2.2 Data Analysis
Utilization

2.2 Data Analysis
Utilization
Figures

What is Utilization?

Facility utilization is determined by the space requirements of the educational programs in the facility and the student-to-classroom ratios.

Utilization is important for maintaining reasonable class sizes and accommodating growth

MCPS aims for schools to be utilized between 80-100% of school capacity.

Utilization by the Numbers

- Overall facility utilization in MCPS is **97%**.
- Overall elementary school utilization is **102%**. Overall middle school utilization is **97%**. And overall high school utilization is **103%**.
- While utilization at the ES and MS level is expected to decrease or stay flat through the 2025-26 school year, HS utilization is expected to increase to **108% by 2025-26**.

Section Overview

There are five sets of utilization analyses in this section:

- Utilization Across School Attendance Areas
- Utilization and School Facilities
- Utilization and Adjacency
- Utilization Over Time
- Special Conditions

Each subsection opens with a set of key insights.

Utilization at a Glance

What is utilization?

Maintaining a reasonable utilization rate is one of MCPS's major priorities in educational facilities planning. In short, utilization measures the program capacity of school facilities in relation to the number of students they accommodate.

Facility utilization is calculated by dividing student enrollment by program capacity. Program capacity is a measurement based on classroom ratios, which are standards set by MCPS for the number of students per classroom, by school level (with variations for special programs, such as reduced class size elementary classrooms). To arrive at program capacity, MCPS adjusts the student to classroom ratio at the middle and high school levels to account for variations in scheduling.[1]

MCPS standards for calculating utilization vary from Maryland state standards, in which capacity is based on square footage and different classroom ratios. MCPS views program capacity as a more robust measure, as it allows the district to respond to core capacity issues influenced by changes in enrollment and is adaptive to changing needs and different classroom ratios.

Classroom Type	Classroom Ratio (students:classroom)
Head Start and prekindergarten—2 sessions	40:1
Head Start and prekindergarten—1 session	20:1
Grade K—full-day	22:1
Grade K—reduced class size	18:1
Grades 1–2—reduced class size	18:1
Grades 1–5 Elementary	23:1
Grades 6–8 Middle	25:1*
Grades 9–12 High	25:1*

*Middle school and high school classroom ratios are adjusted according to scheduling constraints, to 21.25 and 22.5, respectively.

Figure 2.2.1 *Classroom Ratios by Classroom Type*

Facility Utilization vs. Staffing Ratios

Staffing ratios (i.e. student-teacher ratio) is a separate measure, not to be confused with program capacity, and not factored into the calculation of school utilization. Staffing ratios are determined through MCPS's annual operating budget process. Staffing needs vary by school level, and according to programmatic needs (including reduced class size elementary schools, special education programs, etc.). While student-teacher ratio is an important measure with regards to educational quality and MCPS budgeting, it is not a factor used to determine existing or future school boundaries or facility planning, and thus is not a focus of this analysis.

For more on staffing ratios, see: MCPS Budget 101: https://www.montgomeryschoolsmd.org/budget-101/index.html

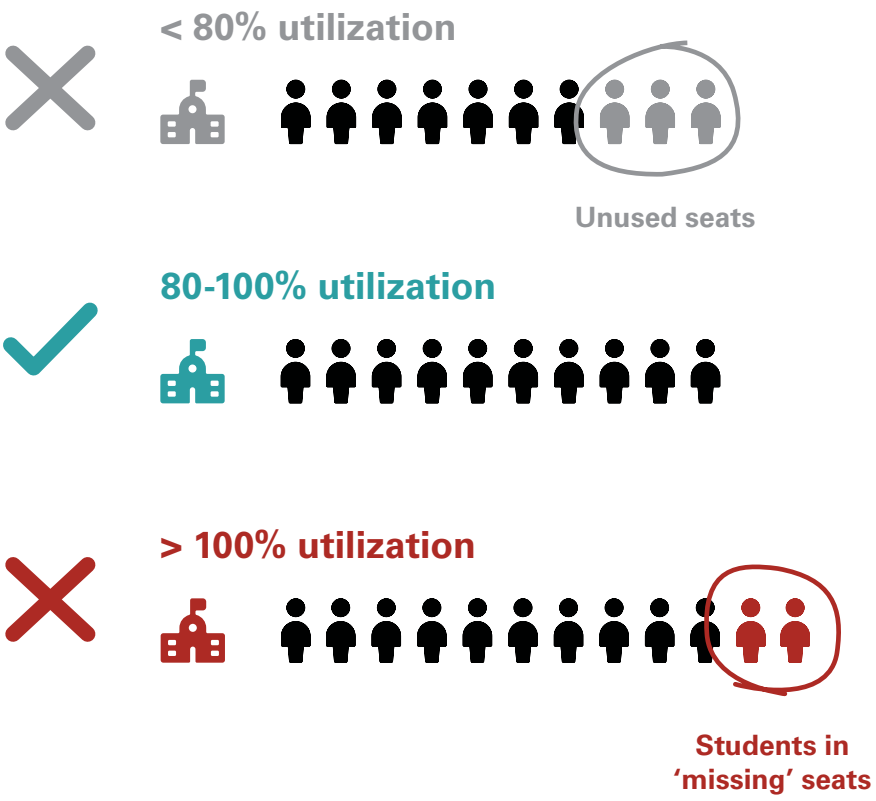
1 See 'School Capacity Calculations.' CIP FY2021-2026. https://www.montgomeryschoolsmd.org/budget-101/index.html

Why is utilization important?

Facility utilization is important for accommodating growth in the county and school system. Given the high number of overutilized schools, wide variation between school utilization rates, and continued growth of the county, facility utilization presents pressing challenges for MCPS.

With over half of all MCPS schools overutilized in the 2019-2020 school year, overutilization is a pervasive challenge for MCPS. In some cases, individual schools or entire clusters are so severely overutilized that the county has placed a moratorium on residential development in particular areas, via the Subdivision Staging Policy.[1] As MCPS works to accommodate this overcrowding through new construction and additions, many students attend class in relocatable classrooms — a temporary strategy to alleviate overcrowding. As total school enrollment grows, some MCPS schools face greater challenges than others. Approximately 19 schools out of 200 general education schools in the district are underutilized (meaning student enrollment is below 80% of the school's program capacity).

See the **Introduction on page 38** for more context about past and present enrollment in MCPS, as well as growth and development in Montgomery County.



1 See: Montgomery Planning. "Subdivision Staging Policy." https://montgomeryplanning.org/planning/functional-planning/subdivision-staging-policy/.

Utilization Methodology

To calculate utilization rates for MCPS schools, we used the enrollment and capacity statistics made available in the 2021-2026 CIP. These statistics reflect the total enrollment for the 2019-2020 school year for all students that attend programming at an MCPS facility, **and are not reflective of current or planned boundary changes for school year 2019-2020**. These numbers include general education students, as well as students in special and continuing education programs and pre-kindergarten students. The entirety of each school's student body was included to reflect the actual utilization of each school. A complete listing of school-level capacity, enrollment, and utilization data for the 2009-2010, 2015-2016, and 2019-2020 school years can be found in **Appendix B2: Utilization Rate for all Schools, 2019-2020 on page 435**.

Relocatable classrooms, which are used as a short-term measure to address overutilization, are treated separately in this analysis. Relocatable classrooms are not included in each school's program capacity. Relocatable classrooms are a temporary measure that often fluctuates based on enrollment. In the case of schools with utilization rates over 100%, it can be assumed that there are students in relocatable classrooms to accommodate the number of students (which outnumbers the school's seats without relocatable classrooms).

A complete list of relocatable classrooms for each school in MCPS can be found in the CIP, including a breakdown of other uses of relocatable classrooms such as daycare, holding schools, office use, and more.[1]

To understand utilization in MCPS we mapped utilization at each school in relation to MCPS facility goals, categorizing schools as follows:

- **within the target range** (80-100% utilization)
- **underutilized** (<80% utilization)
- **somewhat overutilized** (100-120% utilization)
- **highly overutilized** (>120% utilization)

We then analyzed utilization in relation to MCPS minimum thresholds for non-capital or capital expansion of school capacity, based on the number of students enrolled at a school in excess of program capacity. Along with these thresholds, we considered school program capacity in relation to utilization, as well as the relationship between relocatable classrooms and utilization.

1 "Superintendent's Recommended FY2021 Capital Budget and the FY 2021-2026 Capital Improvements Program - Appendix H." 2019. Montgomery County Public Schools. http://gis.mcpsmd.org/cipmasterpdfs/CIP21_AppendixH.pdf.

Next, we compared the utilization rates of schools compared to the nearest five schools (based on road network distance) of the same level (ES, MS, HS), regardless of cluster boundaries. The goal of this portion of the analysis is to determine imbalances in utilization for schools relative to their neighbors, to understand how adjacency between schools may affect overall utilization, and to understand how adjacent schools might vary in utilization.

Finally, we analyzed a range of special conditions in MCPS, to see how they may or may not impact utilization at the scale of the school, cluster, or district.

As in other sections of this report, this analysis considers utilization at the level of the school, and does not examine utilization within particular programs. Choice programs are considered separately as part of **Special Conditions starting on page 17.**

To facilitate closer inspection of schools across MCPS, we have included detailed maps of school locations by geographic zone in **Appendix B1: Geographic Zones on page 428**.

Key Data Sources

2021-2026 CIP Plan (Superintendent's Recommended FY2021 Capital Budget and the FY 2021-2026 Capital Improvements Program)

Fiscal Year 2016 Educational Facilities Mater Plan and Amendments to the FY 2015-2020 Capital Improvements Program

Superintendent's Recommended FY 2011 Capital Budget and the FY 2011- 2016 Capital Improvements Program

Analyses Conducted

A. Utilization Across School Attendance Areas

- Utilization by School Attendance Area (by school level)

B. Utilization and School Facilities

- School Utilization and Thresholds for Adding Capacity
- Utilization by School Program Capacity
- Relocatable Classrooms

C. Utilization and Adjacency

- Utilization Disparities Between Nearest Schools
- Utilization Disparities: Five Closest Schools
- Utilization and Articulation Patterns

D. Utilization Over Time

- Change in Utilization by Cluster, 2010-2020
- Change in Capacity by Cluster, 2010-2020

E. Special Conditions

2.2 Data Analysis Utilization

A. Utilization Across School Attendance Areas

This set of analyses provides a basic snapshot of utilization by school attendance area, at each school level.

Questions:

Which school level(s) experience the greatest challenges with utilization?
What do utilization rates look like across the district today?

Analyses:

A.1 Utilization by School Attendance Area

Insights

1. In terms of overall utilization rates, MCPS elementary schools are 102% utilized, middle schools are 97% utilized and high schools are 103% utilized.

MCPS considers 80-100% to be the target range for utilization. Schools that are less than 80% utilized are considered underutilized. Schools that are more than 100% utilized are considered overutilized.

In this report, we classify schools that are 100-120% overutilized as somewhat overutilized, and schools over 120% utilized as highly overutilized. MCPS relies on information about school utilization to understand where schools are over- or undercrowded and may be in need of interventions to address these challenges (such as relocatable classrooms or school additions).

2. Elementary schools tend to be more overutilized than middle and high schools. At present, 74 elementary schools, 24 middle schools and 13 high schools are overutilized.

Elementary schools are most affected by overutilization. Out of 135 elementary schools, 52 (38%) are somewhat overutilized and 22 (16%) are highly overutilized. Elementary schools that are along and south of US 370 and along I-270 are generally more overutilized.

3. Fewer middle schools are overutilized as compared to elementary and high schools.

Out of 40 middle schools, 12 (30%) are somewhat overutilized and two (5%) are highly overutilized. Middle schools that are south of US 370 and US 29 are generally more overutilized.

4. At present, there are no underutilized high schools, meaning that all high schools are operating either within the target utilization range (80-100%) or are overutilized to some degree (>100%).

Out of the 25 high schools, 11 (44%) are somewhat overutilized and two (4%) are highly overutilized. Areas south of US 370 and east of I-270 seem to show some concentrations of overutilization.

5. Increasing enrollment and development across the district will continue to affect utilization in the years to come.

The Capital Improvements Program (CIP) includes enrollment projections for each year until the 2025-2026 school year. Although these projections do not account for approved new school construction or recent boundary changes, they rely on available demographic data to estimate future school utilization.

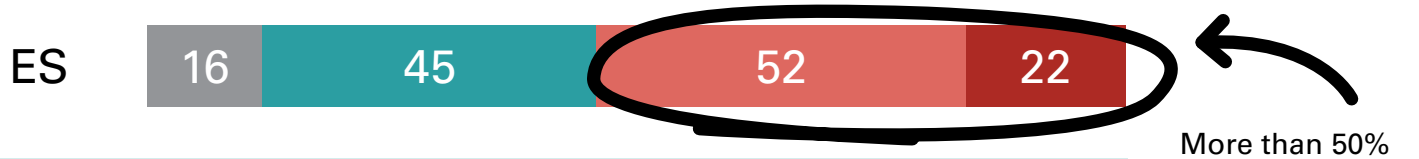
- The projections forecast a slight decrease in the number of elementary schools that are highly overutilized (17, compared to 22 today) and somewhat overutilized (47, compared to 52 today).
- At the middle school level, three additional schools are projected to be somewhat overutilized (15, compared to 12 today), while there is one less school projected to be highly overutilized (one, compared to two today).
- High schools see the most dramatic increase in overutilization, with an additional five schools projected to become highly overutilized by school year 2025 (seven schools, compared to two today).

A.1 Utilization by School Attendance Area

This set of analyses uses school utilization rates, which are calculated by dividing student enrollment by program capacity. The resulting number is the utilization rate, expressed as a percentage. In each map and table, utilization rates are color-coded in relation to MCPS's target utilization range of 80-100%. Attendance areas marked in blue indicate schools **in the target utilization range** (80-100%). Those marked in gray indicate schools that are **underutilized** (below 80%). Those marked in red indicate schools that are **somewhat overutilized** (above 100%), or **highly overutilized** (above 120%). While various capital projects are highlighted, nearly ever cluster in the district has capital projects planned or underway. This utilization data does not account for the anticipated increases in capacity from these projects.

Elementary School Utilization

There are large disparities in school utilization rates across elementary schools.



More than 50% of all elementary schools are overutilized.

