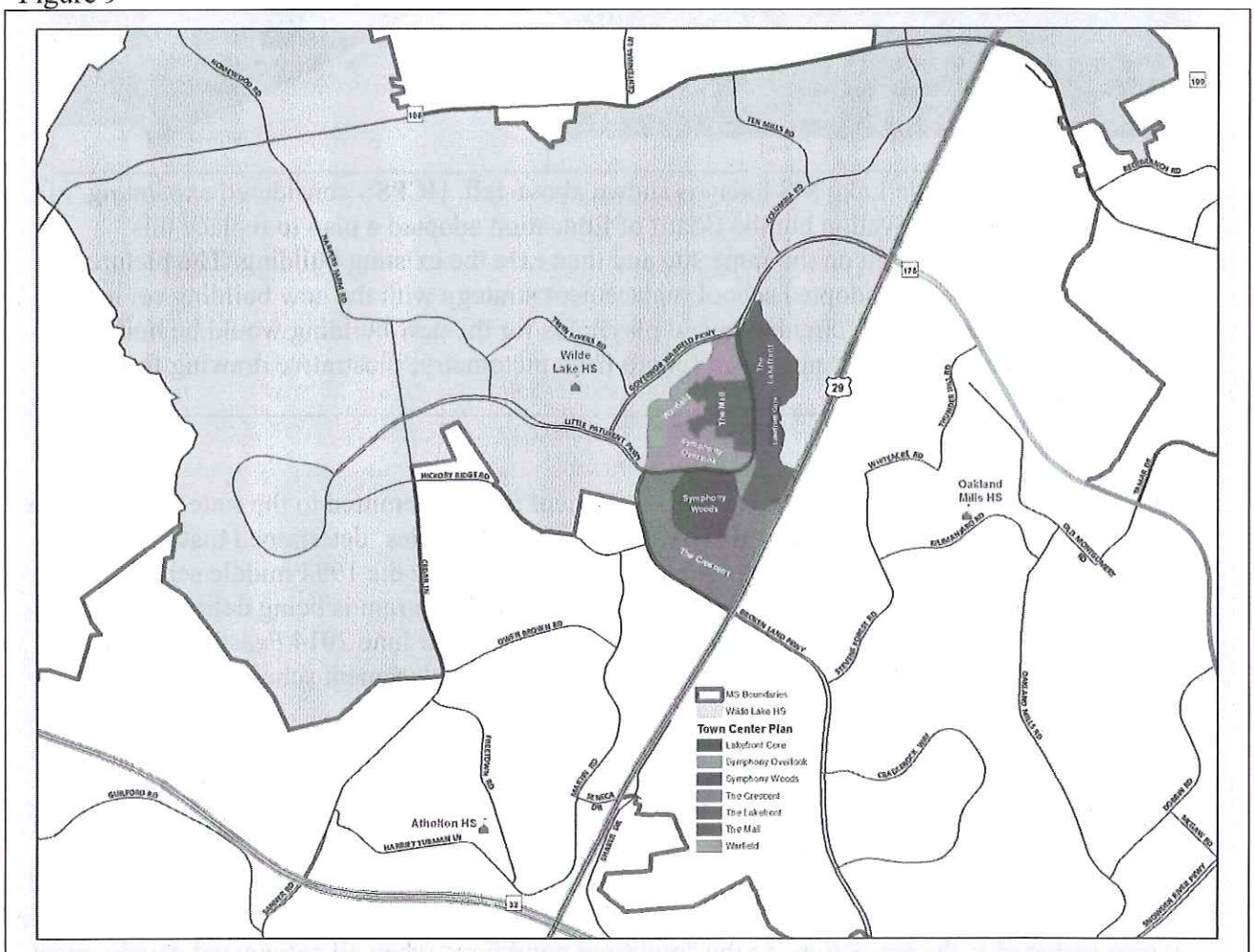
The Wilde Lake MS attending area is presently made up of 51 percent multi-family housing of either condos or rental apartments. The balance of existing housing stock is 21 percent town home and 28 percent single family detached. Very few new single family or town home units are anticipated and all of the new residential communities of Downtown Columbia like Warfield will feed into Wilde Lake MS. The new multi-family development at Wilde Lake Village Center is also included in the projection. At the "build-out condition" when all anticipated development is built, the attending area is projected to consist of 70 percent multi-family units.

[3]Gilbert Architects Inc. August 2008 and May 2013

C. Wilde Lake High School

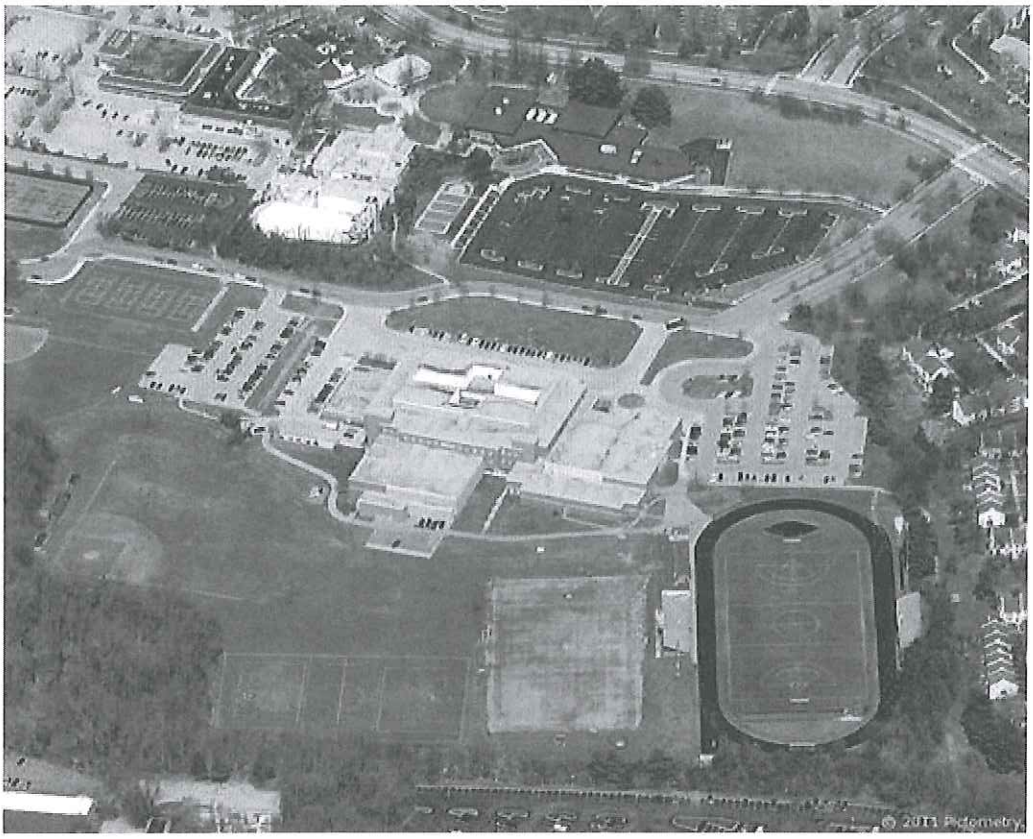
Wilde Lake HS is located at 5460 Trumpeter Road. This school was originally constructed in 1971 and was replaced in 1996. The current capacity of the facility is 1,424 seats (Grades 9–12). On September 30, 2014 the annual official enrollment report submitted to the state reported 1,259 students in Grades 9–12. The facility is not overcrowded per rated capacity at this time, and was built to the same prototype design standards as many of the HCPSS's newer high schools. Wilde Lake HS is projected to remain under 110 percent capacity utilization until 2018 based on the current feasibility study.

Figure 9



Downtown Columbia is assigned to Wilde Lake HS. The Downtown Columbia neighborhoods are shown in different colors for reference and the balance of the Wilde Lake HS attendance area is shown in yellow. Other adjacent school attending areas are shown with a blue outline.

Figure 10



An aerial view of Wilde Lake HS today. Fields are shown in the foreground with the school in the center of the picture. Wilde Lake MS is not in view but located to the left. The Wilde Lake Interfaith Center is the building with the darker roof in the background. To the left of that is the Wilde Lake Village Center and the indoor aquatics facility (photo from pictometry).

The Wilde Lake HS attending area is presently made up of 44 percent multi-family housing of either condos or rental apartments. The balance of existing housing stock is 28 percent town home and 28 percent single-family detached. No new single-family or town home units are anticipated and all of the new residential communities of Town Center like Warfield will feed into Wilde Lake HS. The new multi-family development at Wilde Lake Village Center is also included in the projection. At the "build-out condition" when all anticipated development is built, the attending area is projected to consist of 59 percent multi-family units.

D. Other Facilities

Other elementary facilities in the Columbia West area include Bryant Woods ES, Clemens Crossing ES, Longfellow ES, and Swansfield ES. With Running Brook ES, these schools serve

the Columbia West region. The combined capacity of the Columbia West elementary schools will keep this region below 110 percent utilization until 2019 based on the current feasibility study. Like Running Brook ES the other facilities are significantly smaller than the newer 600 student prototype school design. They have limited room for expansion and are using relocatable classrooms. A comprehensive renovation of Longfellow ES renovation is under way (scheduled to be completed in August 2015) and a renovation and 100-seat addition for Swansfield ES is in the planning stages.

The elementary schools in Oakland Mills Village are nearby but on the east side of MD 29. They include Talbott Springs ES, Thunder Hill ES, and Stevens Forest ES. These schools are all near or within target utilization and cannot be used to balance schools in West Columbia.

Harpers Choice MS is the only other middle school in the Columbia West region and it is projected to exceed 110 percent capacity utilization in 2015 based on the current feasibility study. The combined capacity of the Columbia West middle schools will be above 110 percent utilization next school year. The HCPSS owns a school site which is located at Marriottsville Road and Rt. 40 that could someday provide relief to the Columbia West region if a new middle school were opened at that site in the future, but there is no funding placeholder in the capital improvement program at this time.

As noted before in this report, both facilities are smaller than is expected in the 1994 educational specification. After installations planned this summer, the region will host 38 relocatable classrooms, providing approximately 525 additional seats of temporary capacity. While about half of this capacity is intended to provide swing space during the renovation of Running Brook ES and replacement of Wilde Lake MS, the rest helps off-set buildings built to older designs before current programming needs were anticipated.

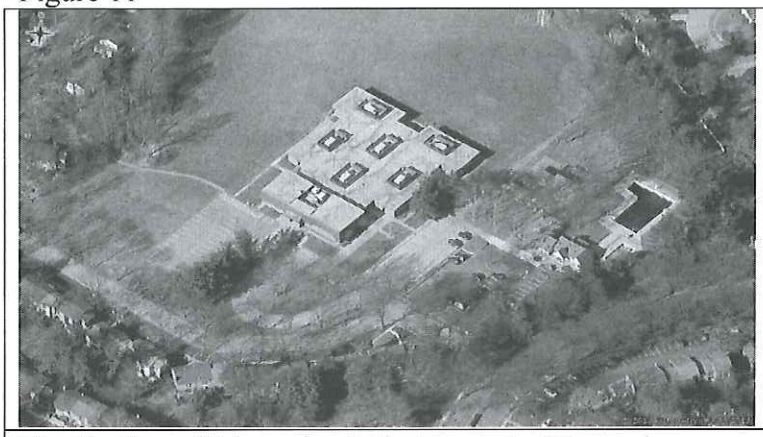
Wilde Lake HS is the only high school serving Columbia West. The nearest available high school capacity exists at River Hill HS and Oakland Mills HS. There are no present plans for redistricting between these schools.

IV. Vacant Sites

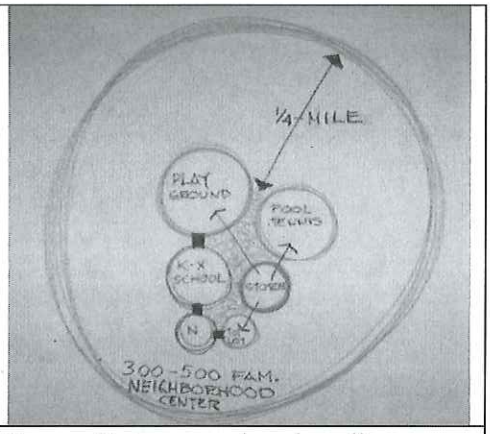
A. Faulkner Ridge

Faulkner Ridge is located at 10598 Marble Faun Lane. Faulkner Ridge was one of the early Columbia school sites and opened in 1969. The school was closed in 1983 due to low enrollment. After the school was closed, administrative functions were moved into the building and it was used in this way until 2010. The building is currently being used for storage. If the site were used for a school again, the existing building would need to be replaced with a school that meets current educational specifications.

Figure 11



The Faulkner Ridge school site is a part of the neighborhood center.



Rouse Company planning diagram of neighborhood center.

The site remains an excellent location for a future school. The Rouse Company planned schools as part of its vision for neighborhood centers and the other two Wilde Lake neighborhood centers host operating schools (Running Brook ES and Bryant Woods ES). The diagram above on the right shows the land use components of the neighborhood center which all remain except the store which was converted to a day care center. This site is within a mile of the center of Downtown and is closer to Warfield, The Mall, and the northern part of The Lakefront than sites in Hawthorn and Clary's Forest (described further below). The 2011 Feasibility Study demonstrated that opening a school at the Faulkner Ridge site in 2019 or later could be done with redistricting to include nearby schools, Bryant Woods ES and Swansfield ES. With some local redistricting, a school with the HCPSS's current educational specification would serve to keep utilization within target through the middle of the next decade.

B. Hickory Ridge Village Sites

Like Wilde Lake Village, Hickory Ridge Village was designed with three neighborhood centers, Clary's Forest, Hawthorn, and Clemens Crossing. Unlike Wilde Lake's three neighborhoods, only one of the Hickory Ridge Village neighborhood centers have been used to build a school, the Clemens Crossing ES location. Two others exist and they are in reasonable proximity to the Columbia Downtown.

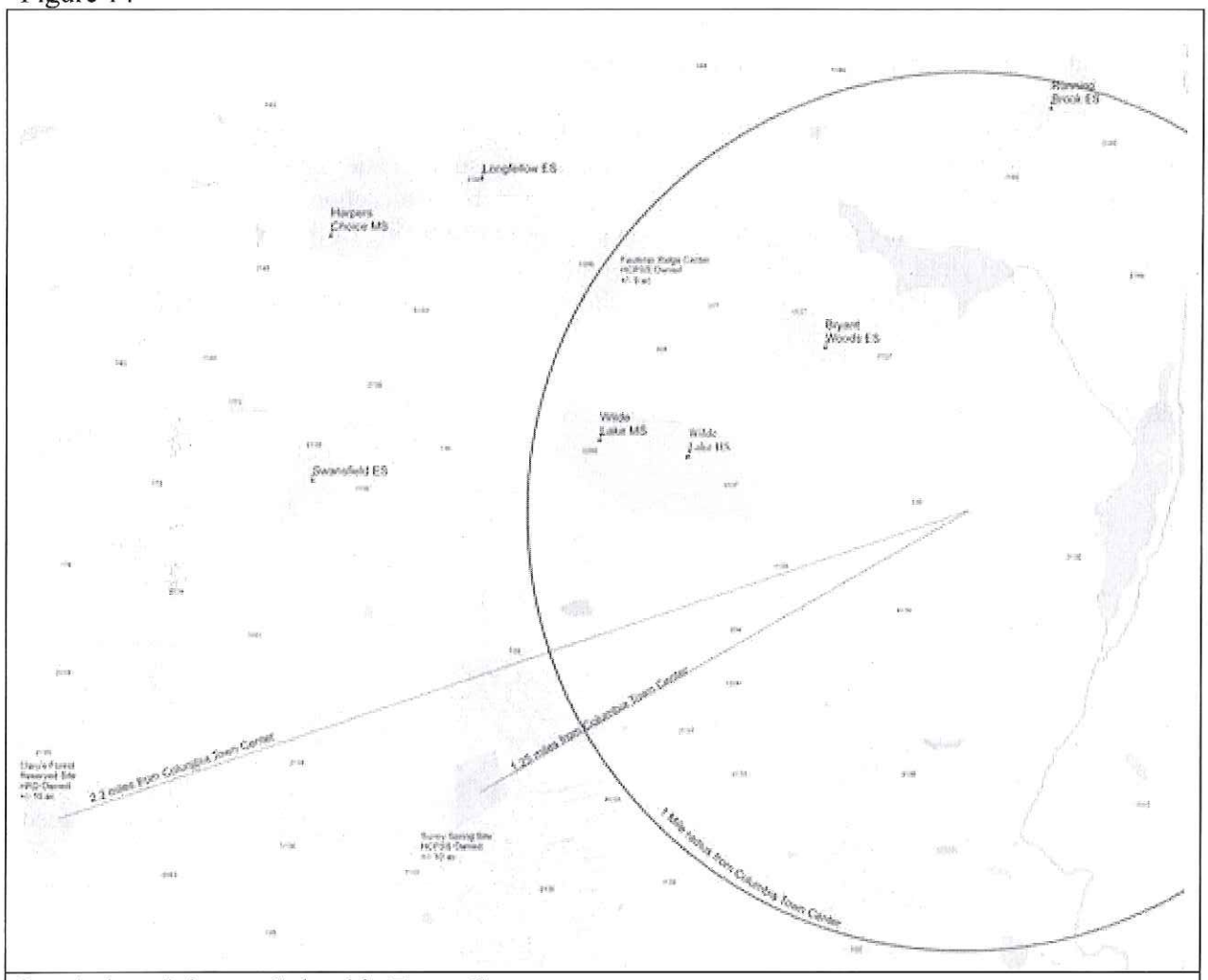
Figure 12

Hawthorn Neighborhood Center (Sunny Spring Site)	
	A school was never built in the Hawthorn Neighborhood Center. HCPSS owns the field and forested area behind the community center which is at 6175 Sunny Spring The site is approximately ten acres in size and about 1.5 miles from the center of Downtown Columbia. The land is made available for community use, as are all operating schools.

Figure 13

Clary's Forest Neighborhood Center	
	A school was never built in the Clary's Forest Neighborhood Center. The vacant land is adjacent to the community center which is at 11615 Little Patuxent Parkway. The site has not been transferred to the HCPSS and is currently owned by Howard Research and Development, a subsidiary of Howard Hughes. The site is 9.75 acres in size and about 2.5 miles from the center of Downtown Columbia. The site is unused.

Figure 14



Proximity of sites to Columbia Town Center

V. Projections

A. Elementary School Level Enrollment Projections

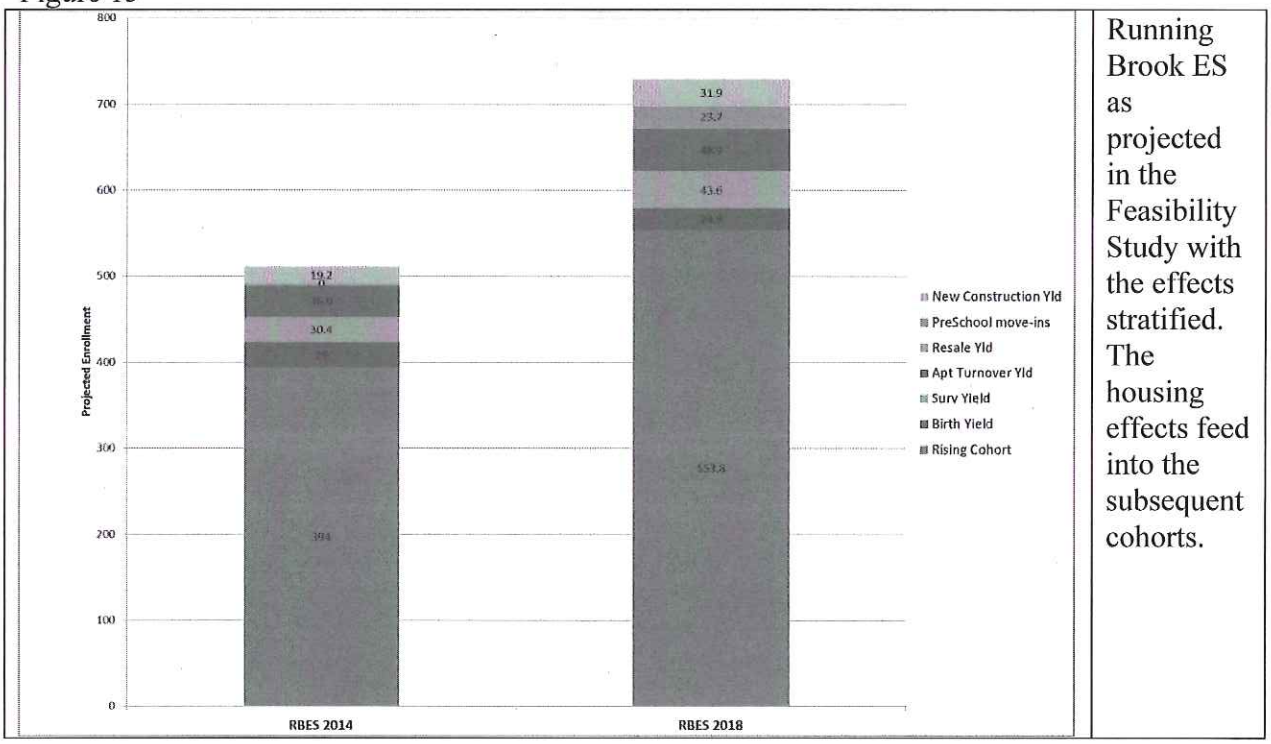
The June 2014 Feasibility Study report provides individual projections for each school in the system. The projection model and methodology used in the report is based on historic cohort survival ratios, and projects the number of students that "survive" from one grade level (cohort) to the next. Then the effects of new housing yields and the net effects of resale of existing housing stock and apartment turnover are added to the projection.

The projection indicates that Running Brook ES will remain below 110 percent capacity utilization until 2016. Enrollment will grow from the present enrollment of 492 to a peak of 1,263 in 2035. The methodology is based on cohort survival but housing factors like the effects of new housing yields or the net effect of the resale of existing housing stock are also included.

The model starts with a cohort of students being born and then increases or decreases the cohort based upon grade succession and housing factors at each grade based upon school history. The effects are reapplied to the rising cohort each year.