Elementary Schools	2019-20	2025-26 Projected*
Districtwide	**102%**	**98%**
Maximum	201%	232%
Minimum	62%	41%
Schools in 80-100% utilization range	45 of 135	48 of 135

*Enrollment projections are based on the 2021-26 CIP Plan and approved capital projects. **Note that enrollment statistics do not account for recent BOE actions to alleviate issues of overutilization at certain schools, and are only reflective of the published FY 2021-26 Capital Improvements Program document.**

Figure 2.2.2 *Number of Elementary Schools by Utilization Rate and School Level*

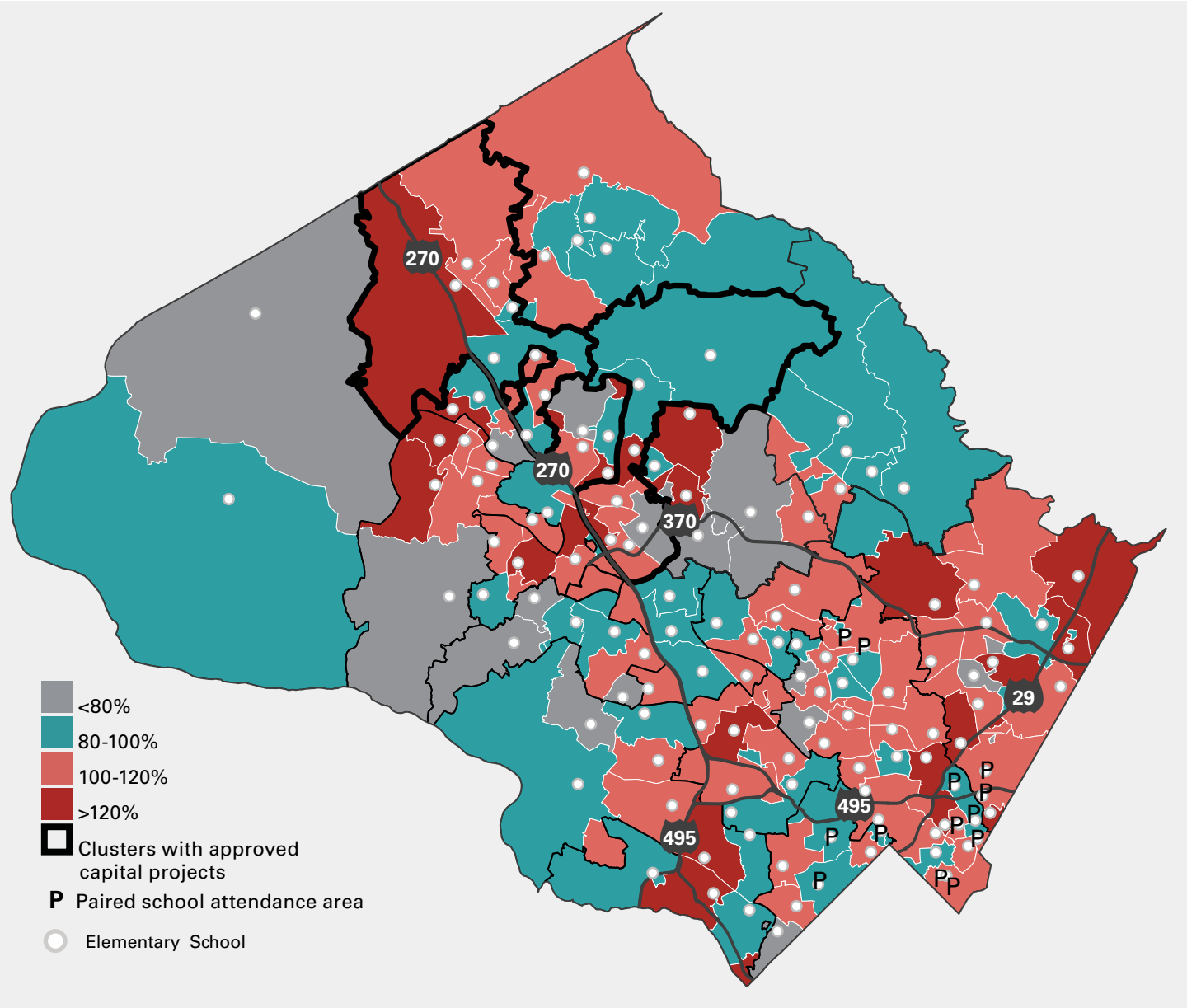


Figure 2.2.3 *Map of Elementary Attendance Areas and Elementary School Utilization Rates*

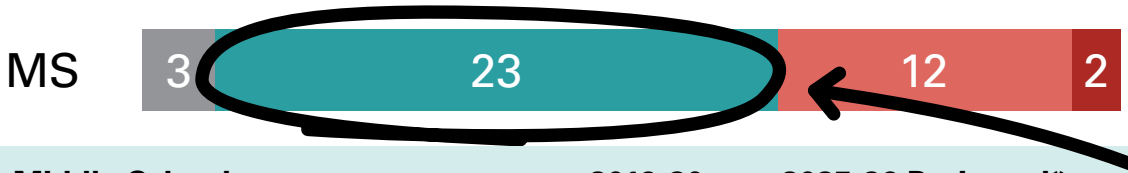
The Clarksburg and Gaithersburg clusters will each be adding one new elementary school to accommodate growth, with planned openings in September 2022. In addition, the 2021-2026 CIP calls for capital and/or expansion projects at 12 elementary schools throughout the district, which will amount to approximately 125 new classrooms added at the elementary school level by 2025.

Elementary schools are still projected to experience utilization challenges across the district in 2025, with the gap expected to widen between the most overutilized and underutilized schools. Only about 36% of elementary schools are expected to be within the target utilization range in 2025.

Detailed maps for utilization of elementary schools can be found in **Appendix B3: Detailed Maps of Utilization (Elementary Schools) on page 440**.

Middle School Utilization

Middle schools have the highest percentage of schools in the target range.



Middle Schools	2019-20	2025-26 Projected*
Districtwide	**97%**	**97%**
Maximum	124%	122%
Minimum	67%	77%
Schools in 80-100% utilization range	23 of 40	22 of 40

* Enrollment projections are based on the 2021-26 CIP Plan and approved capital projects. **Note that enrollment statistics do not account for recent BOE actions to alleviate issues of overutilization at certain schools, and are only reflective of the published FY 2021-26 Capital Improvements Program document.**

Almost 60% of middle schools are within the target utilization range

Figure 2.2.4 *Number of Middle Schools by Utilization Rate and School Level*

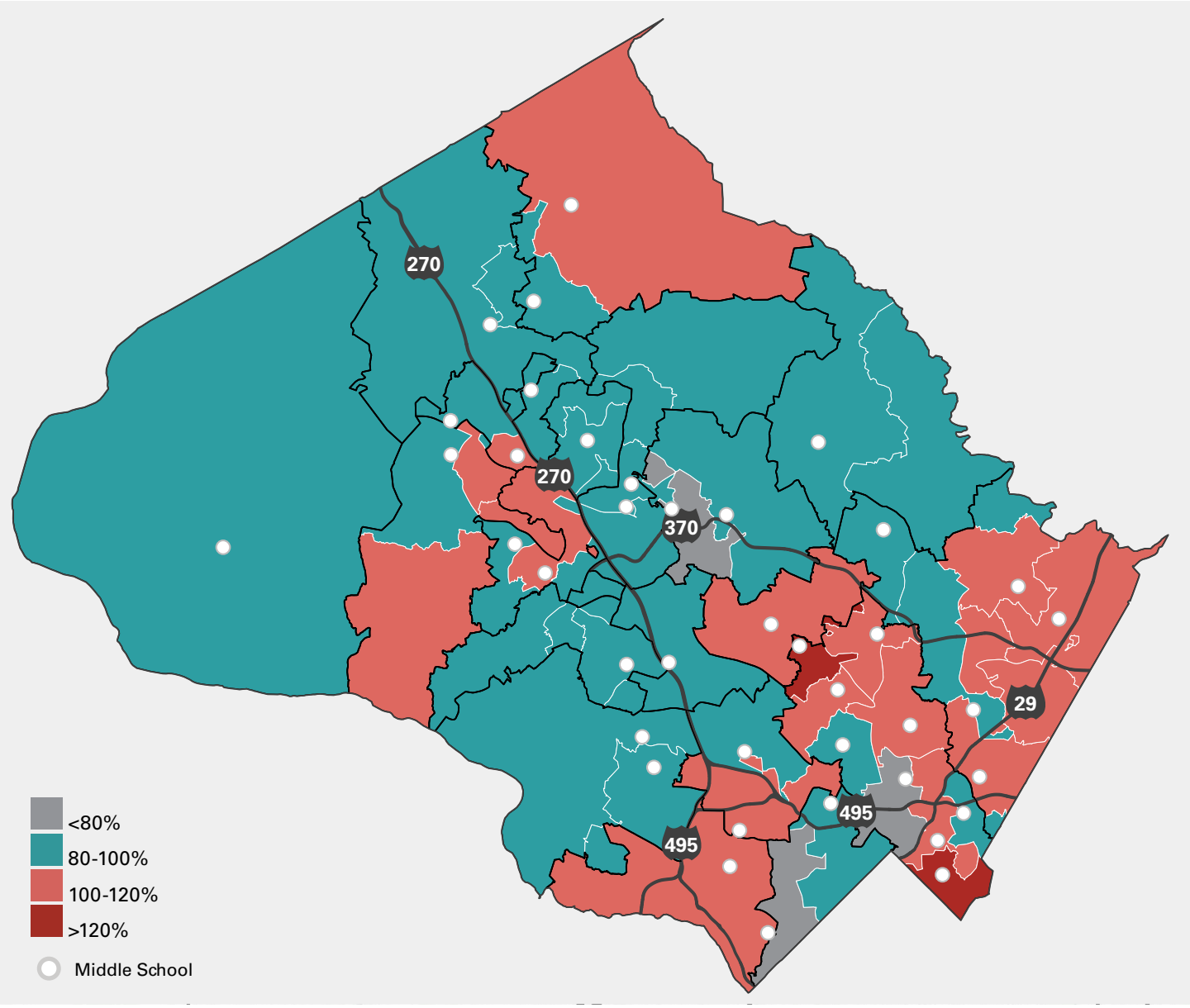


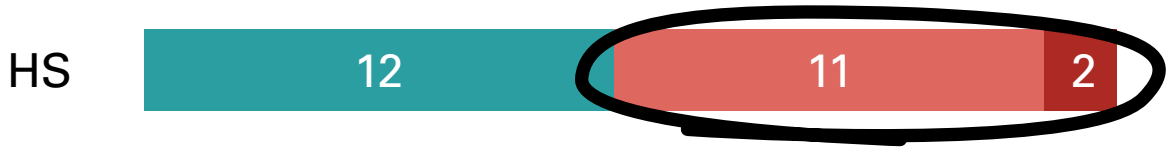
Figure 2.2.5 *Map of Middle School Attendance Areas and Middle School Utilization Rates*

Of the three school levels, middle schools have the highest percentage of schools within the target utilization range. Yet there are still disparities at this level, including instances of underutilized attendance areas directly adjacent to somewhat overutilized ones, as seen in the map above.

Detailed maps for utilization of middle schools can be found in **Appendix B4: Detailed Maps of Utilization (Middle Schools) on page 444**

High School Utilization

Current plans to reopen schools are geared toward alleviating current utilization issues.



High Schools	2019-20	2025-26 Projected*
Districtwide	**103%**	**108%**
Maximum	121%	146%
Minimum	82%	50%
Schools in 80-100% utilization range	12 of 25	9 of 25

* Enrollment projections are based on the 2021-26 CIP Plan and approved capital projects. **Note that enrollment statistics do not account for recent BOE actions to alleviate issues of overutilization at certain schools, and are only reflective of the published FY 2021-26 Capital Improvements Program document.**

Over half of all high schools are overutilized

Figure 2.2.6 *Number of High Schools by Utilization Rate and School Level*

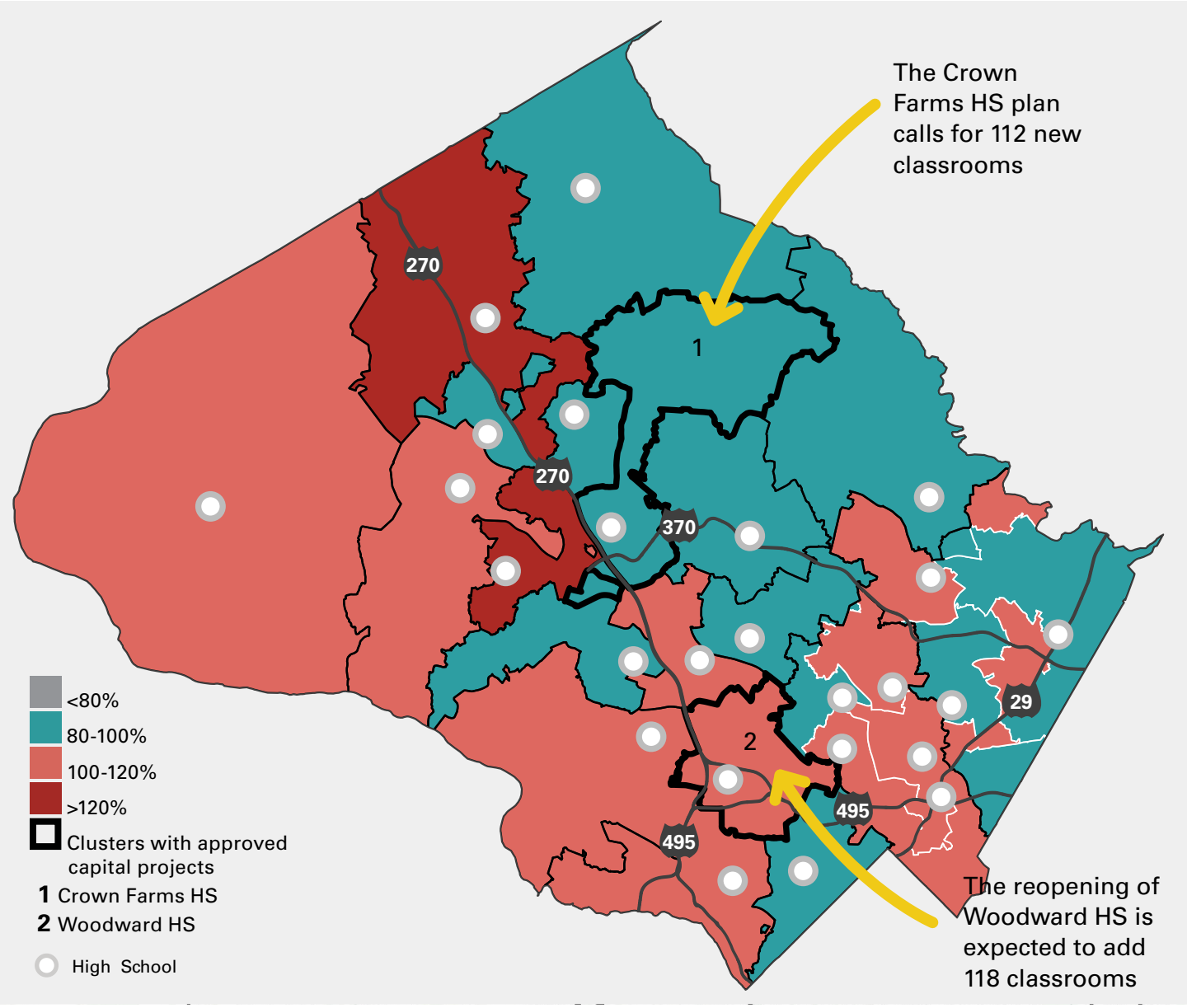


Figure 2.2.7 *Map of High School Attendance Areas and High School Utilization Rates*

The map in Figure 2.2.7 shows the utilization rates of high schools throughout the district. Capital projects are planned to alleviate overcrowding in some clusters (outlined in bold). The opening of Crown Farms (planned for 2025) will serve five clusters (including Gaithersburg, Richard Montgomery, Northwest, Thomas S. Wootton, and Quince Orchard clusters) and is expected to alleviate overcrowding at Quince Orchard (current utilization rate of 108%) by at least 150 students, and at Richard Montgomery (current utilization rate of 120%) by at least 120 students.[1]

The approved reopening of Woodward HS will serve the Walter Johnson cluster and Downcounty Consortium. Woodward HS is expected to add 118 classrooms.[2]

Detailed maps for utilization of high schools can be found in **Appendix B5: Detailed Maps of Utilization (High Schools) on page 448**.

1 "Crown HS (New) (P651909)." n.d. Montgomery County MD Capital Budget. Accessed February 6, 2020. https://apps.montgomerycountymd.gov/BASISCAPITAL/Common/Project.aspx?ID=P651909.

2 CIP Plan 2021-2026: http://gis.mcpsmd.org/cipmasterpdfs/Archive_MP20_EntireBook.pdf.

2.2 Data Analysis Utilization

B. Utilization and School Facilities

This section addresses utilization with respect to different aspects of school facilities themselves, such as when they cross the minimum threshold for temporary or long-term interventions to add capacity. We also examine the relationship between a school's program capacity (in total number of seats) and utilization rate. Finally, we analyze relocatable classrooms as a temporary measure to address overutilization.

Questions:

What are the relationships between school program capacity and utilization?
How do relocatable classrooms relate to utilization, and where are most of the relocatable classrooms?

Analyses:

B.1 School Utilization and Thresholds for Adding Capacity
B.2 School Utilization by School Program Capacity
B.3 Relocatable Classrooms

Insights

1. The *minimum threshold* identifies schools that qualify for capital expansion (i.e. an addition to expand capacity on site or at a nearby school). Currently, 27 elementary schools, three middle schools, and eight high schools are above the minimum threshold set by MCPS.

The CIP identifies thresholds for addressing overutilization, based on number of students enrolled in excess of a school's capacity. This threshold is one way to understand how imbalances in utilization affect the school system.

When an elementary school is more than 92 students overutilized, the school is considered for an addition. The threshold for middle schools is 150 students. For high schools, the threshold is 200 students.