Some parameters are specifically relevant to multi-family. Existing housing is used to calculate net student yield from turnover of apartments from one lease to the next. DPZ provides a projection of total future housing spread over future years for each school attending area. The projected number of units is multiplied by the yield for new housing of that in each year of the projection to get yield from new housing. Net yield increases as units accumulate in accord with the DPZ projection. The figure below helps to show all factors in a stacked format contrasting two years.

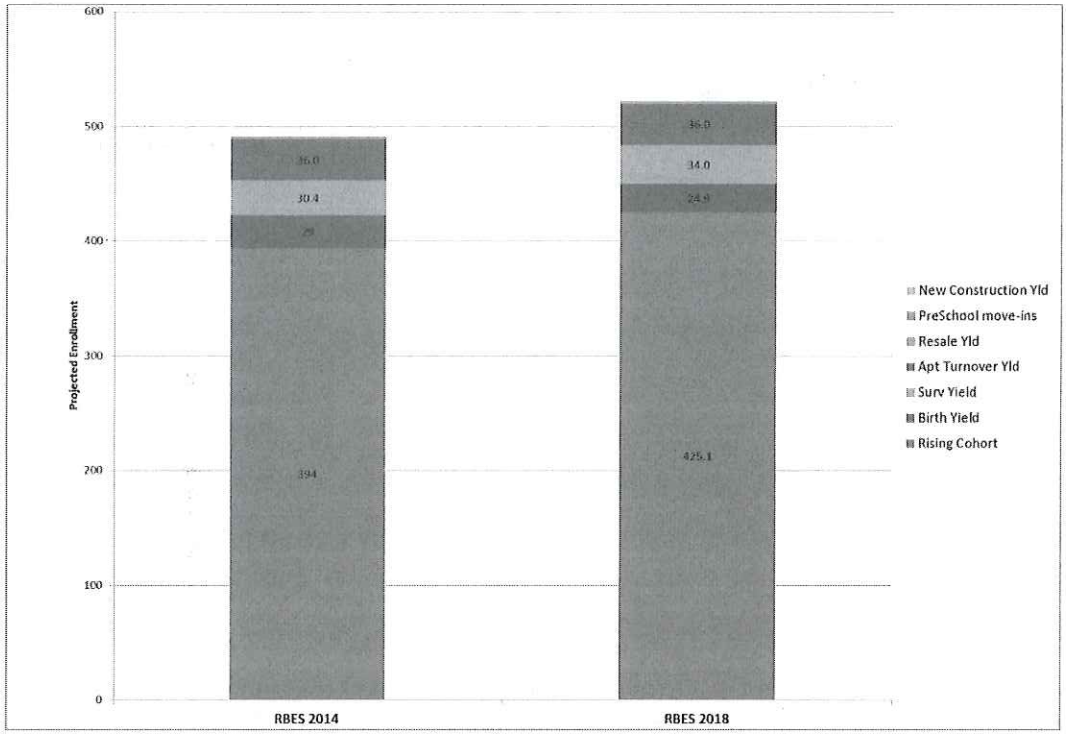
Figure 15



Running Brook ES as projected in the Feasibility Study with the effects stratified. The housing effects feed into the subsequent cohorts.

Having considered the factors in the projection, this study seeks to adjust the factors for multi-family housing based upon observed differences found in the standing yield study. In the figure below the factors are entirely removed. It can be seen that growth coming from other factors is much less intense.

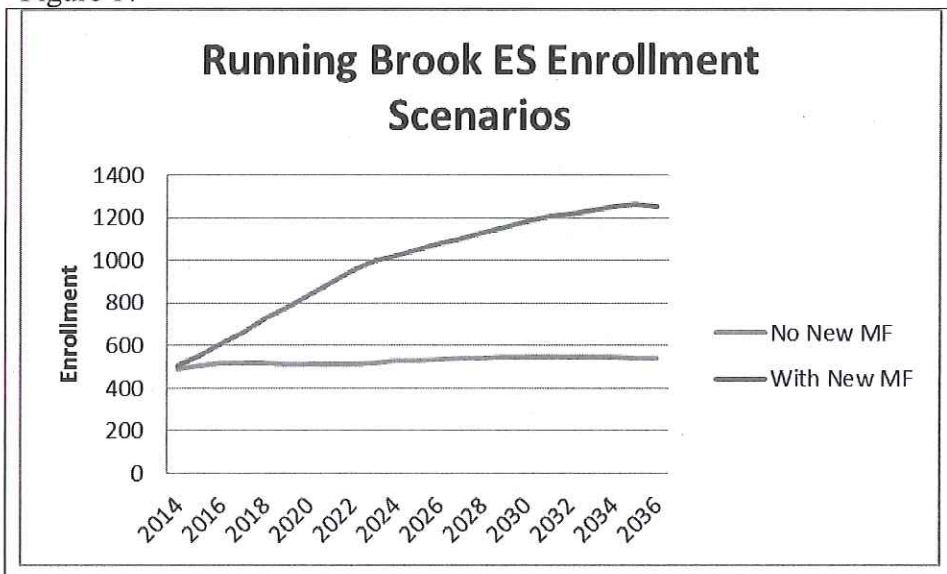
Figure 16



Running Brook ES as projected in the feasibility study but with Town Center removed. Without new housing, only existing housing effects apply. The housing effects feed into the subsequent cohorts.

The future housing number comes from a housing projection developed by the Department of Planning and Zoning. This projection takes into account all development allowed by the General Plan including recently approved projects, development plans that are currently being reviewed, and future development based on zoning capacity. The accumulation of future units is guided by known phasing and what would be permitted further in the future annually under current growth management law. As it happens, the Running Brook ES attending area housing projection is only made up of the Downtown Columbia development. It is important to also remember that other effects are modeled in the projection like births and survival rates but the specific effects which are relevant to the projected development. That can be illustrated by removing them from the projection and graphing the difference.

Figure 17



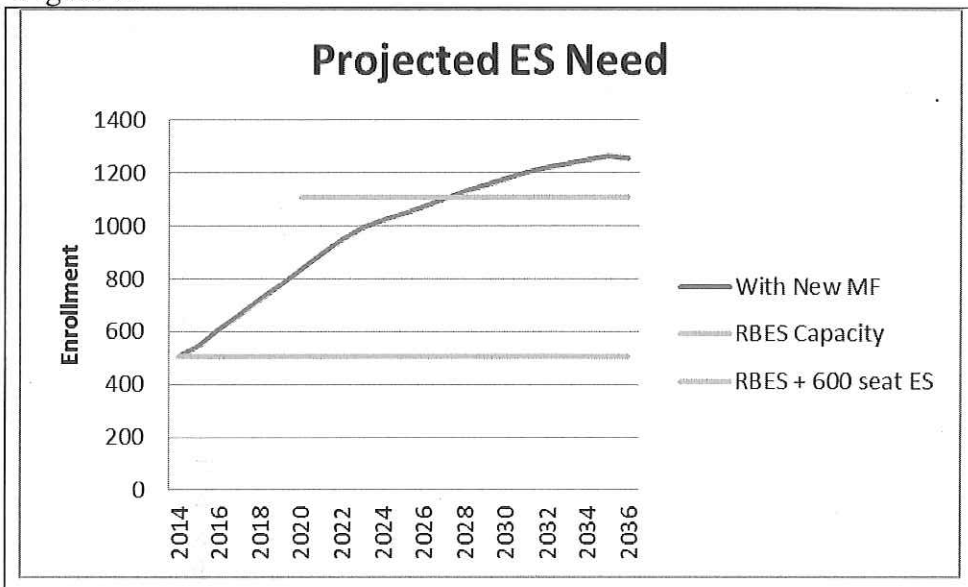
The line "With New MF models the enrollment projection with the additional proposed multi-family units of Downtown Columbia as it is in the feasibility study. This is contrasted with a no build scenario. The additional 5660 units will more than double the number of housing units in the attending area.

The scenario with new multi-family units shows enrollment is expected to double in the next decade and triple in the following decade. Removing the future multi-family development from the model produces modest enrollment growth of 7 percent in the next decade and 11 percent in the following decade.

The above chart shows enrollment but when the projection is presented in the feasibility study it is expressed as capacity utilization. This measure shows the effect of the enrollment growth on existing capacity. The feasibility study includes a planned 100 seat addition to Running Brook ES scheduled to open in August 2014 which would raise the capacity to at least 505 seats. The feasibility study indicates capacity utilization will be almost 200 percent in a decade and peak at 250 percent utilization. Removing the Columbia Town Center future development results in projected capacity utilization no higher than 108 percent. This scenario could be easily accommodated by the existing building with the new addition.

The additional capacity needed based on the above analysis is 600 seats to serve the Running Brook attending area alone. This capacity happens to match the current educational specification of a school like Ducketts Lane ES. No such school is presently in the capital improvement program (CIP). If such a school were added, the combined capacity would keep capacity utilization under 115 percent throughout the projection. This is illustrated in Figure 18.

Figure 18



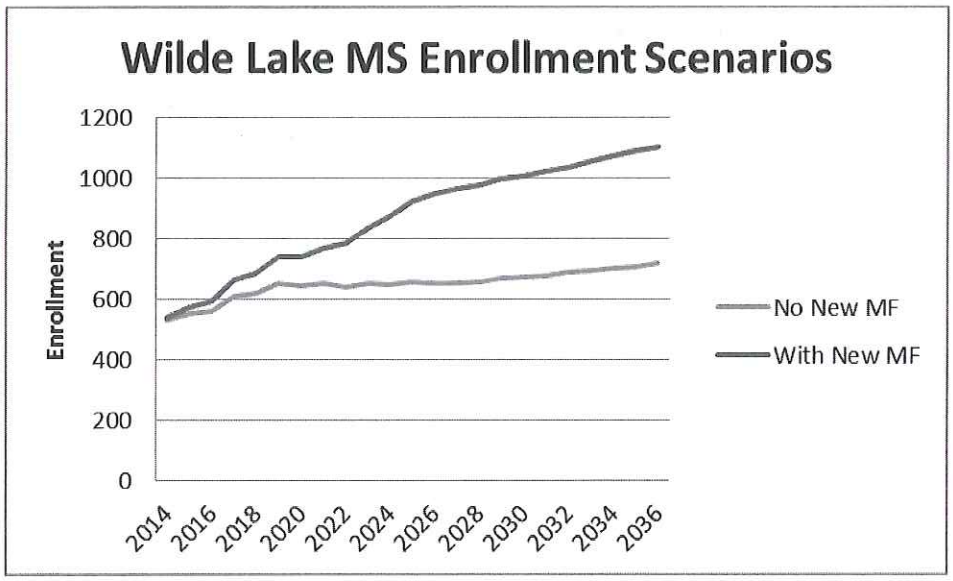
The grey line represents the anticipated capacity of Running Brook ES with the addition. The green line represents Running Brook ES plus a new school with 600-seat capacity. Most of the enrollment growth projected with the model in the feasibility study can be accommodated with these two capital investments.

B. Middle School Level Enrollment Projections

The projection indicates that the Wilde Lake MS replacement school will remain below 110 percent capacity utilization until 2019. Enrollment will grow from the present enrollment of 546 to a peak of 1,104 in 2035.

The relevant new housing yields and the net effect of the resale of existing housing stock are incorporated as well as the accumulation of future units projected by DPZ for this attendance area. These include Downtown Columbia and Wilde Lake Village Center. While this report is focused upon Downtown Columbia, the Wilde Lake Village Center phasing is only a minor contribution. The effect of Downtown Columbia can be illustrated by also removing that from the projection and graphing the difference.

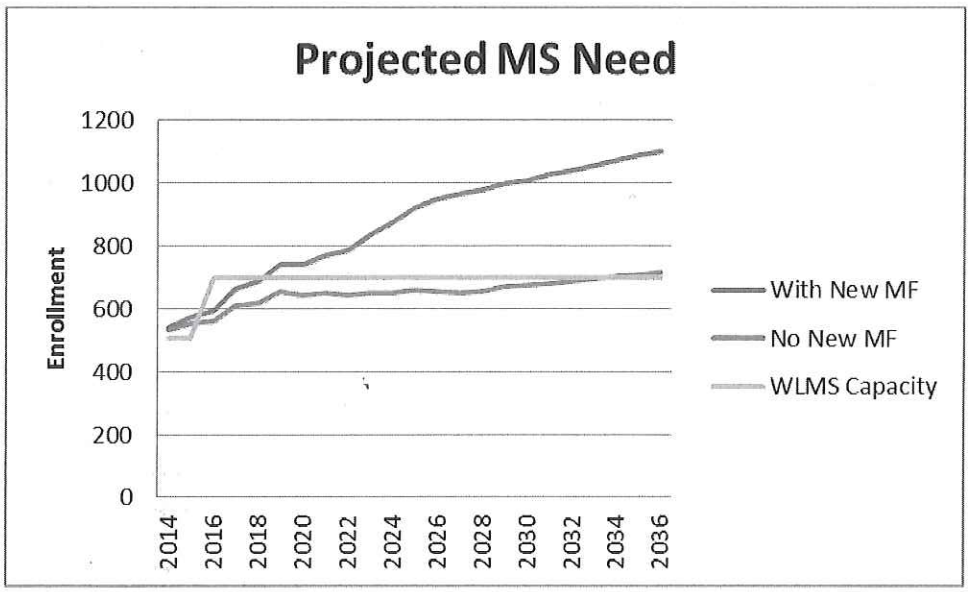
Figure 19



The line "No New MF" models the enrollment projection with the additional proposed multi-family units of Downtown Columbia as it is in the feasibility study. This is contrasted with a no build scenario. Wilde Lake Village Center units are not removed but with only 250 units the distinction is minor anyway. The additional 5910 units will be added to 8493 units presently in the attending area.

The scenario with new multi-family units shows enrollment is expected to increase by 38 percent in the next decade and will have nearly doubled by the following decade. Removing the future multi-family development from the model produces modest enrollment growth of 6.5 percent in the next decade and 11 percent in the following decade. The feasibility study indicates capacity utilization will be almost 134 percent in a decade and peak at 177 percent utilization. Without the Columbia Town Center development capacity utilization would be no higher than 116 percent. Figure 20 illustrates capacity needs with and without Columbia Town Center Development.

Figure 20



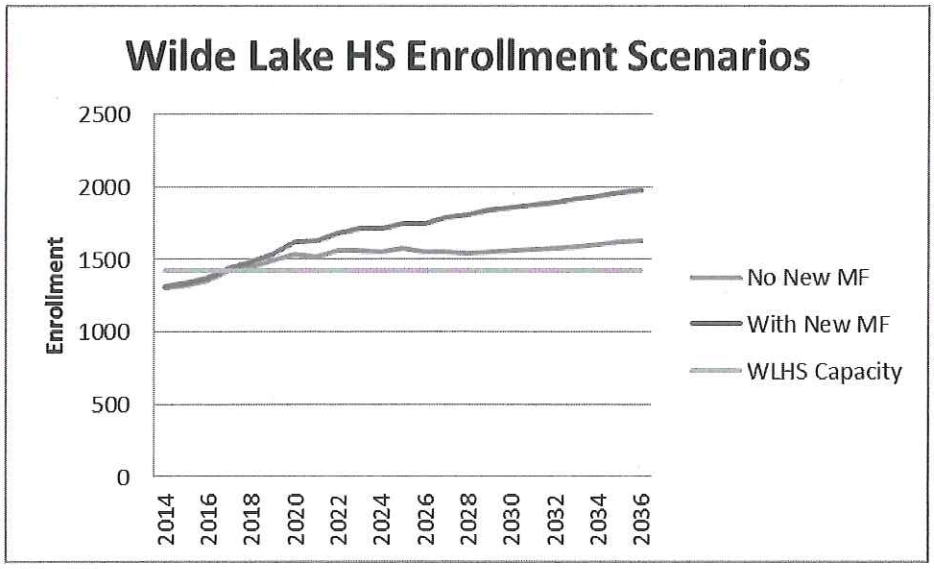
The grey line represents the capacity of Wilde Lake MS with the step up when the replacement school opens. The blue line represents Wilde Lake MS enrollment without future multi-family, which is nearly all Downtown Columbia. The red line models Wilde Lake MS growth with this development. The planned capacity serves projected enrollment well through the end of the decade.

For the next few years growth can be accommodated by the replacement school with some temporary capacity. The ultimate additional capacity which is needed is 440 seats. It is reasonable to believe about 150 seats could eventually be added to Harpers Choice MS but this falls significantly short of the ultimate needs for capacity. HCPSS owns a school site which is located at Marriottsville Road and Rt. 40 (between the Harpers Choice MS and Mount View MS attending area) that could someday provide relief to the Columbia West region if a new middle school were opened at that site in the future, but there is no funding placeholder in the CIP at this time.

C. High School Level Enrollment Projections

The projection indicates that Wilde Lake HS will remain below 110 percent capacity utilization until 2020. Enrollment will grow from the present enrollment of 1,255 to a peak of 2036 in 2040. New housing yields and the net effect of the resale of existing housing stock are incorporated in the projection. As noted above, the accumulation of future units projected by DPZ for this attendance area includes Columbia Town Center and Wilde Lake Village Center.

Figure 21

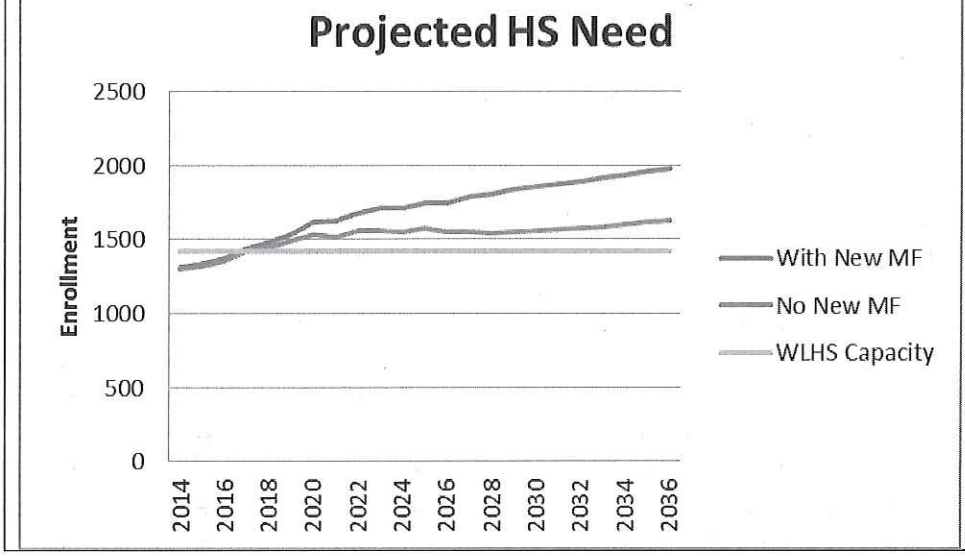


The line "With New MF" models the enrollment projection with the additional proposed multi-family units of Downtown Columbia as it is in the feasibility study. Wilde Lake Village center units were not removed but with only 250 units the distinction is minor anyway. The line "No New MF" models a scenario where no multi-family units are built.

The scenario with new multi-family units shows enrollment is expected to increase by 30 percent in the next decade and 47 percent after the following decade. Removing the future multi-family development from the model produces modest enrollment growth of 19 percent in the next decade and 22 percent in the following decade.

The feasibility study indicates capacity utilization will be almost 122 percent in a decade and peak at 146 percent utilization. Without Columbia Town Center, development results in capacity utilization no higher than 114 percent. Figure 22 illustrates capacity needs with and without Columbia Town Center Development.

Figure 22



The grey line represents the capacity of Wilde Lake HS. The blue line represents Wilde Lake MS enrollment without Columbia Town Center. The red line models Wilde Lake MS growth with Columbia Town Center.

For the next few years growth can be accommodated by the existing school, but the ultimate additional capacity needed is 666 seats. The high school educational specification would not readily support this size addition. The best way to address this need would be in the context of opening HS #13 which is shown later in the CIP.

VI. Alternative Pupil Generation

The projected needs based upon the model in the feasibility study seem urgent. A continuing theme since the plan amendment was adopted has been a belief that the downtown units would be of a higher value and built within a mixed-use environment and, therefore, tend to attract occupants with fewer children. DPZ staff has cited comparable developments in Montgomery County and Northern Virginia, where pupil yields are fairly low. For this reason the feasibility study projections have been questioned because it relies upon countywide data which may not include comparable units.

The current enrollment projection method was developed in 2003 in-house on the heels of a 2002 consultant produced projection developed by the DeJong Richter firm. Staff observed that the consultant was using a standard cohort survival methodology. The best advantage to cohort survival is that the method is rooted in student data, the data staff knows well and can control. The cohort projection methodology also includes birth data to help determine new kindergartener's entering the system. Demographers also modify cohort survival with other components like housing effects. The HCPSS methodology modifies the cohort projection with additional considerations including net new students generated from future residential development and resale and rental turnover of existing homes.

Residential development can yield students differently. Different age families are attracted to different types of units. The HCPSS method treats all multi-family units the same. This means

that a variety of units including condos, tall elevator buildings, and walk-up garden rental apartments are all averaged into one yield. Combining the types was a reasonable design for the model because the majority of housing in Howard County is single family (detached or town home) and multi-family pupil generation rates are so much lower than that of other units that the distinctions didn't really matter. Furthermore, the HCPSS did not have detailed information of the type of multi-family housing.

In order to develop a pupil generation rate, enrollment history is required. The HCPSS collects five-year histories for yields from new apartments and net yield from turnover of existing apartments. Sometimes at the school district level, however, there is not any new apartment construction yield history in the past five years. In some cases it is a school where there are no multi-family units. In other cases it is a school where multi-family units exist but are older than five years. In these circumstances countywide rates for new multi-family construction are used. For this reason for the Downtown Columbia area in the feasibility report the projection is using countywide averages of new multi-family yields. The net apartment turnover and condo resale measures do use local school district data because it is available. The use of countywide new construction yield data has been questioned in modeling Downtown Columbia on the theory that multi-family in other areas may generate at different rates.