2. Since 2009, the percentage of elementary schools over the minimum threshold has remained the same while the percentage of high schools has increased fourfold.

- At the elementary school level, there are the same percentage of schools over the minimum threshold today as there were 10 years ago. 20% of elementary schools are overutilized by more than 92 students, which is the same percentage as in 2009-2010.
- The number of middle schools over the minimum threshold has grown from one to three schools in the last ten years. Today, eight percent of middle schools are overutilized by more than 150 students.
- In 2009, only two out of 25 high schools (or eight percent) were over the minimum threshold. In 2020, eight out of 25 are. This means 32% of MCPS high schools are overutilized by more than 200 students.

3. Elementary schools tend to be more overutilized the smaller their program capacity.

Elementary schools with fewer than 400 seats tend to be more overutilized than those with more than 400 seats. There are no discernible patterns between utilization and school program capacity for middle and high schools.

4. As of the 2019-2020 school year, there are 434 relocatable classrooms in use in MCPS for the purposes of addressing utilization. Schools with higher utilization rates tend to have higher numbers of relocatable classrooms.

Greater challenges with overutilization are associated with greater numbers of relocatable classrooms. This implies that utilization is being addressed with more relocatables as overutilization increases. Relocatable classrooms are a temporary measure used to address overutilization, and do not factor into a school's program capacity for calculating utilization.

5. Gaithersburg, Northwest, Blair, and Clarksburg have the most relocatable classrooms of all high school clusters.

All of the relocatable classrooms in the Gaithersburg cluster serve elementary schools. The relocatable classrooms in the Northwest and Clarksburg clusters serve elementary schools as well as the high school. Clarksburg HS has 16 relocatable classrooms, the second highest number of any single school in the district. Relocatable classrooms in the Blaire cluster serve schools at the elementary and middle school levels, as well as Blaire HS.

B.1 School Utilization and Thresholds for Adding Capacity

In MCPS, larger elementary schools are less likely to experience utilization challenges. The smallest elementary schools in the district, on the other hand (those with a capacity of 400 or fewer seats) are considerably more likely to experience overutilization, and much less likely to fall within MCPS's target utilization range.

The CIP identifies thresholds for addressing overutilization, based on number of students enrolled in excess of the school's capacity.[1] When an elementary school is overutilized by fewer than 92 students, MCPS considers non-capital strategies for balancing utilization, including relocatable classrooms. When an elementary school is more than 92 students overutilized, the school is considered for an addition on-site or at nearby schools. When, within a cluster, elementary schools are overutilized by a total of 500 students or more, MCPS considers construction of a new school. MCPS uses similar thresholds scaled to middle school and high school utilization rates to evaluate the need for expanded capacity.[2]

The table below demonstrates the proportion of MCPS elementary schools above and below the 92 student utilization threshold, by year. Since the 2009-2019 school year, MCPS has constructed five new elementary schools. Yet there are still 27 elementary schools over the utilization threshold as of the 2019-2020 school year. This amounts to five fewer elementary schools over the threshold than there were in 2014-2015. See **Appendix B6: Table: Over and Under the Minimum Threshold, by School on page 452** for a list of schools in each of the categories presented in the table below.

Summary Statistics for Adding Capacity	ES			MS			HS		
	09-10	14-15	**19-20**	09-10	14-15	**19-20**	09-10	14-15	**19-20**
# Over Threshold	26	32	**27**	1	2	**3**	2	2	**8**
# Under Threshold	104	101	**108**	37	36	**37**	23	23	**17**
Total # of Schools	130	133	**135**	38	38	**40**	25	25	**25**
Percentage Over Threshold	20%	24%	**20%**	3%	5%	**8%**	8%	8%	**32%**
Percentage Under Threshold	80%	76%	**80%**	97%	95%	**93%**	92%	92%	**68%**

Figure 2.2.8 *Table: Over and Under the Minimum Threshold, by School Level*

1 See: "Superintendent's Recommended FY2021 Capital Budget and the FY 2021-2026 Capital Improvements Program." 2019. Montgomery County Public Schools. http://gis.mcpsmd.org/cipmasterpdfs/CIP21_EntireBook.pdf.

2 Middle schools (150 seats); High schools (200 seats)

At the middle school level, the number of schools above the minimum threshold has remained low compared to the elementary and high school levels. As of the 2019-2020 school year, only three middle schools are above the 150 seat middle school threshold.

At the high school level, the district has seen a sharp increase in schools over the utilization threshold since 2014-2015, with nearly a third of high schools now overutilized to the point of being eligible for capital expansion. Each of the eight high schools that exceed the 200 seat threshold currently experiences a deficit of greater than 250 seats. There are currently four planned addition or renovation projects that address overutilization at the high school level.

School Level	FY2021-2026 Planned Projects*
Districtwide	**25**
Elementary School	15
Middle School	6
High School	4

*Includes classroom additions and renovations, as cited in FY2021-2026 CIP.

Figure 2.2.9 *Table of Planned Projects by School Level*

B.2 School Utilization by School Program Capacity

This analysis considers the relationships between school utilization and school program capacity (in other words, the size of the school in terms of total number of seats) at the elementary, middle, and high school level. For detailed school level data on utilization and program capacity, please see **Appendix B2: Utilization Rate for all Schools, 2019-2020 on page 435**

Elementary Schools

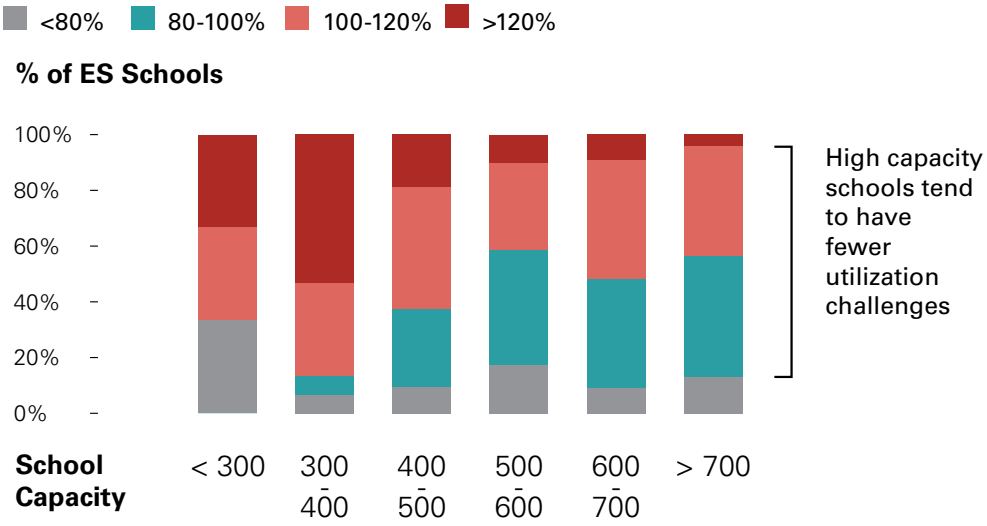


Figure 2.2.10 *Proportion of Elementary Schools by Utilization Rate and Capacity Elementary Schools*

At the elementary school level, schools with higher program capacity tend to have fewer utilization challenges: a smaller proportion of large schools are somewhat or highly overutilized compared to schools with smaller program capacities. However, figure below illustrates that there are relatively few elementary schools with fewer than 400 seats compared with schools with over 400 seats, signifying that school size is only one factor to consider when discussing overutilization at the elementary school level.

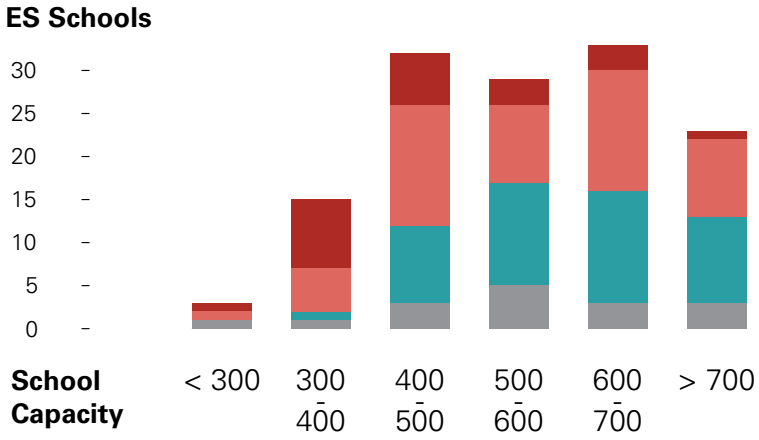


Figure 2.2.11 *Number of Elementary Schools By Utilization Rate and Capacity*

Middle Schools

At the middle school level, utilization is not as concentrated in either larger or smaller schools. In fact, highly overutilized schools only fall within the middle size category of 900-1000 seat total capacity (shown in figure below). The middle schools with the largest and smallest program capacities across the district are within the target utilization range, again suggesting that the total capacity of a school is only one factor to consider to understand utilization. Figure below shows that the majority of middle schools fall within the average program capacity range of 900-1000 seats.

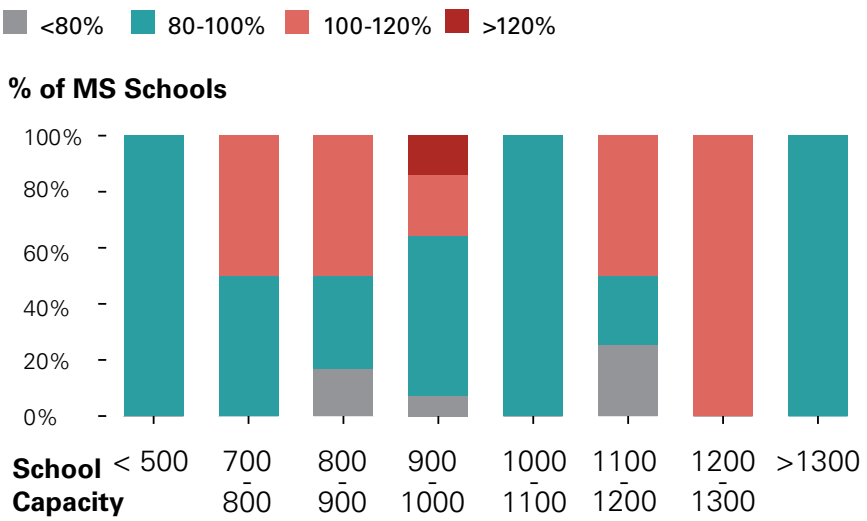


Figure 2.2.12 *Proportion of Middle Schools by Utilization Rate and Capacity*

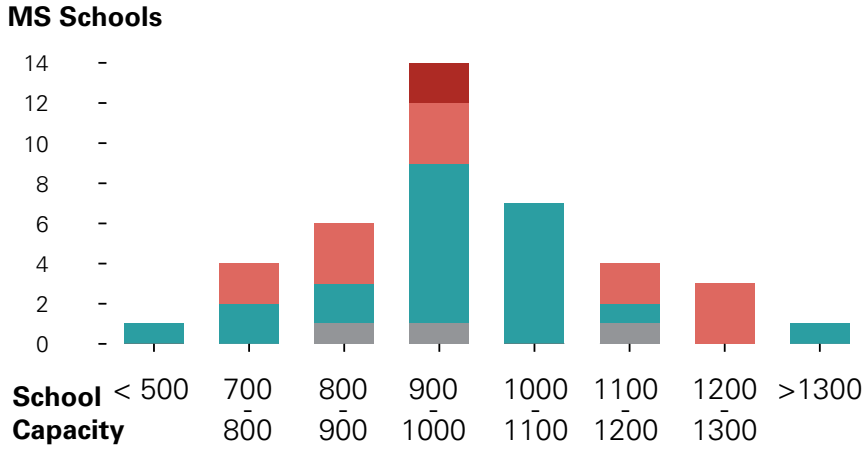


Figure 2.2.13 *Number of Middle Schools by Utilization Rate and Capacity*

High Schools

At the high school level, there is no clear relationship between utilization challenges and school program capacity: some of both the largest and the smallest schools in the district are somewhat overutilized. Larger schools (between 1,750-2,000 and 2,000-2,250 capacity) are the only cases in which schools are highly overutilized. Just over half (13 of 25) high schools fall within this category of program capacity, as shown in **Figure 2.2.15** below.

At each school level in MCPS, there is a correlation between school program capacity (number of seats) and population density in the attendance area: bigger schools are in general located in denser areas. This relationship is strongest at the elementary school level, but remains true at the middle school and high school level.

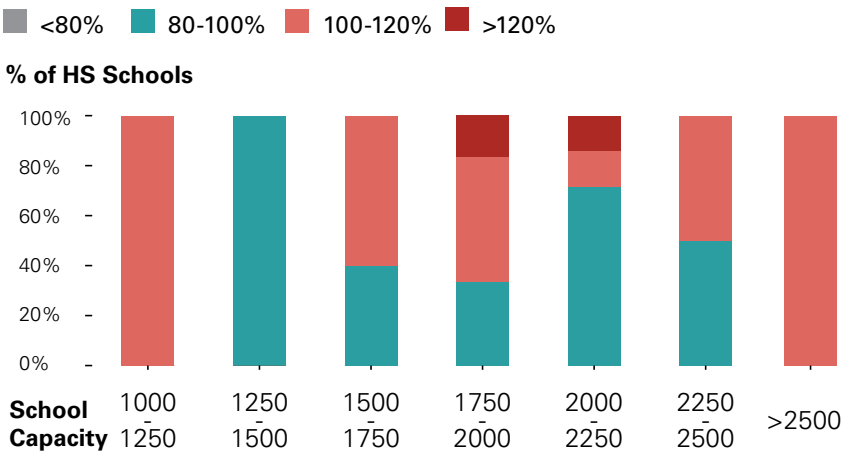


Figure 2.2.14 *Proportion of High Schools by Utilization Rate and Capacity*

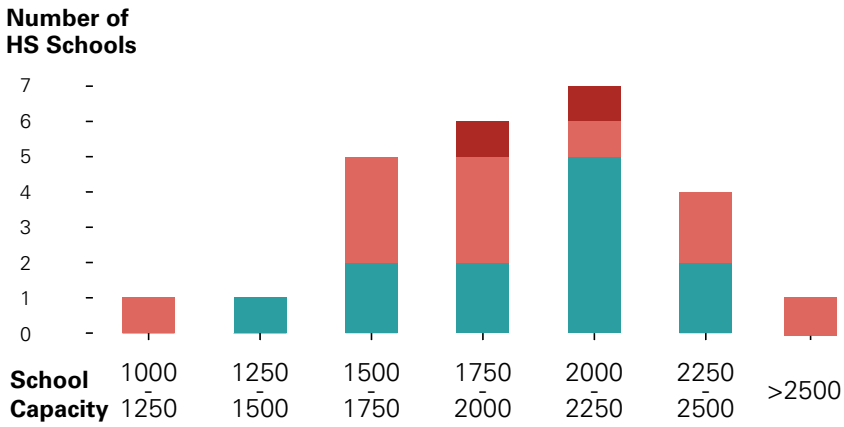


Figure 2.2.15 *Number of High Schools by Utilization Rate and Capacity*

B.3 Relocatable Classrooms and Utilization Rates

Relocatable classrooms are a temporary measure to alleviate utilization issues that are too minor to qualify for school expansion or construction, or on a short-term basis while MCPS determines the feasibility of capital expansion.

As of the 2019-2020 school year, there are 434 relocatables in use in MCPS for the purposes of addressing overutilization. The majority of relocatables—328 total-- are in use at the elementary school level. 24 relocatable classrooms are in use at the middle school level, and 80 are in use at the high school level. When calculating a school's utilization rate, MCPS does not factor in relocatable classrooms as part of a school's program capacity, yet MCPS must provide a seat for each student. Therefore, in the case of schools with a utilization rate of over 100%, it is very likely that there are students in relocatable classrooms.