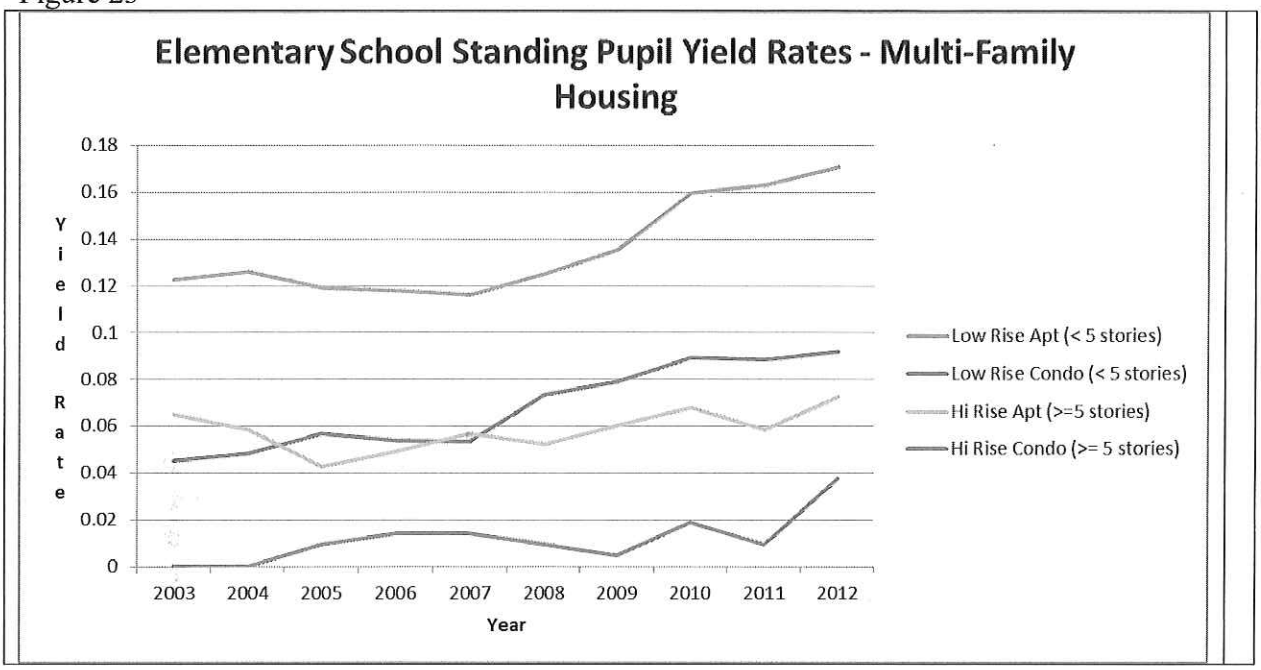
As an alternative to utilizing countywide averages, staff concluded it was necessary to analyze the potential of new development in Downtown Columbia by looking at more detailed yield data from existing multifamily units in Howard County. Staff knows from yield studies conducted by nearby jurisdictions[4] that pupil generation rates tend to vary by the number of stories and condo vs. rental. They are generally lower for condos and high rise buildings and higher for rental units and lower rise garden style structures. So staff analyzed all the multi-family units in Howard County and classified them by four types: 1) 1 to 4 story rentals, 2) 5 stories and higher rentals, 3) 1 to 4 story condos, and 4) 5 story and higher condos. Department of Planning and Zoning (DPZ) staff developed this information in the form of a GIS layer.[5] The sample was countywide and it included a total of 25,538 multifamily units. Three quarters of the units were apartments and one quarter were condos, with most units being in buildings of four stories or less. Only two percent of the sample was apartments of five stories or more. Less than one percent of the sample was condos of five stories or more. These smaller samples are probably less significant but the goal of this analysis was to examine local data. Staff took this data and geocoded ten years of student enrollment history to the polygons and summarized the results to acquire rates by multi-family type.

A. Elementary School Chart

The following graph shows standing pupil generation rates by multi-family housing type over time for the elementary level. Low-rise rental units produce the most students and high-rise condo units produce the least. This study shows the same trend staff has seen in the feasibility study projection that multi-family pupil generation rates have been increasing.

[4] Alexandria, VA, Baltimore County, MD, Fairfax County, VA and Montgomery County, MD.
[5] They have not yet been able to do the same for single family housing.

Figure 23



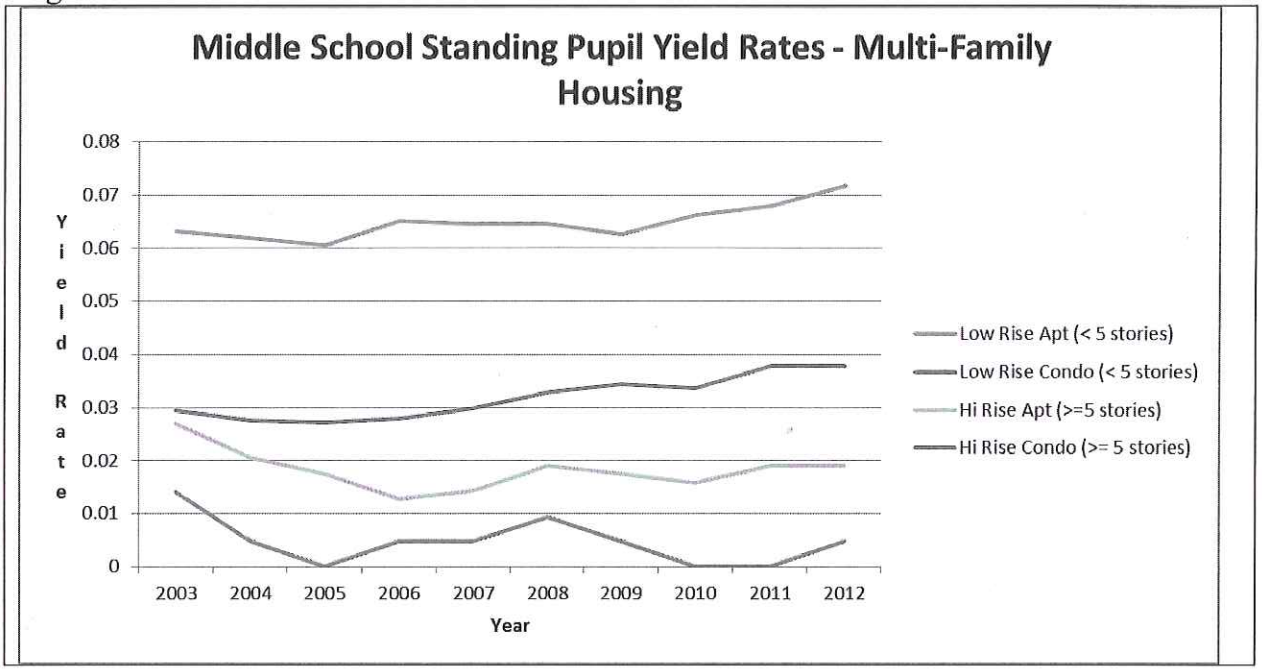
Since the Feasibility Study projection for Running Brook ES projection did not have new multi-family units in the last five years, staff chose the countywide average, which per the HCPSS's methodology, is done for all school districts that do not have any recent history from new development. This countywide rate was 0.101 (elementary students per unit). The standing yield study suggests in recent years that low-rise apartments exceed this average and low-rise condos approach this average. High-rise apartments are lower at about 0.07. High-rise condos are close to 0.04, but it should be noted that there is only a small sample of these types of units. The next report is required when 10 percent of the Downtown Columbia units have been constructed and occupied. All are planned to be high-rise rental and condo so this will provide a larger sample to determine pupil yields.

B. Middle School Chart

The following graph shows pupil generation rates by multi-family housing type over time for middle schools. The middle school pupil generation rates are lower as would be expected since it consists of only half as many cohorts. Staff also expects that as families' children age they tend to seek larger housing units which are often townhomes or single-family detached units. Similar to elementary school students, low-rise rental units produce the most middle students and high-rise condominium units produce the least.

This study supports increasing utilization rates. In the feasibility study staff has chosen the countywide average for Wilde Lake MS because there were no new units in the last five years. This rate of 0.045 is only half the low-rise apartment standing yield rate and closer to existing rates for high-rise apartments and condos.

Figure 24

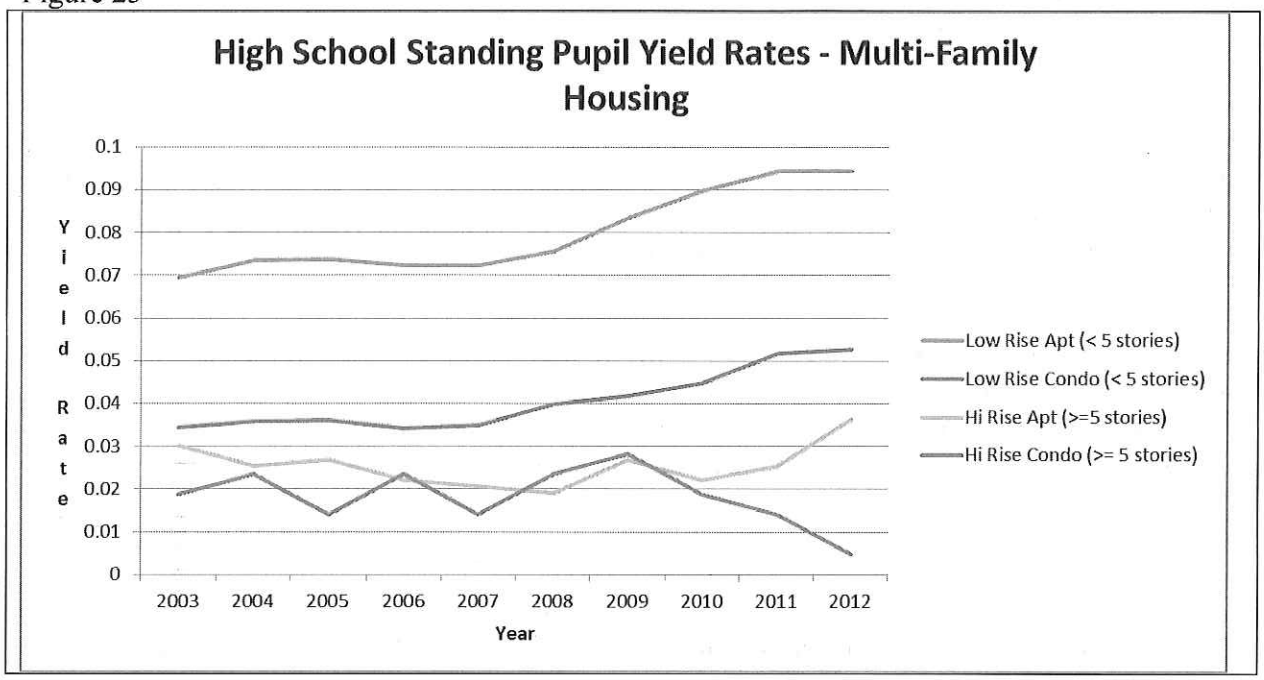


C. High School Chart

The following graph shows pupil generation rates by multi-family housing type over time for high school. Most high school pupil generation rates are lower than elementary as would be expected since it consists of only two thirds the number of cohorts. Low-rise rental units again produce the most students and high-rise condo units produce the least.

This study supports increasing utilization rates. In the feasibility study staff has chosen the countywide average for Wilde Lake HS because there were no new units in the last five years. This rate of 0.036 would not be out of place on this graph where the rates are ranging between 0.005 and 0.09.

Figure 25



A number of conclusions can be drawn from this standing yield study. The first is that the ten-year standing yields by unit type are not dramatically different from the combined multi-family yields presently used in the HCPSS's methodology. Combining the unit type does not appear to have been detracting from the results. It is also clear from the data above that high-rise rental and condo units have lower yields than low-rise units.