Figure 2.2.16 shows the total number of relocatables in use across MCPS, compared to the utilization rates at the schools at which they are located. There is a clear positive correlation between the number of relocatable classrooms and the rate of overutilization, illustrating the use of reloctables to address utilization. More information about relocatable classrooms can be found in the 2021-26 CIP.[1]

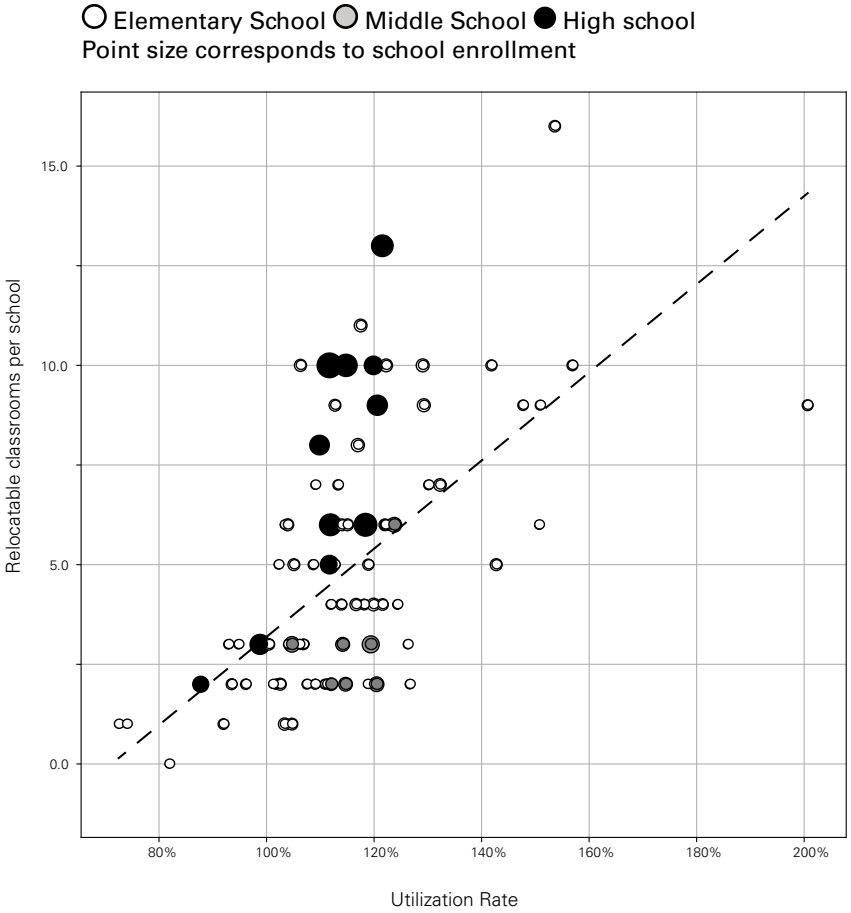


Figure 2.2.16 *Number of Relocatable Classrooms and Utilization Rates*

1 See 2021-26 CIP, Appendix H at http://gis.mcpsmd.org/cipmasterpdfs/CIP21_AppendixH.pdf

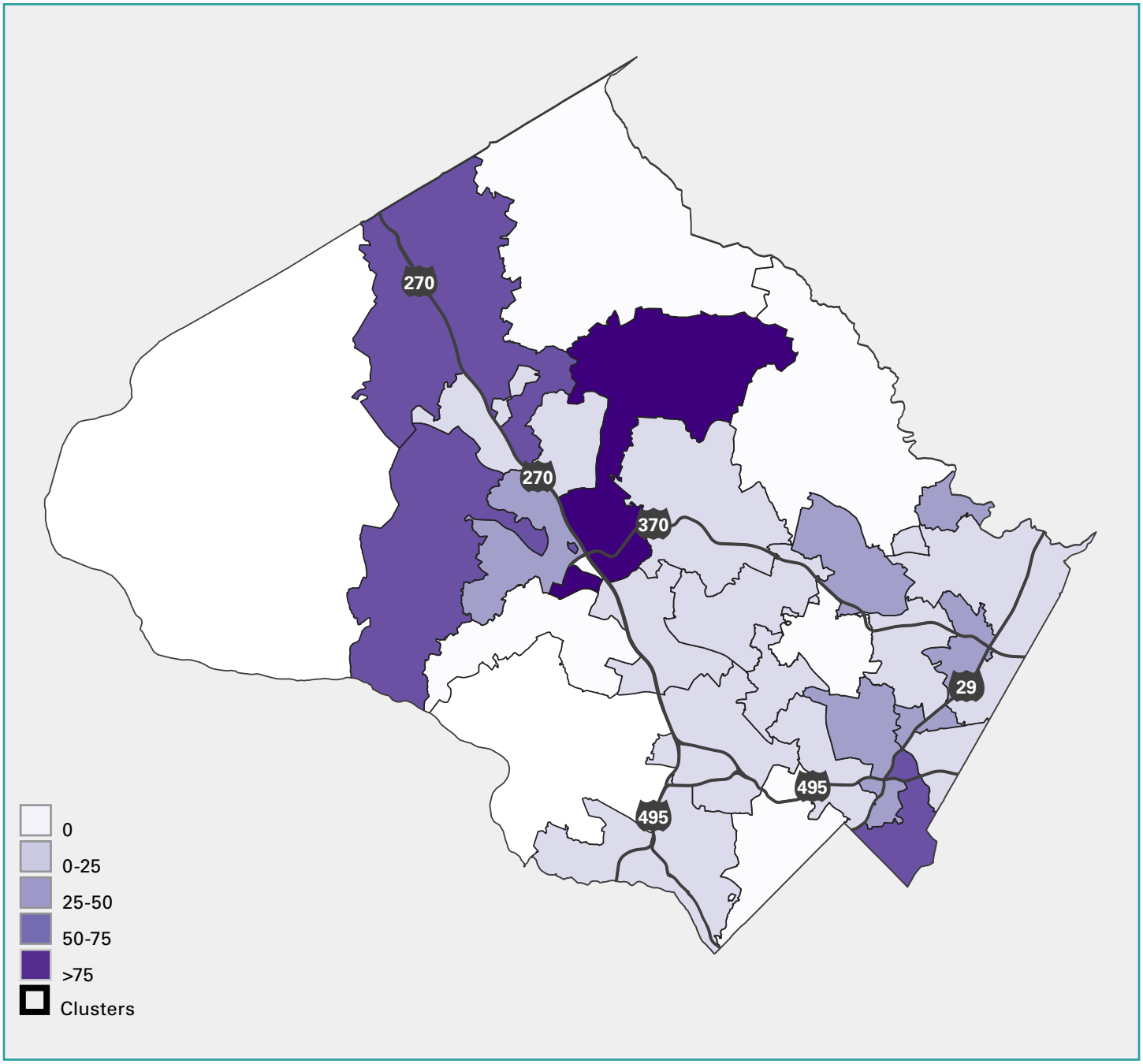


Figure 2.2.17 *Map of Relocatable Classrooms by Cluster*

The map above illustrates the total number of relocatable classrooms at all school levels, by high school cluster. Gaithersburg, Northwest, Blair, and Clarksburg have the most relocatable classrooms of all high school clusters. All of the relocatable classrooms in the Gaithersburg cluster serve elementary schools. The relocatable classrooms in the Northwest and Clarksburg clusters serve elementary schools as well as the high school. Clarksburg HS has 16 relocatable classrooms, the second highest number of any single school across the district. Relocatable classrooms in the Blaire cluster serve schools at the elementary and middle school levels, as well as Blaire HS.

2.2 Data Analysis Utilization

C. Utilization and Adjacency

The section considers the utilization rates of schools relative to their neighboring schools. These analyses were conducted to gain insights as to whether utilization is well-balanced across adjacent attendance areas. We look at utilization disparities between nearby schools—including schools across cluster boundary lines.

Questions:

How similar are the utilization rates of neighboring schools?
To what degree are the current disparities in utilization across the district localized within adjacencies (or schools located near each other)?

Analyses:

C.1 Comparing Utilization at Nearest Schools
C.2 Utilization Disparities Across Five Nearest Schools
C.3 Utilization Across Articulation Patterns

Insights

1. Throughout the district, there are many instances where highly overutilized schools are in close proximity to schools that are either underutilized or within the target utilization range.

This suggests that there may be cases where there is enough capacity among relatively nearby schools to address utilization challenges.

2. Many schools in the district have very different utilization rates from their nearest schools. One way to understand the disparities between nearby schools is to compare the utilization rate of each school in the district with that of its closest school:

- **Elementary schools**: at the elementary level, the widest gap (or, differential) in utilization rates between two nearest schools is 77 percentage points. In this case, a 156.9% overutilized school is nearest to a 79.5% underutilized school.
- **Middle schools**: at the middle school level, the largest utilization differential between two nearest schools is 43 percentage points. In this case, a 119.4% overutilized school is nearest to a 73.1% underutilized school.
- **High schools**: the largest utilization differential between two nearest high schools is 29 percentage points. In this case, a 121.5% overutilized school is nearest to a 92.6% utilized school.

3. Comparing the difference of only two schools may give us an incomplete picture of the utilization conditions around a school. It is informative to look at disparities among groups of closest schools. In this report, we compare each school's utilization rate to the utilization rates of its five nearest schools, to better understand the disparities in utilization between neighboring schools. This kind of analysis is called dissimilarity.

Dissimilarity is a way to measure, statistically, how different one factor is from a group of its peers within a particular geographic area. In this case, dissimilarity

provides a way to rate how unlike the utilization rate of one school is from the average of that school and its five nearest neighbors. Looking at the five nearest schools to each school can be instructive to show whether a given school is an outlier in terms of utilization relative to its neighbors, or whether utilization rates are high in a given area. Dissimilarity is expressed as a value between 0 and 1 – where 1 is the most dissimilar.

4. Elementary schools tend to be more dissimilar from their nearest neighbors than middle and high schools.

Across the district, adjacent elementary schools are more likely to have very dissimilar utilization rates than their five nearest neighbors. At the middle and high school levels, there is much less variation between neighboring schools

There are 26 elementary schools, out of 135 in total, whose utilization rates are very dissimilar from their five nearest elementary schools (20 percentage points or more).

- Among these 26 elementary schools, all are overutilized and none of their nearest schools are overutilized. These 26 schools represent about 20% of all MCPS elementary schools.

There are 6 middle schools, out of 40 in total, whose utilization rates are very dissimilar from their five nearest middle schools (20 percentage points or more).

- Among these six middle schools, all are somewhat overutilized and all of their nearest schools either underutilized or within the target range. These six middle schools represent 15% of all MCPS middle schools.

There are only 2 high schools, out of 25 in total, whose utilization rates are very dissimilar from their five nearest high schools (20 percentage points or more).

- Only 8% of MCPS high schools are dissimilar from their nearest five schools by 20 percentage points or more.

5. There are three underutilized middle schools in MCPS. All three of them are adjacent to middle schools that are somewhat overutilized.

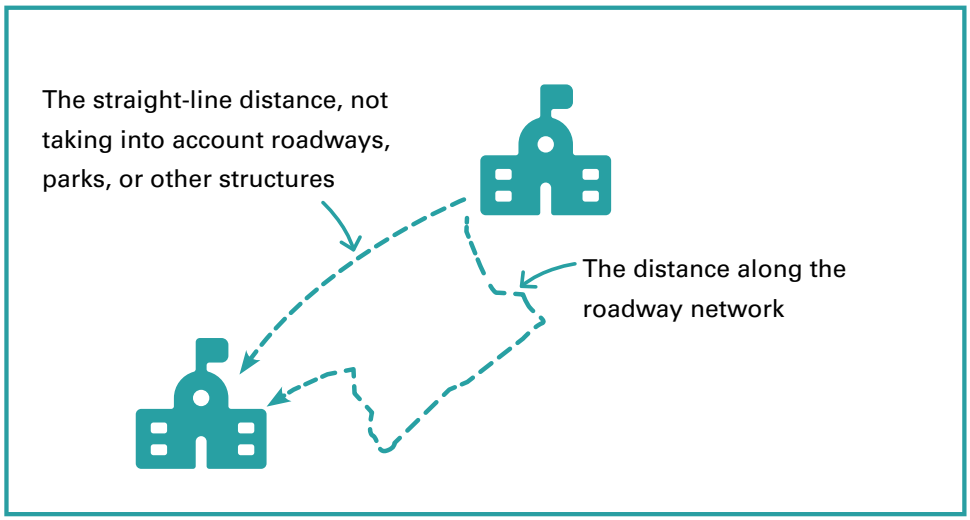
Utilization varies across and between school attendance area boundaries. Adjacent schools often have considerably different utilization rates. This section includes three analyses:

Analysis 3.1 compares the utilization rates of each school's nearest school. The nearest school has been identified based on roadway distance, regardless of what cluster each school is in.

Analysis 3.2 compares the difference in utilization rates between each school and its five nearest schools based on roadway distance, regardless of what cluster each school is in. It is important to consider a wider number of schools than just the nearest school for several reasons, including the understanding that any boundary revisions may affect multiple attendance areas and factors such as "island assignments" that complicate the idea of the "nearest" school.

Analysis 3.3 focuses on the feeder pattern of elementary to middle schools. This section compares the utilization rates and capacity at underutilized middle schools with adjacent middle schools to identify groups of schools where total shared capacities may be sufficient to alleviate utilization issues.

C.1 Comparing Utilization at Nearest Schools



The scatter plot on **page 127** locates every elementary, middle, and high school in MCPS, with the x-axis representing a school's utilization rate and the y-axis representing the utilization rate of the nearest school. A full list of schools, utilization rates, and roadway distance to the nearest school can be found in **Appendix B7: Table: Schools, Utilization Rates, and Roadway Distances to Nearest School on page 454**.

Certain patterns emerge in this analysis across the district, some of which are identified with notes on the scatter plot. It is also important to remember the four utilization categories:

- Underutilized: > 80%
- Within the target range: 80 – 100%
- Somewhat overutilized: 100 – 120%
- Highly overutilized: < 120%

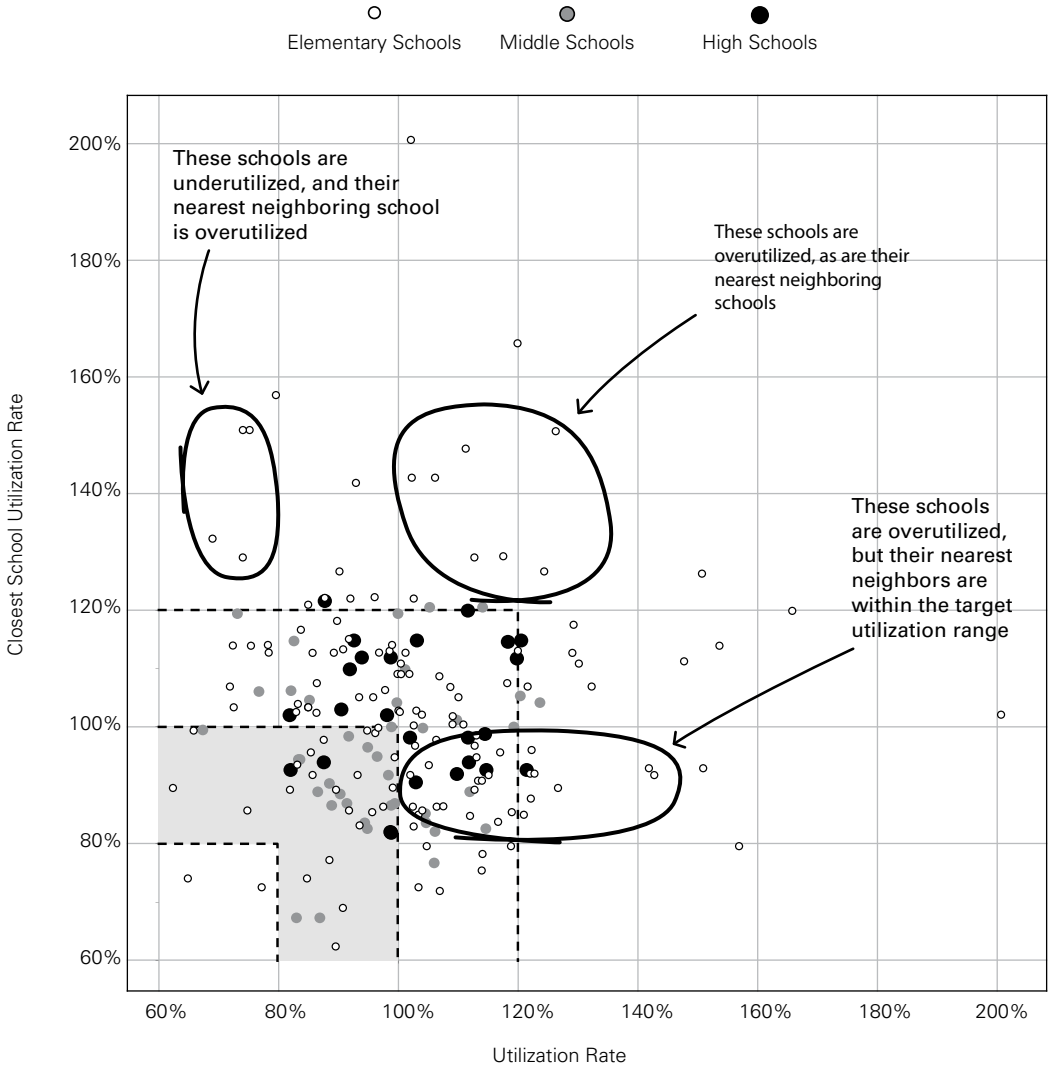


Figure 2.2.18 *School Utilization Rates Compared to Nearest Neighboring School*

The plot in **Figure 2.2.18** above expresses the relationship between the utilization rate of a school and the utilization rate of its nearest school (e.g. nearest elementary school to elementary school, nearest middle school to middle school, and nearest high school to high school). Distance between schools is based on roadway distance. Certain patterns emerge among these schools. Where schools

in the lower left and upper right quadrants are very similar to their neighbor, they are both either within the target range or overutilized.

The upper left and lower right quadrants paint a different picture. There are numerous cases where the utilization rate at a given school is significantly higher or lower than that of its nearest neighbor. The next section explores the relationships between the utilization rate of each school and the nearest neighboring school in greater detail.

In the analyses that follow, we examine the pairs of nearest schools in the district whose utilization rates vary by 20 percentage points or more.

It is important to bear in mind that these disparities represent a snapshot in time, and do not factor in recent or upcoming boundary studies or changes, nor do they factor in enrollment projections. Utilization rates vary over time for a number of reasons, including population growth and new school constructions and additions. Changes in utilization over time are discussed in more detail in **Utilization Over Time,** starting on **page 147.**

Utilization Disparities Between Nearest Elementary Schools

Figure on the following shows all pairs of closest elementary schools in MCPS with disparities in utilization rates of 20% or more. The attendance areas of these pairs of elementary schools are shown in the map on the following page. Three notes to bear in mind when considering this table:

- There are no instances in which both schools are overutilized.
- Roadway distances between the most disparate elementary schools and their nearest school are listed and range from 0.95 miles to 2.81 miles, with one outlier that has a distance of over seven miles (a detailed table of distances between each school and its nearest school can be found in **Appendix B7: Table: Schools, Utilization Rates, and Roadway Distances to Nearest School on page 454**)
- There may be occasions when School A's nearest school is School B, but School B's closest school is not School A. This is often the case when a school is near the edge of Montgomery County.

School	Utilization Rate (2019-20)	Capacity (2019-20)	Nearest School	Nearest school utilization rate	Capacity (2019-20)	Distance between schools (mi)	Difference in utilization rates
Page	156.89%	392	Cannon Road	79.54%	518	1.53	0.77
Mill Creek Towne	150.89%	336	Flower Hill	92.90%	493	2.07	0.58
Forest Knolls	142.72%	529	Glen Haven	91.73%	556	1.17	0.51
Strawberry Knoll	141.83%	459	Flower Hill	92.90%	493	0.99	0.49
Westover	118.80%	266	Cannon Road	79.54%	518	1.83	0.39
Rosemont	113.91%	568	Washington Grove	75.37%	613	1.15	0.39
Bannockburn	126.65%	364	Wood Acres	89.52%	725	1.48	0.37
Lake Seneca	120.94%	425	Waters Landing	84.92%	776	1.41	0.36
Watkins Mill	114.04%	641	Stedwick	78.20%	688	0.95	0.36
Germantown	106.91%	304	McAuliffe	71.85%	771	1.16	0.35
Resnik	122.11%	493	Laytonsville	87.70%	447	2.43	0.34
Bethesda	118.93%	560	Bradley Hills	85.37%	663	1.66	0.34
Diamond	116.64%	679	Brown Station	83.71%	761	1.00	0.33
Ritchie Park	103.35%	388	Cold Spring	72.49%	458	0.99	0.31
Burtonsville	122.72%	493	Fairland	91.98%	648	2.81	0.31
Greencastle	122.00%	591	Fairland	91.98%	648	1.51	0.30
Fields Road	111.95%	381	Stone Mill	84.73%	694	2.28	0.27
JoAnn Leleck ES at Broad Acres	122.24%	715	Roscoe Nix*	96.02%	503	1.27	0.26
Jackson Road	104.72%	699	Cannon Road	79.54%	518	1.52	0.25
Olney	112.71%	606	Greenwood	89.21%	584	1.24	0.23
Arcola	115.05%	651	Glen Haven	91.73%	556	1.19	0.23
Rock Creek Forest	113.94%	667	Rosemary Hills*	90.76%	628	0.88	0.23
Woodlin	113.29%	489	Rosemary Hills*	90.76%	628	0.69	0.23
Ashburton	116.98%	789	Wyngate	95.62%	776	1.47	0.21
Ride	107.49%	467	William B. Gibbs Jr.	86.37%	719	1.63	0.21
Piney Branch*	106.38%	611	East Silver Spring	86.31%	577	1.12	0.20

Figure 2.2.19 *Table of Utilization Disparities Between Nearest Elementary Schools*
**Indicates paired elementary school (K-2 or 3-5)*

Of the 26 schools included in the left column, 16 are somewhat overutilized. Of these 16 schools, six are closest to schools below the target utilization rate.

Ten of the schools in the left column are highly overutilized. One of these schools is closest to a school just below the target utilization range, while the other nine are closest to schools within the target utilization range.

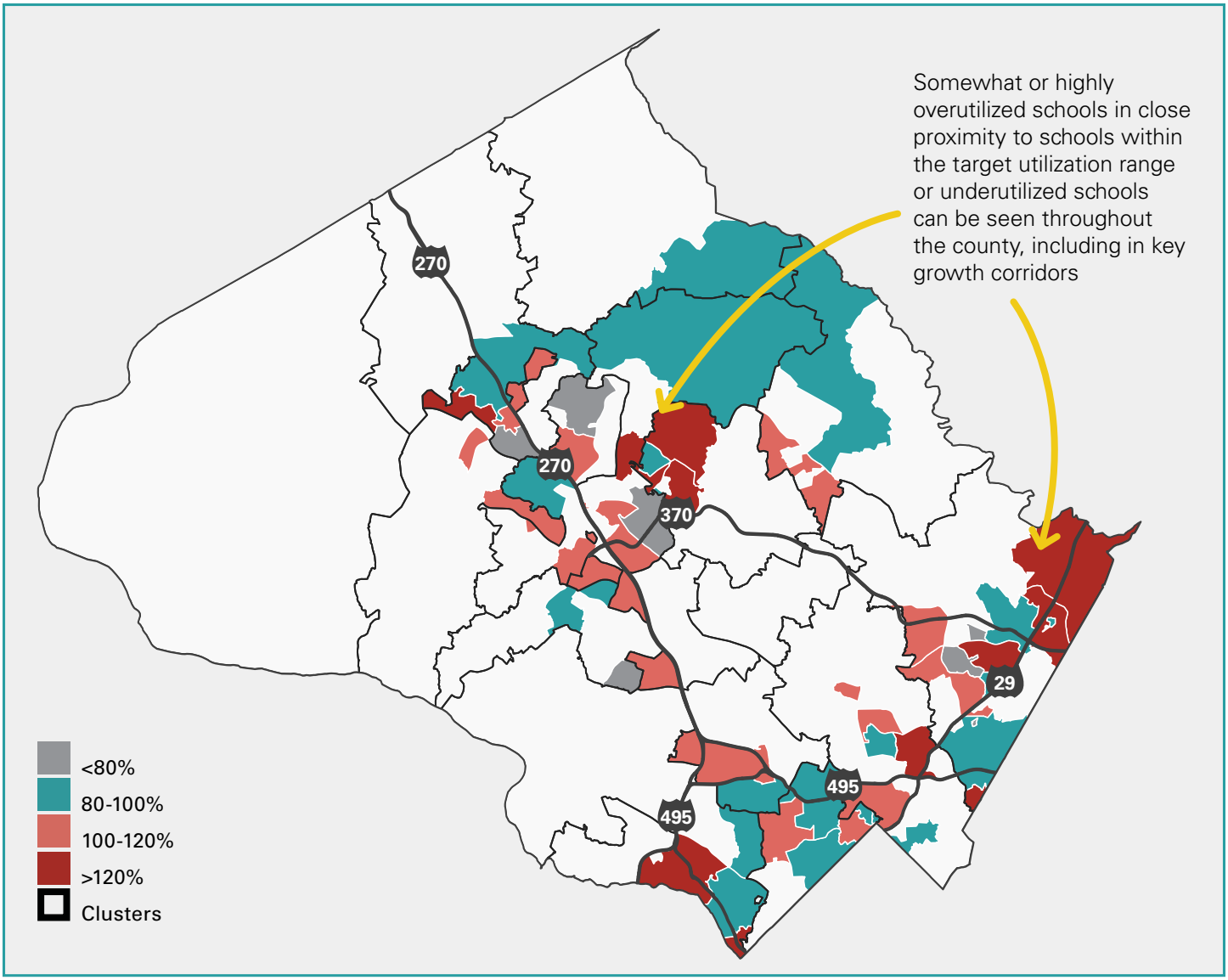


Figure 2.2.20 *Map of Utilization Disparities Between Nearest Elementary Schools*

The map above shows the pairs of elementary schools with differences of 20% or more in utilization rates. These pairs of schools are indicated in the first and fourth columns of the table on the previous page.

This map illustrates that imbalances between adjacent school utilization rates are found throughout the district and are not confined to schools in a certain region. Although this map shows disparities of 20% or more, there are significant disparities across the district. Within all but two high school clusters, there is at least one instance where a pair of neighboring elementary schools has a disparity of 10% or more in utilization rates. In multiple cases, overutilized schools located right along the dense I-270 corridor adjoin elementary school attendance areas that are in the target utilization range or are underutilized. In the US 29 Corridor, another key growth area, it is apparent that many elementary schools experience imbalances in utilization with nearby schools.

Utilization Disparities Between Nearest Middle Schools

The table below highlights the middle schools with a 20% difference or greater in utilization rates from their nearest school. The pairs of schools listed in the table are shown on map on the following page. Three notes to bear in mind when considering this table:

- There are no instances in which both schools are overutilized.
- Roadway distances between the most disparate middle schools and their nearest school range from 1.89 miles to 3.6 miles (a detailed table of distances between each school and its nearest school can be found in **Appendix B7: Table: Schools, Utilization Rates, and Roadway Distances to Nearest School on page 454**).
- There may be occasions when School A's nearest school is School B, but School B's closest school is not School A. This is often the case when a school is near the edge of Montgomery County.

School	Utilization Rate (19-20)	Capacity (2019-20)	Nearest school	Nearest school utilization rate	Capacity (2019-20)	Distance between schools (mi)	Difference in utilization rates
Westland	73.12%	1105	Pyle*	119.38%	1285	2.83	0.46
Loiederman	114.70%	871	Newport Mill	82.59%	850	1.95	0.32
Lee	106.05%	727	Sligo	76.73%	941	2.17	0.29
Lakelands Park	106.19%	1130	Ridgeview	82.09%	955	1.89	0.24
Baker	112.01%	741	Hallie Wells	88.90%	982	3.60	0.23
Clemente	104.71%	1231	King	83.59%	914	2.94	0.21

Figure 2.2.21 *Table of Greatest Disparities Among Nearby Middle Schools (2019-20)*

**** Note that enrollment statistics do not account for recent BOE actions to alleviate issues of overutilization at certain schools, and are only reflective of the published FY 2021-26 Capital Improvements Program document.*** *Pyle MS has current expansion plans that are not accounted for in these calculations.*

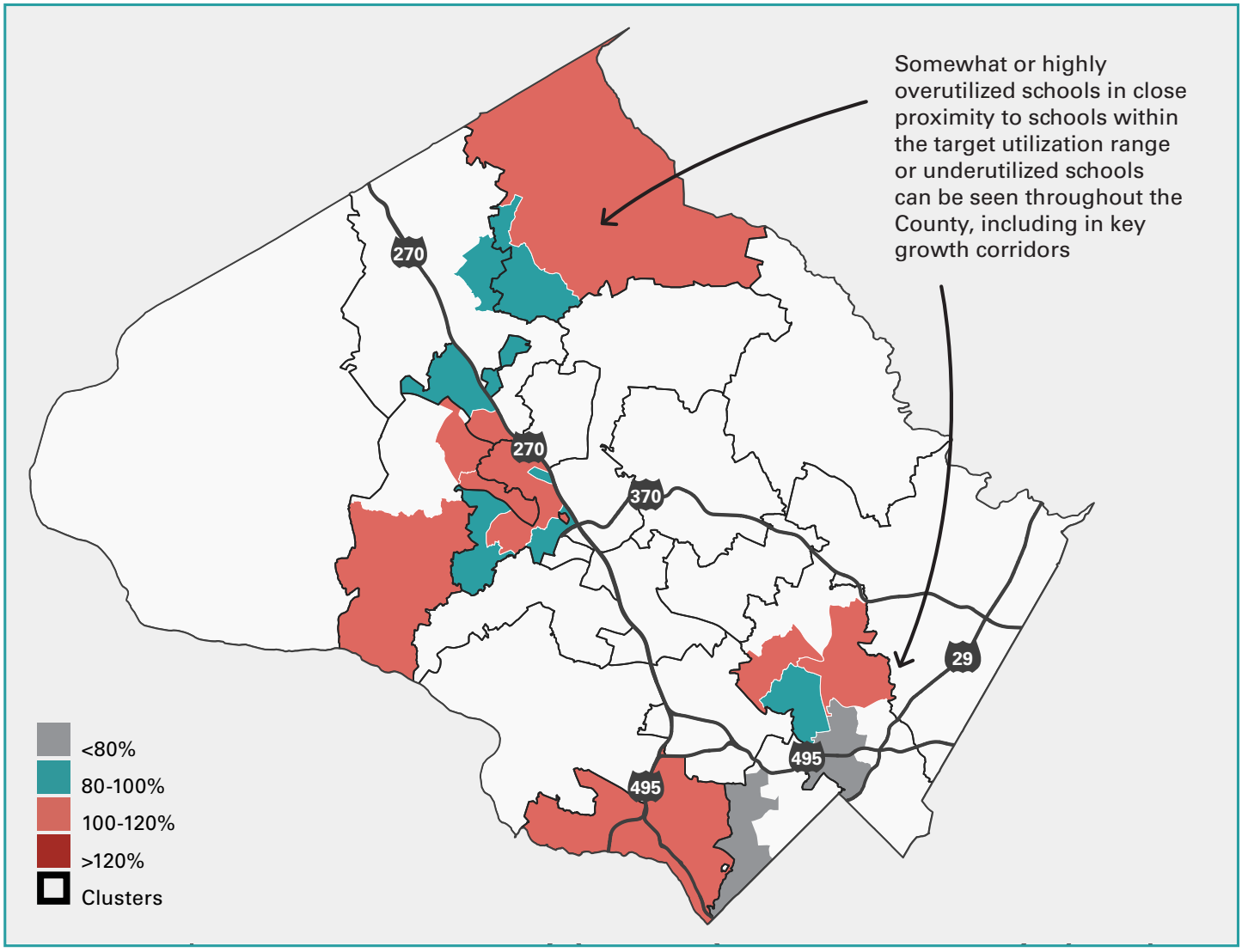


Figure 2.2.22 *Map of Utilization Disparities Between Nearest Middle Schools*

The map above shows the attendance areas of middle schools with 20% differences or more in utilization rates, along with their nearest schools (schools indicated in the first and third columns of the table on the previous page). The utilization disparities of nearest middle schools are primarily focused in different geographic areas across the district. Of those shown, none of the middle schools are highly overutilized, and there is only one middle school that is underutilized.