The concern that future yields are higher than the yields from the new units that will be built in Downtown Columbia has validity. Most existing multi-family units in Howard County are low-rise walk up apartments and very few are high-rise five stories or higher. Prices were not studied but it is reasonable to assume many of these existing units are modest in price, making them affordable to young families. In contrast, the first multi-family project in Downtown Columbia, The Metropolitan, will be a five and six story complex including a parking garage, interior clubhouse, and courtyard with pool, and have retail on the first floor. Potential units and rents were reported in the Baltimore Sun to be, "lofts, one-, two- and three-bedroom apartments ranging from $1,500 to $2,800 in monthly rents[6]."

There are some problems with adopting the hypothesis that all 5,660 Downtown Columbia units over the next twenty years will all be high end units. This is not what has occurred in the last fifty years. In the early years of Columbia, early advertisements appealed to business people in the New York City market who might relocate their companies to Columbia and chose to live in the new community as well, but luxury apartments were not specifically referenced. Furthermore, following this initial marketing effort, the economy stagnated under the burden of inflation. Ads in Columbia for apartments and condos then emphasized good price and

[6] Luke Lavoie, "Developers break ground on $100 million apartments in downtown Columbia." *Baltimore Sun*, February 11, 2013

convenience, not luxury. The result in Columbia has many appealing features but it is not equivalent to places like Bethesda Row in Montgomery County or the features cited for The Metropolitan. More like The Metropolitan are likely, but it is hard to say over a long span of time what the market will bear.
Another factor to consider is the rising trend for families to live in multi-family units. While higher income families typically choose single family options, demographers are finding the next generation to rear children, millennials (18-33) are less inclined to marry[7] and more inclined to rent[8]. Should they retain these preferences as they begin to raise children, a supply of new high quality apartments in a county with a well-regarded school system may be an attractive draw.

Successful communities have unique features that attract new residents. The school system is a primary attraction in Howard County for new residents. New housing in Downtown will initially be marketed to singles and empty nesters. Ideally their presence will sustain new investments in Downtown businesses and other activities. The result could be a community which is more desirable to a wider range of new residents, including families. This will probably influence later phases of Downtown. There is no requirement that Howard Hughes Company build only luxury apartments and no prohibition on families.

There are a variety of avenues for future analysis. Given the available data and the task at hand it seems best to try to apply these findings to the current projection model and see if that changes staff's perception of future needs. The sample for high-rise apartments and condos that currently exist in Howard County is too small to draw statistical conclusions. This leaves the contrast between low-rise apartments and low-rise condos. The existing stock of low-rise condos is definitely more luxury in nature than the existing stock of low rise apartments. So it would seem that low-rise condo rates are a reasonable proxy for future luxury units which may be rental or condo. The average pupil generation rate over the 10 year standing yield analysis in this study for low-rise apartments is 0.136 elementary students per unit. The average pupil generation rate is half of that for low-rise condos at 0.068 students per unit for all instructional levels. In comparison the average low-rise condo rate is lower at the elementary and middle level but it is higher for high school. All values are summarized in the following table:

Table 1

Comparison of Multi-family Yield Rates			
	Countywide Multi-family rate (Feasibility Study)	Average low rise apartment rate	Average low rise condo rate
Elementary	0.101	0.136	0.068
Middle	0.045	0.065	0.032
High	0.036	0.080	0.041

In examining the generation rates recorded in other communities, staff took notice of a Baltimore County report which included a survey of pupil generation rates conducted in 2009[9] by the

[7] Pew Research Center, *Millennials in Adulthood,* (Washington, DC: March 7, 2014)
[8] Pew Research Center, *Young Adults After The Recession Fewer Homes Fewer Cars Less Debt,* (Washington DC: February 21, 2013)
[9] Baltimore County Public School System, *Pupil Yield Study,* (Towson, MD: 2009)

Baltimore Metropolitan Council and a residential forecast study in 2012 by the Sage Policy Group / Cropper GIS. In the 2009 study multi-family units were broken out into owned and rented. Geography is listed by election district. The 2012 study focuses on Districts 2, 3, & 4 because this is an area of significant residential growth. District 2 and 4 incorporate the multifamily development near the Owings Mills Mall which is relevant to a discussion of Downtown Columbia future growth. These areas have some similar existing development and plans for town center redevelopment. The following table presents the multifamily rates for these two districts:

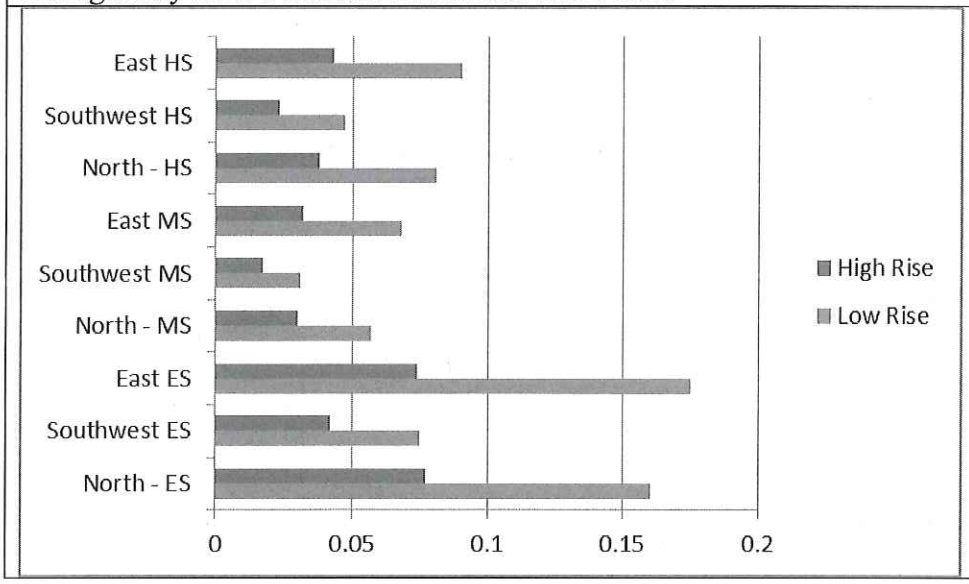
Table 2

Selected Baltimore County Multi-family Yield Rates 2005-2007						
	Elementary		Middle		High	
	Rent	Own	Rent	Own	Rent	Own
District 2	0.091	0.068	.035	.030	0.049	0.040
District 4	0.16	0.049	.071	0.025	.079	0.031

Montgomery County, Maryland is an adjacent jurisdiction with a variety of multi-family housing types of different ages. They track generation rates by school level, height of building, and region.

Figure 26

Montgomery MCPS Student Generation Rates 2013

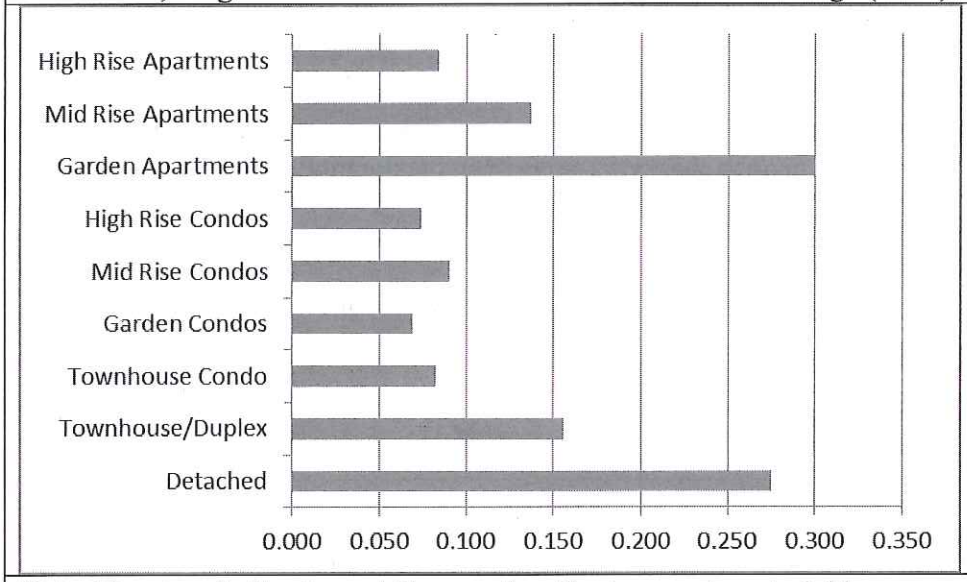


North includes general "upcountry" like Clarksburg. The East includes "down county" like Silver Spring. The Southwest includes Bethesda – Chevy Chase. Note that Southwest values are generally lower.

While the existing pupil generation rates tend to compare to Montgomery County's North and East regions, the types of housing proposed in Downtown Columbia may have comparable examples in the Southwest region. These lower rates are in the same range as the observed standing yield in Howard County. One of the more urbanized areas in the region which possesses a mixture of multi-family housing types is Alexandria, Virginia. Most units predate 2000 and their studies show that pupil generation rates increase with the age of the facility.

Figure 27

Alexandria, Virginia PS Student Generation Rates 3-Year Average (2012)



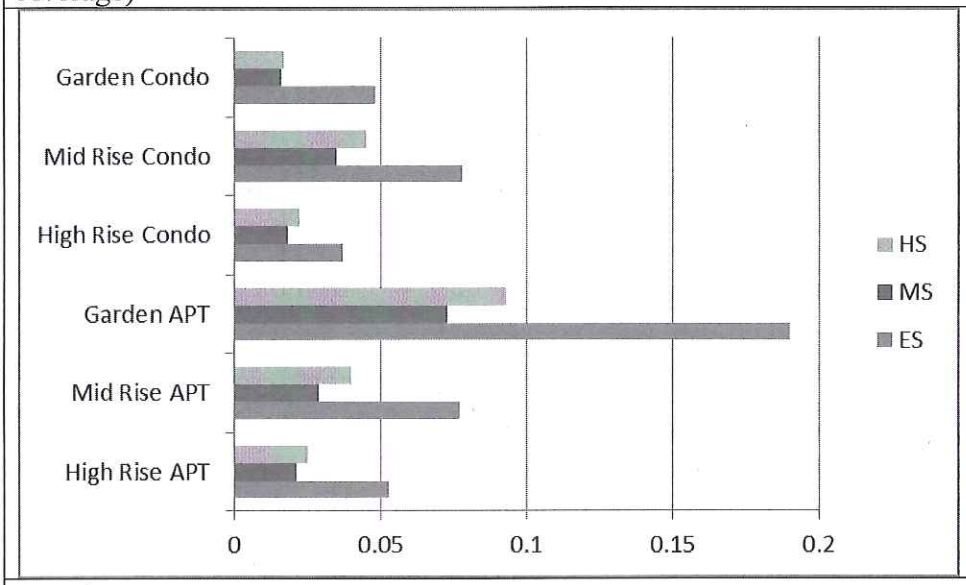
Over 85 percent of the multifamily units in Alexandria were built before 2000 but there is a wider mix of types than in Columbia which helps to characterize likely future Downtown Columbia units.

Note: Housing Authority and Cooperative Garden apartment yields are removed. These types happened to have much higher pupil generation rates but they are unlikely in Howard County.

In developments which were built in 2000 and later, there are some specific circumstances worth noting.