Utilization Disparities Between Nearest High Schools

The table below highlights the high schools with large disparities in utilization rates from their nearest high schools (20% or more). The attendance areas of the high schools listed in the table are shown on the facing page map. Three notes to bear in mind when considering these tables:

- In both pairs of schools, one school is somewhat or highly overutilized, and the other is in the target utilization range.
- Roadway distances between the most disparate high schools and their nearest school are listed and range from 2.8 miles to 4.72 miles (a detailed table of distances between each school and its nearest school can be found in **Appendix B7: Table: Schools, Utilization Rates, and Roadway Distances to Nearest School on page 454**).
- There may be occasions when School A's nearest school is School B, but School B's closest school might not be School A. This is often the case when a school, like School A described above, is near the boundary of Montgomery County.

School	Utilization Rate (19-20)	Capacity (2019-20)	Nearest school	Nearest school utilization rate	Capacity (2019-20)	Distance between schools (mi)	Difference in utilization rate
Northwest	114.79%	2286	Seneca Valley*	92.63%	1130	2.80	0.22
Clarksburg	121.53%	2034	Seneca Valley*	92.63%	1130	4.72	0.29

Figure 2.2.23 *Table of Utilization Disparities Between Nearby High Schools (2019-20)*

**** Note that enrollment statistics do not account for recent BOE actions to alleviate issues of overutilization at certain schools, and are only reflective of the published FY 2021-26 Capital Improvements Program document.*** *Overutilization at Northwest and Clarksburg HS is planned to be relieved by using available capacity at Seneca Valley HS, and those changes are not reflected in these calculations.*

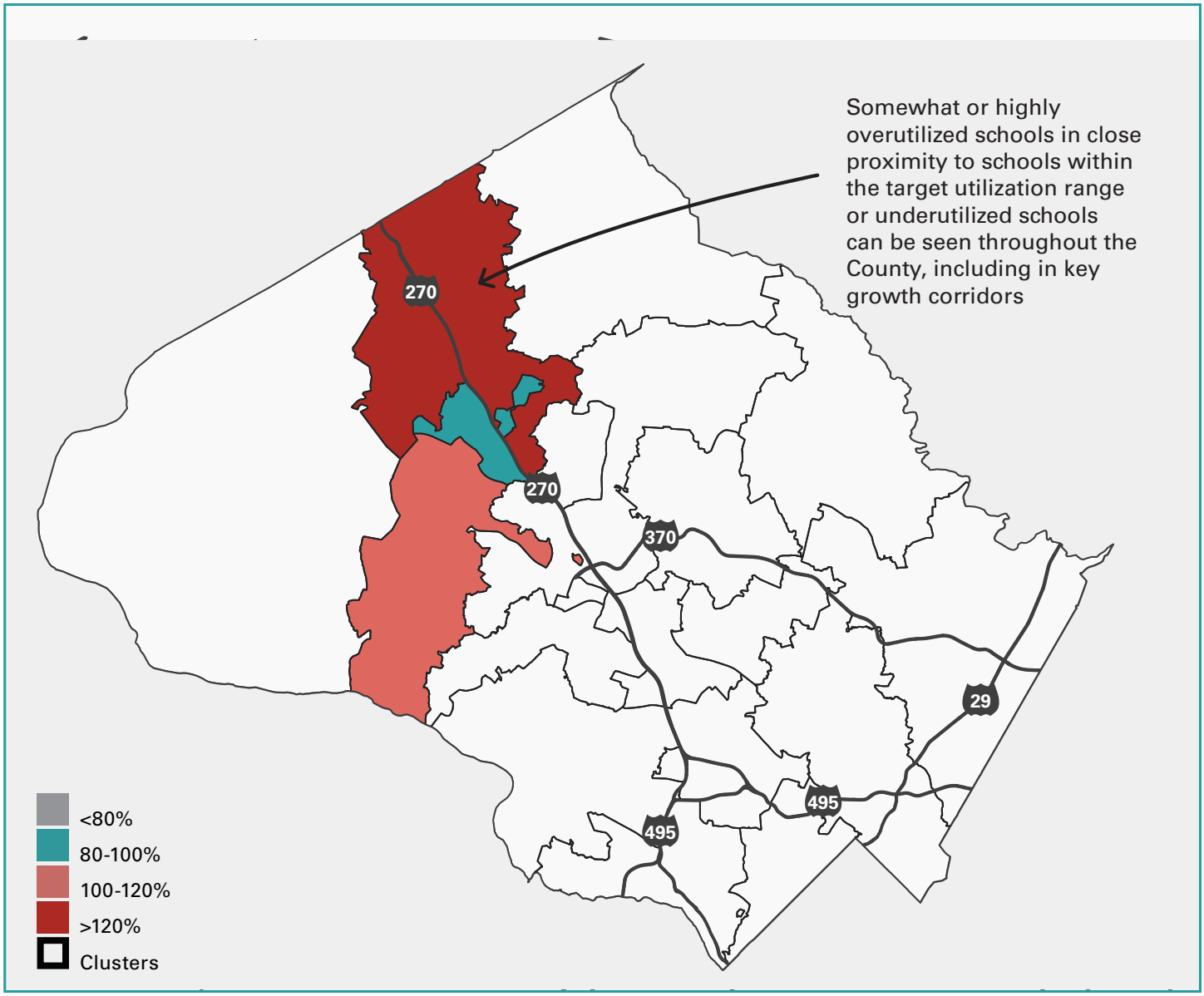


Figure 2.2.24 *Map of Utilization Disparities Between Nearest High Schools*

The map above shows the attendance areas of the high schools with 20% differences or more in utilization rates, along with their nearest schools (indicated in the third column of the table on the previous page). As noted on the map, there are very few nearest high schools that have a utilization rate difference of more than 20%.

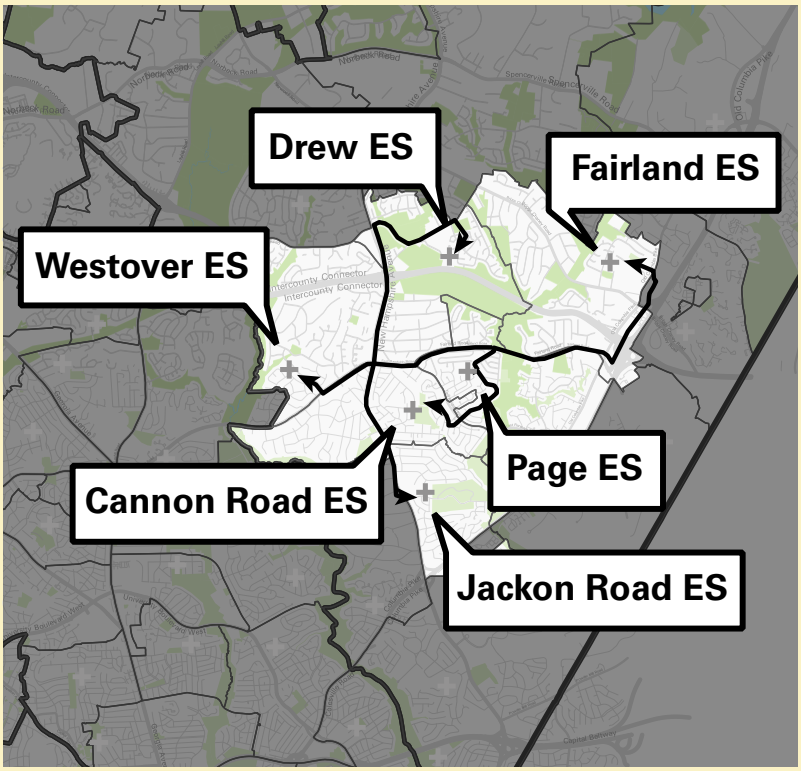
C.2 Utilization Disparities: Five Nearest Schools

Comparing the difference of only two schools may give us an incomplete picture of the utilization conditions around a school. It is informative to look at disparities among groups of closest schools. In this set of analyses, we compare each school's utilization rate to the utilization rates of a group that includes each school and its five nearest schools, to better understand the disparities in utilization between neighboring schools. This kind of analysis is called dissimilarity (see, **What is Dissimilarity?** on the following page).

Considering how utilization varies between nearby schools allows us to better identify the trade- offs between maintaining cluster boundaries, balancing utilization with existing capital assets, and the distance between different school facilities. It is important to consider a wider number of schools than just the nearest school for several reasons, including factors such as island assignments that complicate the idea of the "nearest" school. Below, we look at a case study to illustrate an example of dissimilarity analysis.

Sorted by distance

Case Study: Page Elementary



Page Elementary School has a utilization rate of 157%. This school and its neighbors were chosen for illustrative purposes only.

School	Distance | Utilization
Page ES	**-- | 157%**
Cannon Road ES	1.6 mi | 79.5%
Westover ES	2.7 mi | 119%
Fairland ES	3 mi | 92%
Jackson Road ES	3.3 mi | 105%
Drew ES	4.4 mi | 100%
Average Utilization of group:	**108.75%**
Dissimilarity of Page's utilization from neighbors:	**0.48**

☐ Cluster boundaries ☐ School attendance areas + Elementary school

Figure 2.2.25 *Page Elementary Case Study (Utilization Dissimilarity)*

In the case study in **Figure 2.2.25**, we see an example elementary school and the five nearest elementary schools based on roadway distance. We can see that the average utilization rate of the group (including Page Elementary School) is 108.75%, which is considerably lower than Page Elementary School's utilization rate of 157%. In this case, the dissimilarity score for Page is 0.48: it is 48 percentage points more utilized than the average of the six schools (Page and the five closest schools).

It should be noted that the recent increase in utilization at Page ES is due to the introduction of a new Spanish Immersion (SI) program there in 2018-19. Approximately 32% of students at Page reside in another attendance area and—in most cases—attend Page ES due to the SI program. Without these additional students, Page's utilization rate would only be about 107%. MCPS plans to increase capacity at Page ES to accommodate this growth.

What is Dissimilarity?

Dissimilarity is a way to measure, statistically, how different one factor in a particular geographic area is from a group of its peers. In the case of school utilization, dissimilarity provides a way to rate how unlike one school or cluster is from the average utilization of that school and its nearest neighbors. In the examples in this section, dissimilarity is expressed as a number between 0 and 1, which refers to how different Page Elementary School's utilization rate is from the average of the group that includes its five closest schools. The highest dissimilarity rate would be 1, and the lowest would be 0. Extreme outliers may throw off the range in certain cases and the dissimilarity may go beyond 1, if, for example, the utilization rate of a certain school is beyond 200%.

Dissimilarity in Utilization Between Overutilized and Underutilized Elementary Schools and Nearest Schools

Looking at utilization in relation to the five nearest schools to each school can be instructive to show whether a given school is an outlier in terms of utilization relative to its neighbors, or whether utilization rates are high in a given area. In this analysis, we look at the utilization rate of each school and the five schools nearest to it. Then, we calculate the dissimilarity of the school's utilization from its neighbors', which results in a number between 0 and 1 (if the value is closer to 1 then that school is more dissimilar when compared against other schools within that group). Clarksburg ES is a unique outlier since the overall utilization at that school is more than 200%.

The table on the following page, **Figure 2.2.6. Number of High Schools by Utilization Rate and School Level,** shows the underutilized and overutilized elementary schools that are most dissimilar from their neighboring five schools. The schools featured in this set of analyses are:

- Underutilized, overutilized, or highly overutilized (in other words, not in the target range)
- Highly dissimilar from their neighbors (they exhibit a dissimilarity score above 0.1)

See **Appendix B8: Table: Schools and Dissimilarity from Nearest Five Schools on page 461** for a full list of schools and their dissimilarity from their neighboring schools.

School	Utilization Rate (2019-20)	Enrollment (2019-20)	Capacity (2019-20)	Dissimilarity in utilization to nearest five schools
Clarksburg	200.64%	624	311	1.01*
Luxmanor*	165.77%	678	409	0.62
Mill Creek Towne	150.89%	507	336	0.59
Monocacy	68.95%	151	219	0.58
Page	156.89%	615	392	0.48
Westbrook	62.34%	341	547	0.47
Cannon Road	79.54%	412	518	0.46
Washington Grove	75.37%	462	613	0.46
Highland View	150.69%	434	288	0.46
Summit Hall	153.61%	702	457	0.44
Stedwick	78.20%	538	688	0.42
Sequoyah	74.02%	376	508	0.38
Bannockburn	126.65%	461	364	0.36
McAuliffe	71.85%	554	771	0.36
Carson	129.05%	893	692	0.35
Wheaton Woods	65.80%	504	766	0.32
Strawberry Knoll	141.83%	651	459	0.31
Forest Knolls	142.72%	755	529	0.30
McNair	132.27%	828	626	0.29
North Chevy Chase	72.35%	259	358	0.29
Stonegate	130.13%	501	385	0.29
Pine Crest	102.23%	413	404	0.29
Bethesda	118.93%	666	560	0.27
DuFief	74.00%	316	427	0.27
Candlewood	75.15%	387	515	0.26

Figure 2.2.26 *Table of Utilization Rates, Capacity, and Nearest Schools*

** Luxmanor ES, Maryvale ES, and Potomac ES are located in holding facilities for the 2019-2020 school year. Utilization rates relate to the capacity of school facilities at the start of the 2019-2020 school year without accounting for ongoing or planned expansion.*

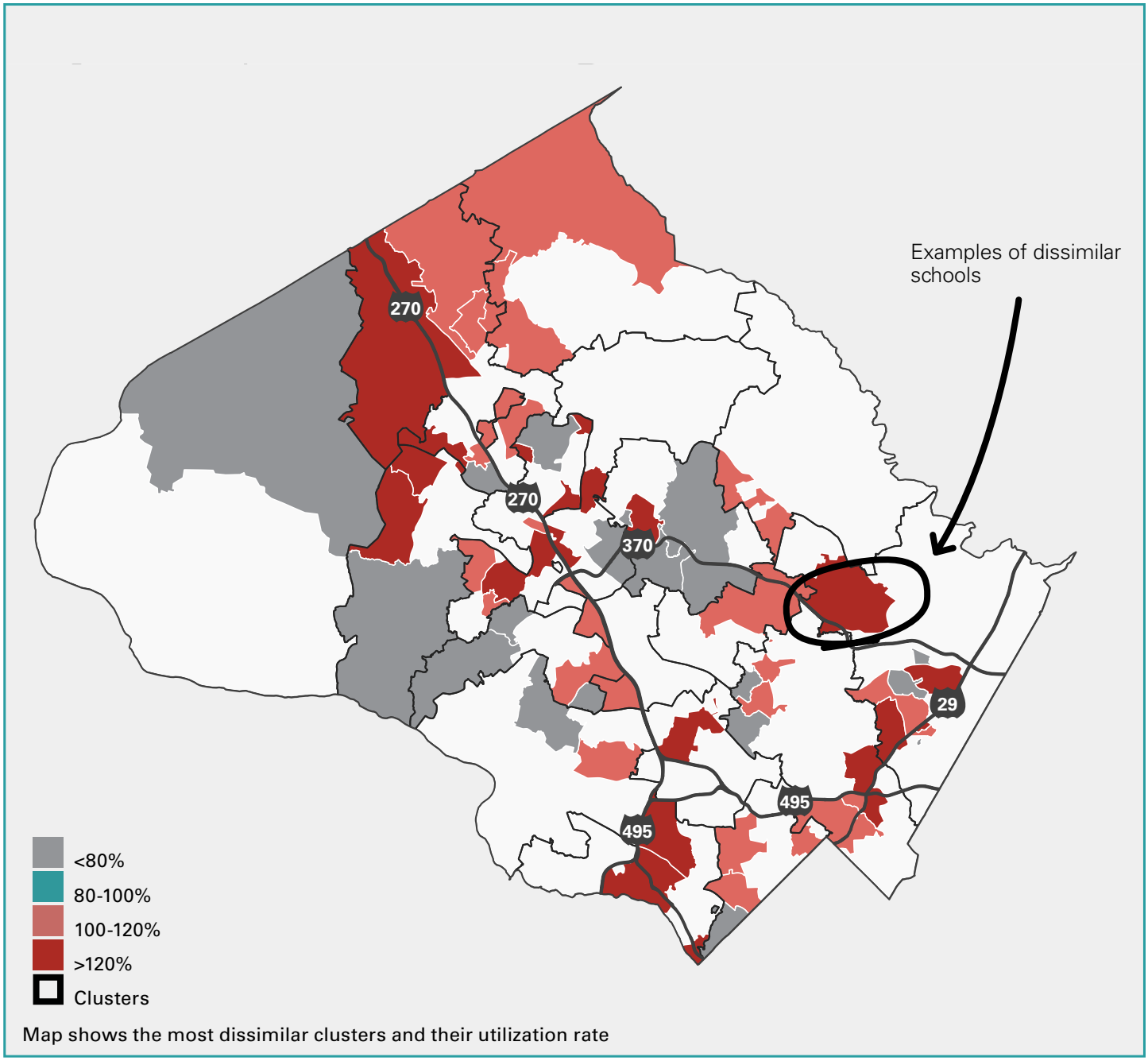


Figure 2.2.27 *Map of Elementary Schools Most Dissimilar from Five Nearest Schools*

At the elementary school level, there are instances where highly and somewhat overutilized schools, as well as underutilized schools, have significantly different utilization rates than their neighbors. As compared to the high school or middle school levels, elementary schools have more pronounced variation in utilization compared to their neighboring schools. Of the top ten most dissimilar elementary schools, six have a utilization rate of over 150%, while two of the remaining four schools have utilization rates below 70%. These underutilized schools are at opposite ends of the district: Monocacy (68.95%) is in Poolesville at the northwest edge of the county, while Westbrook (62.34%) is at the southernmost edge of the district.