Figure 28

Alexandria, Virginia PS Student Generation Rates Post 2000 Housing (2011-2012 2-year Average)

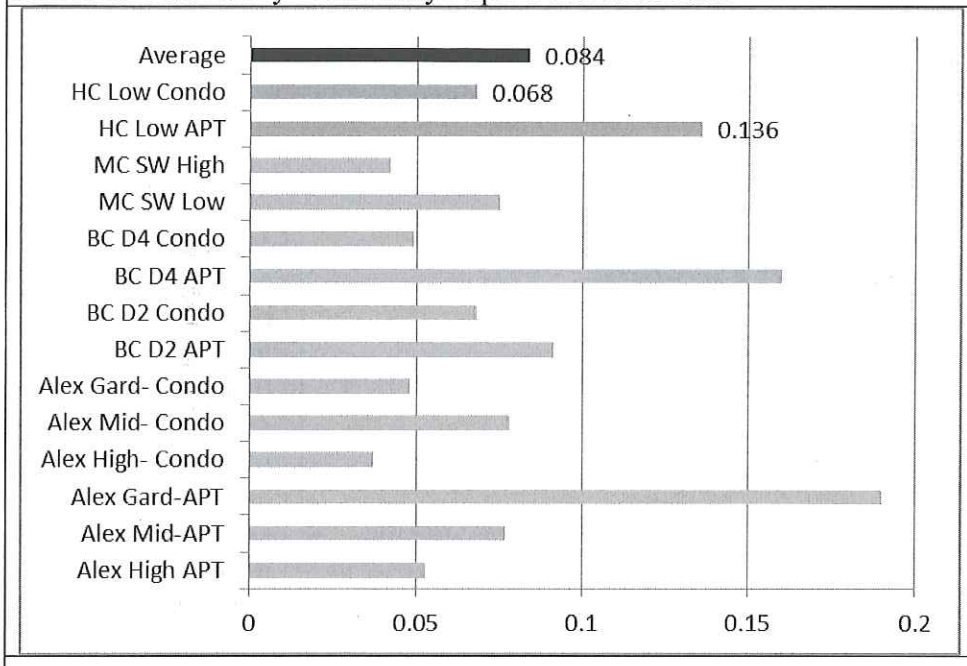


Future Downtown Columbia units will probably fit the mid-rise apartment category. Existing units mostly fit the garden apartment with a few garden and mid-rise condos.

To put this selected data in context the following chart places the observed Howard County standing yield rates in the context of selected rates from Baltimore County, Montgomery County, and Alexandria, Virginia. Since elementary rates are the highest, they are presented to simplify the number of values on the chart.

Figure 29

Selected Multifamily Elementary Pupil Generation Rates



The low-rise condo rate for Howard County is below all apartment rates except high-rise apartments in Alexandria. Notably, the rate is close to the mid-rise apartment rate in Alexandra. It is fairly similar to the condo rates in the other areas.

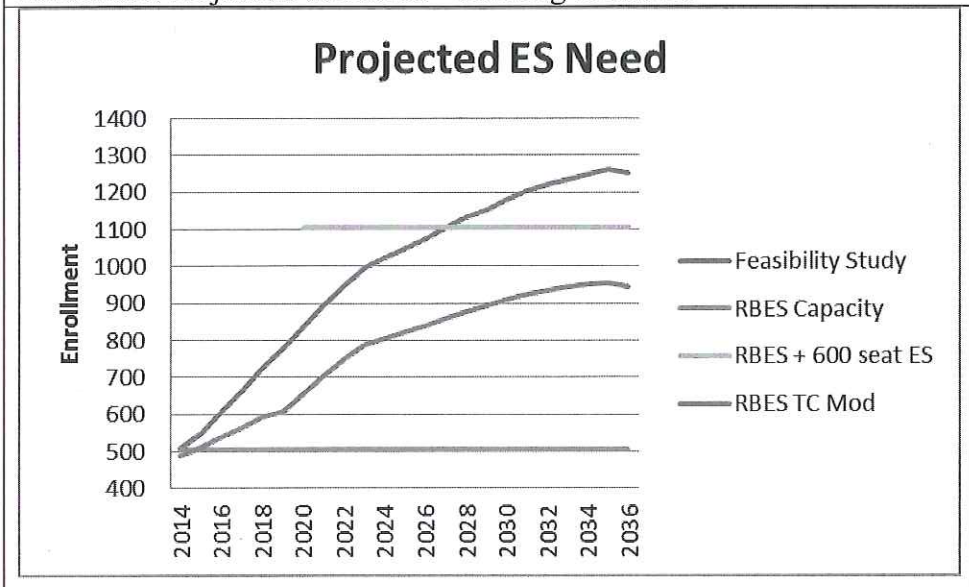
While there is no perfect way to model future development in Downtown Columbia, these values provide some context. Choosing the standing yield rate measured for Howard County condominiums as a proxy for future multifamily units in Howard County seems to be a reasonable choice given the pupil yield performance in other jurisdictions shown in Figure 29. One of the better comparisons in this chart for luxury units above four stories seems to be the Montgomery County Southwest region (Bethesda Chevy Chase area). Howard County's condo rate is higher than their high rise rate of 0.042 (5 stories or higher) but it is lower than their low rise rate of 0.075. When the next report addresses conditions following 10 percent build out of Downtown Columbia a slightly more conservative choice like 0.042 could be warranted, if staff were to use Bethesda Chevy Chase area as a guide. In the charts that follow the projection is adjusted with the low rise condo rate replacing the countywide multi-family yield rate at the elementary and middle school level. This rate is also proportionally applied to future year net yield from apartment turnover. Since the low rise condo rate is actually lower than the countywide multifamily average at the high school level no change is made. However the high school chart is adjusted for the elementary and middle school rising student effects.

D. Elementary Modification

The following graph shows enrollment projections at Running Brook ES under two scenarios. The red line shows the projected enrollment from the feasibility study projection, which uses the countywide average rate of 0.101 at the elementary school level. The purple line indicates the modification which substitutes the low rise condo rate (0.064) rather than the countywide multi-family yield rate. This rate is also proportionally applied to future year net yield from apartment turnover, reducing yield rates by a third. For reference current capacity is shown in blue and capacity for a new school meeting current education specifications is shown in a green line.

Figure 30

Enrollment Projection Scenarios – Running Brook ES



Modifying the enrollment projection to the lower yield rate of 0.064 and proportionally reducing the future net yield from apartment turnover results in a lower projection.

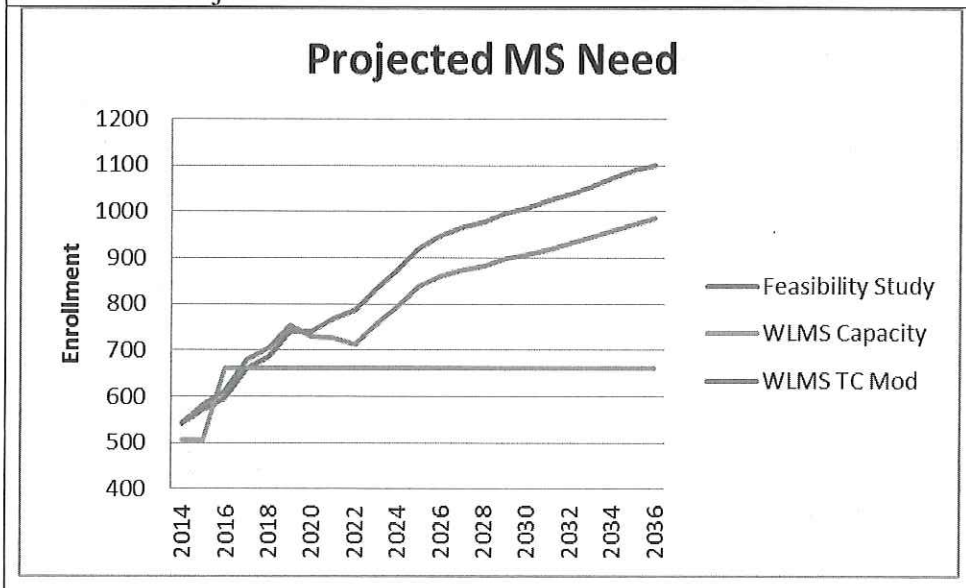
The projections shown above provide a range of possible outcomes useful in planning for what choice may be considered after 10% of the units are constructed and occupied, and yields can be evaluated. The first insight seems to be that one school site is definitely necessary for elementary needs.

E. Middle Modification

Figure 31 shows enrollment projections at Wilde Lake MS under two scenarios. The red line shows the projected enrollment from the feasibility study projection. The purple line indicates the modification which substitutes the low rise middle school condo rate (0.032) for the reasons discussed after figure 29, for the countywide multi-family yield rate (0.045). This rate is also proportionally applied to future year net yield from apartment turnover, reducing yield rates by about 30 percent. For reference, Wilde Lake MS capacity is shown in blue with a change reflecting the Wilde Lake MS replacement.

Figure 31

Enrollment Projection Scenarios – Wilde Lake MS



Modifying the enrollment projection to the lower yield rate of 0.033 and proportionally reducing the future net yield from apartment turnover results in a projection that is less dramatic (note chart originates at 400 for readability).

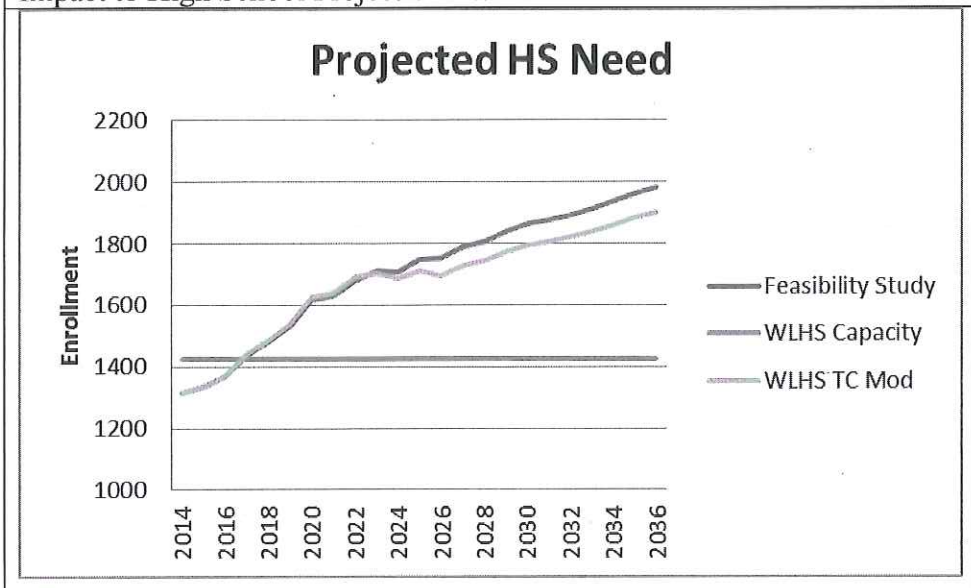
At the middle school level the modification to the trend suggests that a combination of redistricting and expansion of a nearby school like Harpers Choice MS will accommodate growth over the next ten years. The longer term need can be rationalized into a fraction of land using HCPSS Policy 6000 Site Selection and Acquisition as a guide. This policy suggests a desirable size in usable acres for a middle school beginning at 20 acres. The long-term need for approximately 300 seats is 0.45 the prototype middle school capacity of 662, or 20 acres multiplied by 0.45 is 9.1 acres. Alternatively the fraction in average middle school floor area is approximately 25,128 square feet.