Although these two extreme cases of underutilization are found at the edges of the county, there are a number of other examples across the district where highly overutilized school attendance areas are directly adjacent to underutilized schools.

Dissimilarity in Utilization Between Overutilized and Underutilized Middle School and Nearest Schools

The table below shows the underutilized and overutilized middle schools that are highly dissimilar from their neighboring five schools. See **Appendix B8: Table: Schools and Dissimilarity from Nearest Five Schools on page 461** for a full list of schools and their dissimilarity from their neighboring schools.

School	Utilization Rate (2019-20)	Enrollment (2019-20)	Capacity (2019-20)	Dissimilarity in utilization to nearest five schools
Westland	73.12%	808	1,105	0.30
Takoma Park	123.75%	1,162	939	0.28
Pyle	119.38%	1,534	1,285	0.26
Shady Grove	67.33%	575	854	0.26
Baker	112.01%	830	741	0.22
Sligo	76.73%	722	941	0.21
Parkland	120.46%	1,142	948	0.17
Clemente	104.71%	1,289	1,231	0.15
Lakelands Park	106.19%	1,200	1,130	0.14

Figure 2.2.28 *Table Of Overutilized and Underutilized Middle Schools Dissimilarity*

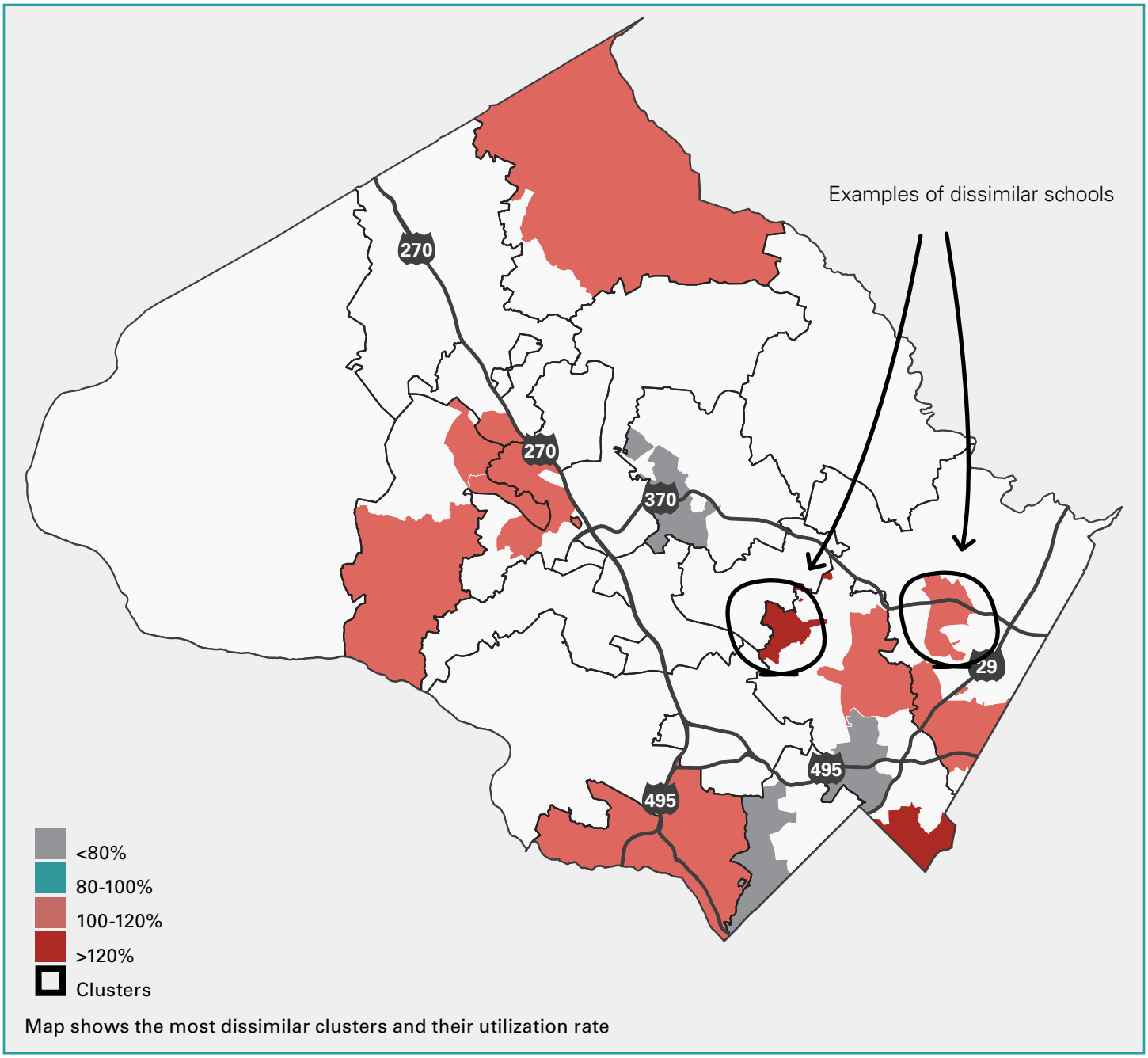


Figure 2.2.29 *Map of Middle Schools Most Dissimilar from Five Nearest Schools*

As before, this analysis inspects every middle school and the utilization rate of its five nearest schools. Schools that are underutilized, somewhat overutilized, or highly overutilized and are very dissimilar from their neighbors are shown in the map above.

Although there are fewer schools at the middle school level, similar patterns emerge between nearby schools across the district in which somewhat overutilized schools are found adjacent to underutilized schools.

At the middle school level, a smaller proportion of schools are underutilized. So, most cases shown in the table on the previous page and the map above illustrate cases when somewhat or highly overutilized middle schools are nearest to schools within the target utilization range.

Dissimilarity in Utilization Between Overutilized and Underutilized High School and Nearest Schools

The table below shows the underutilized and overutilized high schools that are most dissimilar from their neighboring five schools. See **Appendix B8: Table: Schools and Dissimilarity from Nearest Five Schools on page 461** for a full list of schools and their dissimilarity from their neighboring schools.

School	Utilization Rate (2019-20)	Enrollment (2019-20)	Capacity (2019-20)	Dissimilarity in utilization to nearest five schools
Clarksburg	121.53%	2,472	2,034	0.26
Quince Orchard	120.60%	2,160	1,791	0.23
Northwood	119.89%	1,808	1,508	0.19
Northwest	114.79%	2,624	2,286	0.12
Johnson	118.40%	2,748	2,321	0.10

Figure 2.2.30 *Table of Overutilized and Underutilized High School Dissimilarity*

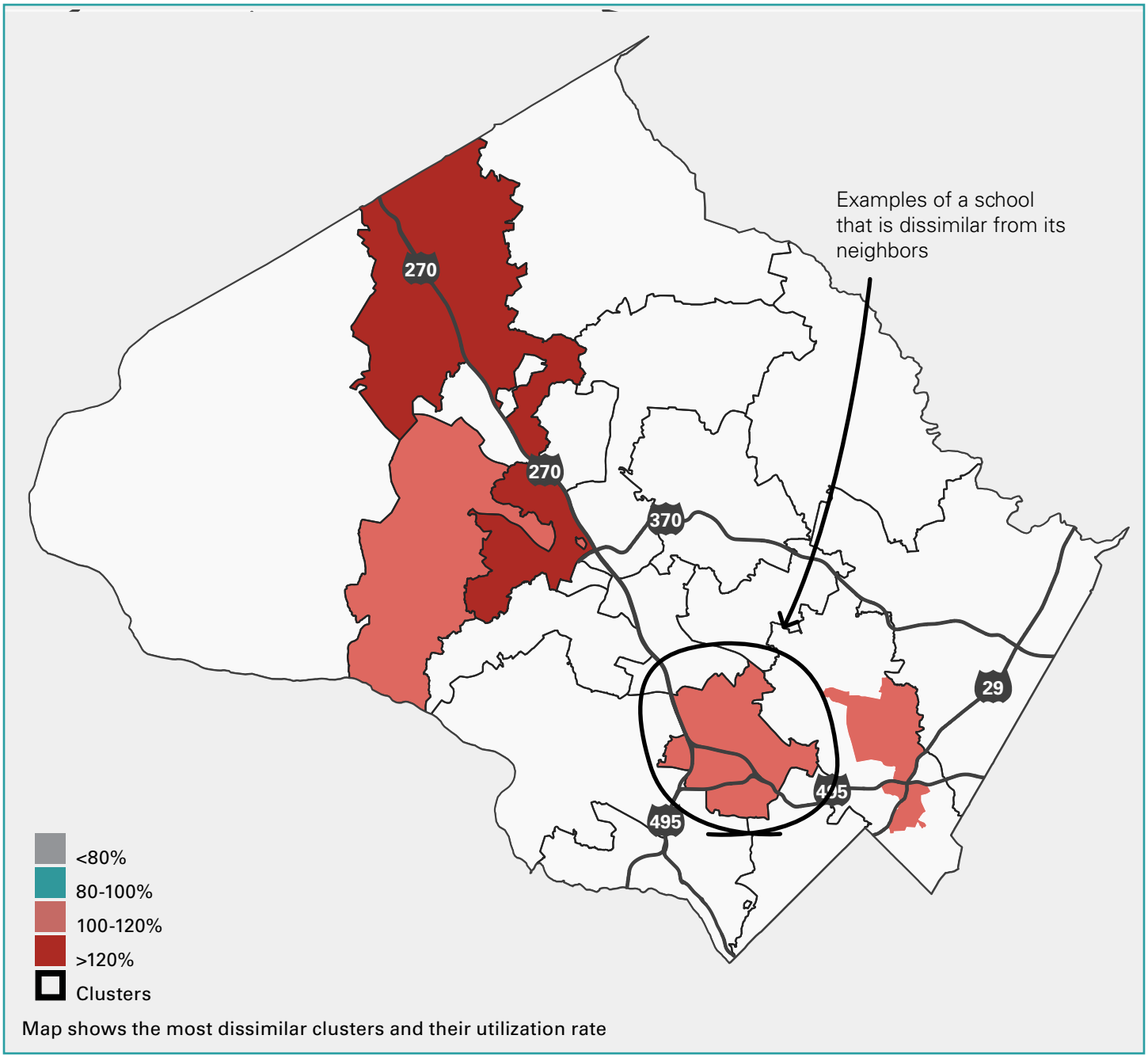


Figure 2.2.31 *Map of High Schools Most Dissimilar from Five Nearest Schools*

As before, this analysis inspects every high school and the utilization rate of its five nearest schools. Schools that are underutilized, somewhat overutilized, or highly overutilized and are very dissimilar from their neighbors are shown in the map above.

At the high school level, five high schools exhibit a dissimilarity score above 0.1, with Clarksburg and Quince Orchard high schools being the only schools with greater than 0.2 dissimilarity from the five schools nearest to them. These high dissimilarity schools are located in similar areas to highly dissimilar elementary schools, but not in the same areas as highly dissimilar middle schools.

C.3 Utilization Across Articulation Patterns: Elementary Schools to Middle Schools

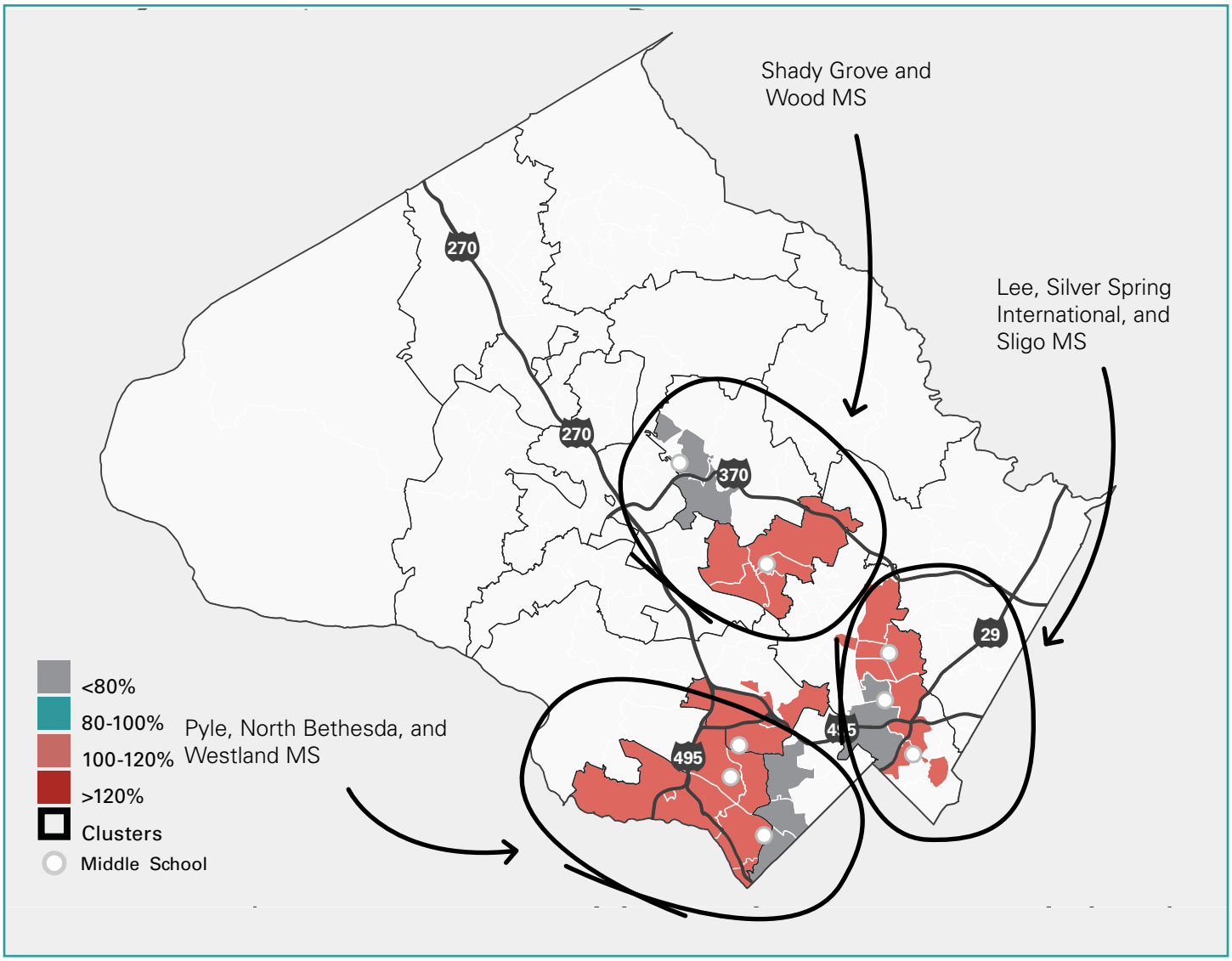


Figure 2.2.32 *Map of Adjacent Middle Schools With Disparate Utilization Rates*

Across MCPS, there are three cases where underutilized middle schools are directly adjacent to overutilized middle schools. These instances are shown in the map above and in **Figure 2.2.33** on the following page. Among each of these groups of middle schools, there are sufficient total seats to address overutilization at each school. However, there are varying utilization challenges faced at many of the elementary schools that feed into these middle schools.