F. Impact to High School Projection

The following graph shows enrollment projections at Wilde Lake HS with the Wilde Lake MS and Running Brook ES feeds reduced to reflect modified pupil generation rates. Interestingly the standing yield rate for low rise condos exceeds the current average pupil yield rates for multi-family countywide. It is too early to tell if this is an indication of a trend. For this reason the new apartment yield rate was not adjusted nor was there a change to the future year net yield from apartment turnover. A change still occurs because of the effect from the feeds that were subjected to modification. Also note that the larger attending area and capacity makes any high school less sensitive to one specific development.

Figure 32

Impact to High School Projection– Wilde Lake HS



Modified elementary and middle projections cause the high school enrollment projection to be that is less dramatic with a plateau from 2022 –2026 (note chart originates at 1000 for readability).

At the high school level the modification of the feeders lowers the long term enrollment trend. Temporary capacity could be considered at Wilde Lake HS in the short term, and as plans for a new high school relieving the Northeast and Southeast Regions evolve, a plan could consider redistricting options.

This need can be rationalized into a fraction of land using HCPSS Policy 6000 as a guide. This policy suggests a desirable size in usable acres for a high school beginning at 30 acres. The long-term need for approximately 450 seats is 0.31 the average high school capacity of 1,429, or 30 acres multiplied by 0.31 is 9.4 acres. Alternatively the fraction in average high school floor area is approximately 70,000 square feet.

VII. Options for School System Needs

The conventional options for HCPSS to resolve K– 12 capacity needs are temporary capacity, expansion of existing buildings, new buildings, and redistricting.

A. Temporary Capacity

Temporary capacity is already being used at the elementary and middle facilities in this area to support current academic programming needs. There are some disadvantages to temporary capacity, including negative impacts to parking and recess space, increased maintenance requirements, and security vulnerabilities. The advantage to temporary capacity is that it allows the system to react to short-term needs at a relatively low cost. System wide temporary capacity needs are evaluated annually and may be adjusted to accommodate the needs of the Columbia West region. Policy 6010 School Attendance Areas dictates that temporary capacity may not count toward capacity in any HCPSS capital planning or redistricting feasibility studies.

B. Construction of Additions

Construction of new wings to existing schools has historically been done to address enrollment growth, but only to the limits of the largest educational specification at that instructional level (788 students in elementary, 700 students in middle, and 1,400 at the high school level). Regardless of these practices, the smaller Columbia elementary buildings and sites are only capable of a limited amount of expansion. Specifically the Running Brook ES site will have reached the limits of its core capacity following the completion of the current addition. Some of the other schools in this region may be able to host small additions, but these improvements will not significantly address the long term needs.

C. New Schools

This report underscores the need for a new elementary school and fractions of both a middle and high school. This need is calculated after the model was modified to suppress pupil generation rates to better capture proposed development. Past history has proven the Faulkner Ridge site can serve the elementary need with a new school, and if capital funding for construction is made available. Obtaining land bank sites that are consistent with the secondary needs is an option. Another option would be for the developer to provide Class A office space which could be used for either administrative offices or regional Pre-K centers.

D. Redistricting

Redistricting can access available capacity within the system by shrinking the attending area of crowded schools and enlarging the attending area of schools with available capacity. Future feasibility studies can examine redistricting as needed. The weakness of redistricting plans affecting Columbia is that the available capacity may be too distant to take advantage of.

VIII. Recommendations

1. **Prepare to monitor enrollment in Columbia Downtown** – A follow up report is due when 10% of units are permitted and occupied. This report may require an additional standing yield analysis or other studies. In the interim continue to evaluate comparable growth in surrounding jurisdictions.
2. **Retain Faulkner Ridge Site** – The Faulkner Ridge site is closest to Town Center and should be considered a primary option for construction of a future elementary school.
3. **Retain Hawthorn Site** – This site is still relatively close to Town Center and a valuable location for future prekindergarten, elementary, or middle school needs.
4. **Obtain Clary's Forest Site** – The Faulkner Ridge and Hawthorn sites alone do not resolve future needs. When middle and high school needs as fractions of typical schools were rationalized to the land requirement, they each called for a site of that size. While the Clary's Forest site is most distant of the three sites, owning it gives HCPSS future flexibility in responding to future prekindergarten, elementary, or middle school needs.
5. **Since other tracts of land are not available, Seek opportunities for office space within a downtown building** - Approximately 35,000 square feet of space would be

equivalent to the HCPSS leased space in the Ascend One building plus Central Office staff space at the ARL building. That size space could also serve the need for regional early childhood education. Either of such uses would actually be very complimentary to the mixed use development, either bringing services to residents or patronization of retail.

HCPSS Elementary School Capacity Update DRAFT

Running Brook ES
Forest Ridge ES

June 2014 Feasibility Study
Appendix B

HCPSS Office of School Planning

Gilbert Architects, Inc.

2013-14 Elementary School Capacity Analysis		Forest Ridge			Running Brook		
HCPSS CIP Capacity (referenced in the FY2015 Capital Budget)				626			505
Total Number of Teaching Stations FY2015 Capacity		29			22		
2013-14 Actual Number of Teaching Stations (not including Special Education or Regional Programs)	K: 22 / classroom	5	22	110	4	22	88
	1: 19 / classroom	7	19	133	4	19	76
	2: 19 / classroom	4	19	76	4	19	76
	3: 25 / classroom	5	25	125	3	25	75
	4: 25 / classroom	4	25	100	4	25	100
	5: 25 / classroom	4	25	100	4	25	100
Total HCPSS Proposed Capacity (K-5)				644			515
Total Proposed Number of Teaching Stations		29			23		
Undersized Classrooms (refer to note #2 below))		4			5		
Relocatable Classrooms (refer to note #3 below)		5			6		
Official 9/30/2013 Enrollments (K-5, no Pre-K)				748			462
MD IAC State Rated Capacity				660			471

Notes:

1. Classrooms that meet the square footage requirements set forth in the HCPSS Guidelines Manual for Renovations and Modernizations of Existing Schools dated February 2009 (i.e. a minumum of 750 s.f. for Kindergarten and a minimum of 660 s.f. for Grades 1-5) receive capacity based on the following: Kindergarten at 22 students per classrooms; grades 1-2 at 19 students per classroom; and grades 3-5 at 25 students per classroom.

2. Undersized classrooms that do not meet the minumum square footage requirements do not receive capacity.

3. Temporary relocatable classrooms do not receive capacity.

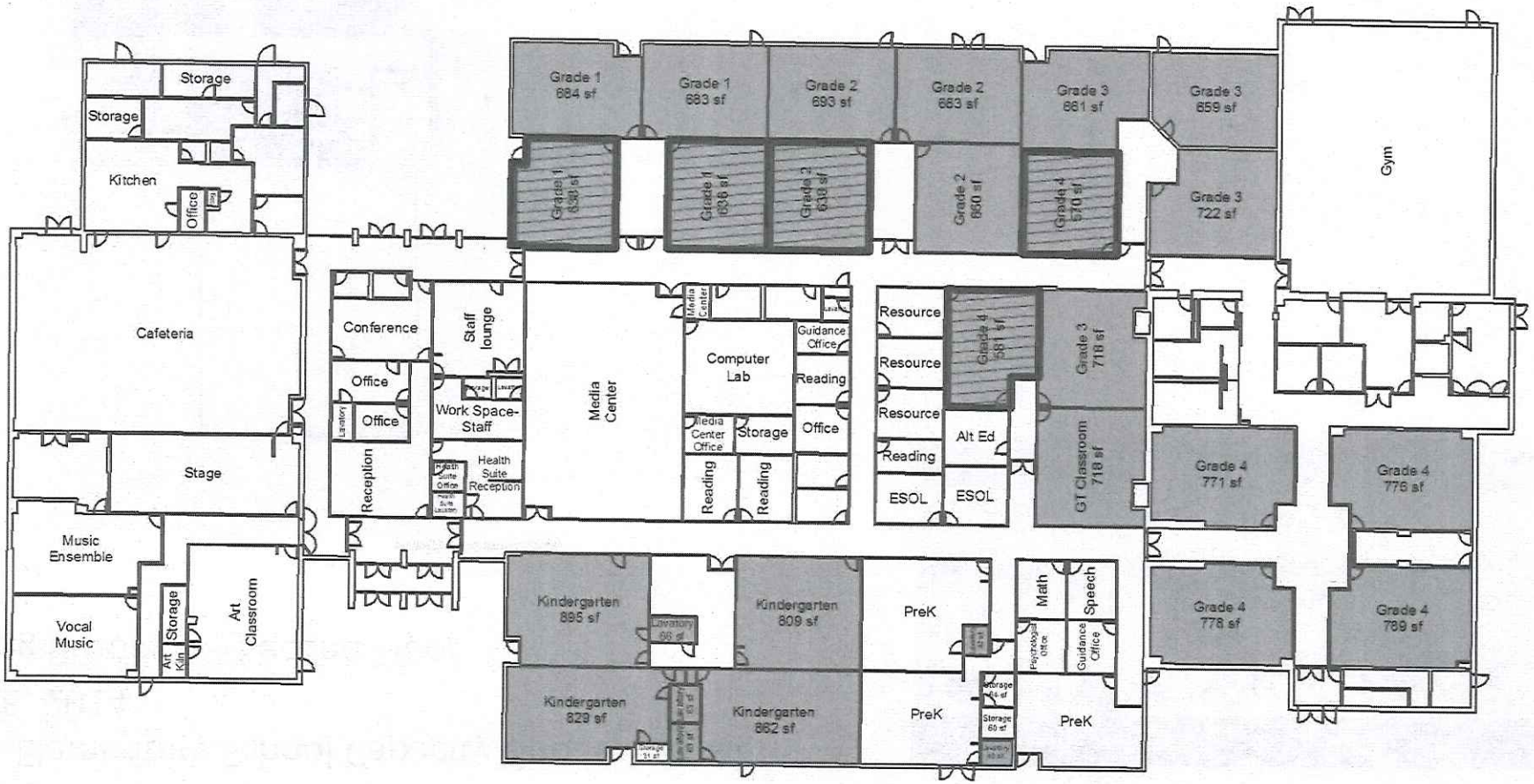
HCPSS Elementary School Capacity Update - DRAFT
May 28, 2014
Running Brook ES - First Floor

Running Brook ES – Proposed Capacity		
Level	**CR / Ratio**	**Seats**
K	4 @ 22:1	88
1-2	8 @ 19:1	152
3-5	11@ 25:1	275
		515

Classrooms labeled by present/planned use.

Classroom

Undersized



HCPSS Elementary School Capacity Update - DRAFT
May 28, 2014
Running Brook ES – Second Floor

Running Brook ES		
Level	**CR / Ratio**	**Seats**
K	4 @ 22:1	88
1-2	8 @ 19:1	152
3-5	11@ 25:1	275
		515

HCPSS Elementary School Capacity Update - DRAFT

May 28, 2014

Forest Ridge ES

(One Story)

Forest Ridge ES		
Level	**CR / Ratio**	**Seats**
K	5 @ 22:1	110
1-2	11 @ 19:1	209
3-5	13 @ 25:1	325
		644