The table in **Figure 2.2.33** explores the utilization rates of adjacent middle schools, and the elementary schools that feed into them, to determine the total number of available seats among adjacent schools.

School (**MS***/ES)	Utilization rate	Enrollment	Capacity (2019-20)	Available Seats
Westland MS	**73.12%**	**808**	**1,105**	**297**
Bethesda ES	118.93%	560	666	-106
Somerset ES	113.01%	515	582	-67
Westbrook ES*	62.34%	547	341	206
North Bethesda MS	**100.00%**	**1,233**	**1,233**	**0**
Wyngate ES	95.62%	776	742	34
Ashburton ES	116.98%	789	923	-134
Pyle MS	**119.38%**	**1,534**	**1,285**	**-249**
Bradley Hills ES	85.37%	663	566	97
Wood Acres ES	89.52%	725	649	76
Burning Tree ES	124.34%	378	470	-92
Bannockburn ES	126.65%	364	461	-97
Carderock Springs ES	90.15%	406	366	40
Total available MS seats				**48**
Sligo MS	**76.73%**	**722**	**941**	**219**
Woodlin ES	113.29%	489	554	-65
Glen Haven ES	91.73%	556	510	46
Singer ES	100.44%	680	683	-3
Silver Spring International MS	**104.16%**	**1,153**	**1,107**	**-46**
Sligo Creek ES	102.41%	664	680	-16
Rolling Terrace ES	106.31%	729	775	-46
Highland View ES	150.69%	288	434	-146
Forest Knolls ES	142.72%	529	755	-226
Lee MS	**106.05%**	**771**	**727**	**-44**
Arcola ES	115.05%	651	749	-98
Kemp Mill ES	106.11%	458	486	-28
Glenallan ES	100.00%	747	747	0
Total available MS seats				**129**
Shady Grove	**67.33%**	**575**	**854**	**279**
Candlewood ES	75.15%	515	387	128
Flower Hill ES	92.90%	493	458	35
Mill Creek Towne ES	150.89%	336	507	-171
Wood MS	**105.30%**	**994**	**944**	**-50**
Maryvale ES	99.84%	626	625	1
Meadow Hall ES	109.07%	375	409	-34
Barnsley ES	113.04%	652	737	-85
Flower Valley ES	119.95%	416	499	-83
Rock Creek Valley ES	94.78%	460	436	24
Total available MS seats				**229**

There are enough seats within these groups of adjacent middle schools to accommodate enrollment at the middle school level.

Figure 2.2.33 *Table of Total Capacity and Enrollment Across Adjacent Middle School Attendance Areas*

* Please note that in certain cases such as Westbrook, the island assignment simply consists of the land parcel on which the school resides.

The table above displays information about the instances in MCPS of overutilized middle schools located adjacent to underutilized ones. We pair this with data about the elementary schools that feed into each middle school, to more closely examine how utilization disparities may impact a feeder pattern of elementary to middle school. This table indicates that there are enough seats at the middle school level to accommodate all of the students in these groups of adjacent attendance areas.

For example, the first set of middle schools—starting at the top of the table—includes Westland MS, North Bethesda MS, and Pyle MS. Westland M.S. is underutilized (about 73%), and has 297 available seats. North Bethesda MS is 100% utilized, and has zero available seats. Pyle MS, on the other hand, is overutilized, with an excess of about 249 students. Taken together, these three adjacent middle schools have 48 available seats.

The elementary schools that feed into these middle schools, however, have varying degrees of imbalance in utilization. Bethesda, ES, Somerset ES, and Westbrook ES, for instance, feed into Westland MS. Bethesda ES (118.9%) and Somerset ES (113%) are overutilized, while Westbrook ES (62.3%) is underutilized. Between these schools, there are 33 available seats.

In the North Bethesda MS feeder pattern, on the other hand, Ashburton ES is overutilized (116.98%), while Wyngate ES (95.6%) is in the target utilization range. Between these schools, there is a shortage of 100 seats.

2.2 Data Analysis Utilization

D. Utilization Over Time

While this study represents a snapshot in time, it is informative to look at how utilization has changed over the course of the last decade in MCPS.

Questions:

How have utilization rates changed over the last decade in MCPS? Has utilization gotten better or worse?
Which schools and school assignment areas have experienced the greatest amount of change in the last decade?

Analyses:

D.1 Change in Utilization by Clusters and Consortia, 2010-2020
D.2 Change in Capacity by Clusters and Consortia, 2010-2020

Insights

1. Looking at changes in utilization over the last 10 years is one way to understand whether utilization issues across the district are improving or getting worse, and at which school level(s).

All of the analyses in this chapter use the 2009-10 school year to the 2019-20 school year to study changes in utilization over time. To understand changes in time across school levels, we look at the total utilization rates of each school level, by cluster or consortia *(in other words, what is the total elementary school enrollment in cluster A, divided by the total elementary school capacity at that same level within the cluster/consortia?)*.

Eight clusters or consortia have experienced a decrease in total elementary utilization.

- Of these eight clusters, five now have a net utilization rate within the target utilization range of 80-100% at the ES level. In the other three, elementary schools remain somewhat overutilized.

Five of the clusters or consortia that have seen decreases in elementary school utilization have middle schools within the target range today.

- This suggests that most clusters that have brought total elementary school utilization rates down have also managed to keep middle school utilization in the target range as this cohort of students has progressed through school levels.

Thirteen clusters or consortia have seen an increase in total middle school utilization. Five of these clusters saw an increase of 20 percentage points or more.

- 13 clusters saw increases in middle school utilization during the last ten years, meaning middle school enrollment has increased faster than capacity has. Despite these increases, all but three of these clusters remain within the target utilization range. Rockville, Walt Whitman, and Downcounty Consortium middle schools are now somewhat overutilized.

Total high school utilization rates increased in well over half of all clusters or consortia. Three clusters saw increases of 20 percentage points or more.

- 11 of 19 clusters saw an increase in total high school utilization rates in the last decade. Of these, nine clusters/consortia are somewhat or highly overutilized today at the high school level.

2. One way MCPS accommodates for increases in utilization is by constructing new schools. This analysis examines how often new schools have been built in the last decade, and whether this has addressed utilization challenges. Since 2009, all new school construction has been at the elementary and middle school levels.

In the last decade, five new elementary schools were constructed.

- These new school constructions all took place in the Richard Montgomery cluster and the Downcounty Consortium.

At the middle school level, two new schools were constructed, serving three clusters.

- Two of these clusters (Clarksburg and Bethesda-Chevy Chase) saw decreases in utilization at the MS level. The Damascus cluster, on the other hand, saw a 20% increase in MS utilization rates despite expanded capacity. This is in part because it shares a split articulation with Clarksburg.

In the last decade, no new high schools were constructed.

- While MCPS has expanded high school capacity in 13 clusters/consortia, no new high schools were built. School additions have not been enough to keep up with enrollment growth. This has necessitated the planned high school reopening and construction currently underway to serve Walter Johnson and the Downcounty Consortium.

D.1 Change in Utilization by Cluster or Consortium, 2010-2020

The following set of analyses looks at the percentage of change in overall utilization rates, by cluster or consortium. This section looks at the total enrollment and the total capacity of each cluster for the 2009-2010 and 2019-2020 school years to see how overall utilization rates have changed over time. This analysis is broken down by school level, so that we can begin to see general trends and outliers, both across clusters and between school levels in those clusters.

Change in Elementary School Utilization by Cluster or Consortium, 2010 - 2020

The table below shows changes in overall utilization at the elementary school level, by cluster or consortium. The fourth column indicates the change in utilization rate—with negative values indicating that utilization rates decreased overall and positive values indicating an increase.

At the elementary school level, eight clusters experienced a decrease in total elementary school utilization between 2010 and 2020. Of these eight clusters, five now have a net utilization rate within the target range of 80%-100%. Three clusters have experienced a decrease in utilization, but are still somewhat overutilized in total at the cluster level.

Cluster	Utilization Rate 09-10	Utilization Rate 19-20	Change in Utilization Rate
Col. Zadok Magruder	124.69%	96.29%	-28.40
Richard Montgomery*	121.04%	92.74%	-28.30
Poolesville	138.60%	110.90%	-27.69
Clarksburg*	120.22%	102.32%	-17.90
Sherwood	111.06%	97.10%	-13.96
Winston Churchill	105.53%	94.16%	-11.37
Watkins Mill	95.84%	90.35%	-5.49
Walter Johnson	107.61%	105.68%	-1.94
Gaithersburg	95.30%	95.77%	0.47
Damascus	101.33%	102.45%	1.12
Downcounty Consortium*	100.84%	102.36%	1.52
Seneca Valley	96.10%	98.03%	1.93
Northeast Consortium	96.24%	99.49%	3.25
Walt Whitman	99.23%	104.74%	5.51
Rockville	112.18%	118.60%	6.42
Bethesda-Chevy Chase	100.23%	108.89%	8.66
Quince Orchard	88.49%	97.91%	9.42
Thomas S. Wootton	87.20%	104.79%	17.59
Northwest	96.28%	114.63%	18.36

Figure 2.2.34 *Change in Elementary School Utilization by Cluster or Consortium, 2010 - 2020*

* Denotes clusters that have built new elementary school(s) since 2010

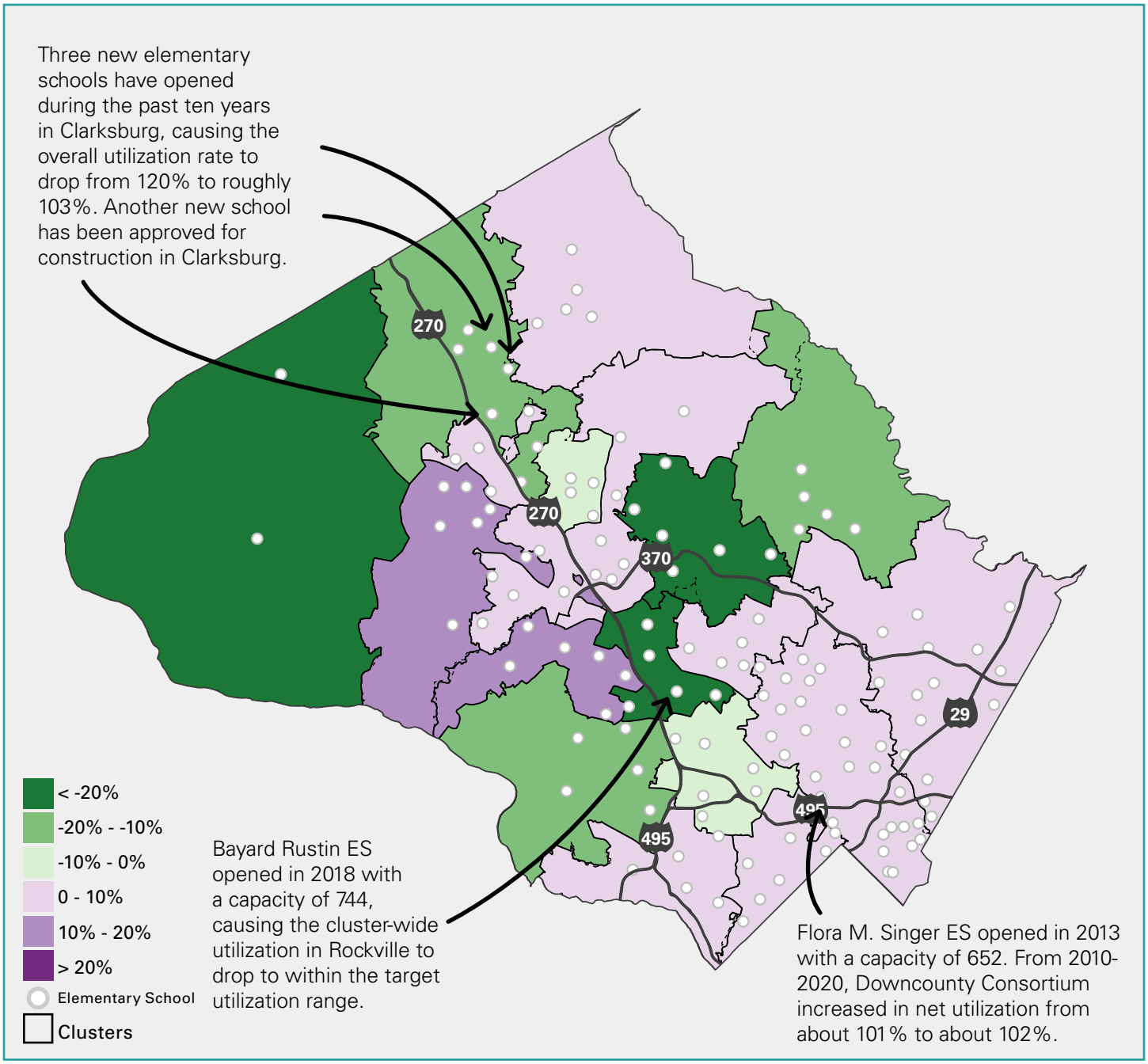


Figure 2.2.35 *Map of Change in Elementary School Utilization by Cluster or Consortium, 2010-2020*

The map above shows changes in utilization at the elementary school level, by cluster or consortium. The clusters shaded with green tones saw overall elementary school utilization rates go *down* since 2010. In other words, elementary schools in these clusters are less utilized on the whole than they were a decade ago. Clusters shaded in purple tones saw overall elementary school utilization rates go *up* since 2010. The darkest purple color indicates clusters where utilization rates rose by over 20 percentage points in the last decade.

Change in Middle School Utilization by Cluster or Consortium, 2010 - 2020

Although most middle schools experienced an increase in utilization in the last decade, this school level has managed to keep the greatest proportion of schools within the target utilization range. Efforts to expand school capacity may have contributed to this: two new middle schools were opened between 2010-2020, and 16 out of 19 clusters have added capacity over that period. Of the six clusters that experienced a decline in overall utilization over the past decade, five are within the target utilization range. Of the clusters that saw increases in overall middle school utilization over the past decade, all but three remain within the target utilization range. Middle schools in Rockville, Walt Whitman, and Downcounty Consortium— all of which were underutilized or in the target range in 2010 — are somewhat overutilized as of this year.

Cluster	09-10 Utilization Rate	19-20 Utilization Rate	Change in utilization rate
Clarksburg	110.96%	92.51%	-18.45
Winston Churchill	104.18%	94.95%	-9.23
Bethesda-Chevy Chase*	89.68%	83.09%	-6.59
Sherwood	95.27%	90.32%	-4.95
Thomas S. Wootton	97.57%	94.93%	-2.65
Col. Zadok Magruder	75.85%	74.74%	-1.11
Richard Montgomery	95.17%	96.51%	1.34
Northwest	91.95%	94.43%	2.48
Poolesville	74.15%	83.33%	9.18
Seneca Valley	82.97%	95.71%	12.74
Gaithersburg	78.83%	93.02%	14.19
Northeast Consortium	81.09%	97.75%	16.65
Damascus*	82.05%	98.84%	16.79
Watkins Mill	71.91%	91.45%	19.53
Rockville	85.29%	105.30%	20.01
Walt Whitman	98.50%	119.38%	20.88
Walter Johnson	78.55%	99.51%	20.96
Quince Orchard	74.02%	95.16%	21.14
Downcounty Consortium	77.15%	104.74%	27.59

Figure 2.2.36 *Table of Change in Middle School Utilization by Cluster, 2010 - 2020*

* Denotes clusters that have built new elementary school(s) since 2010

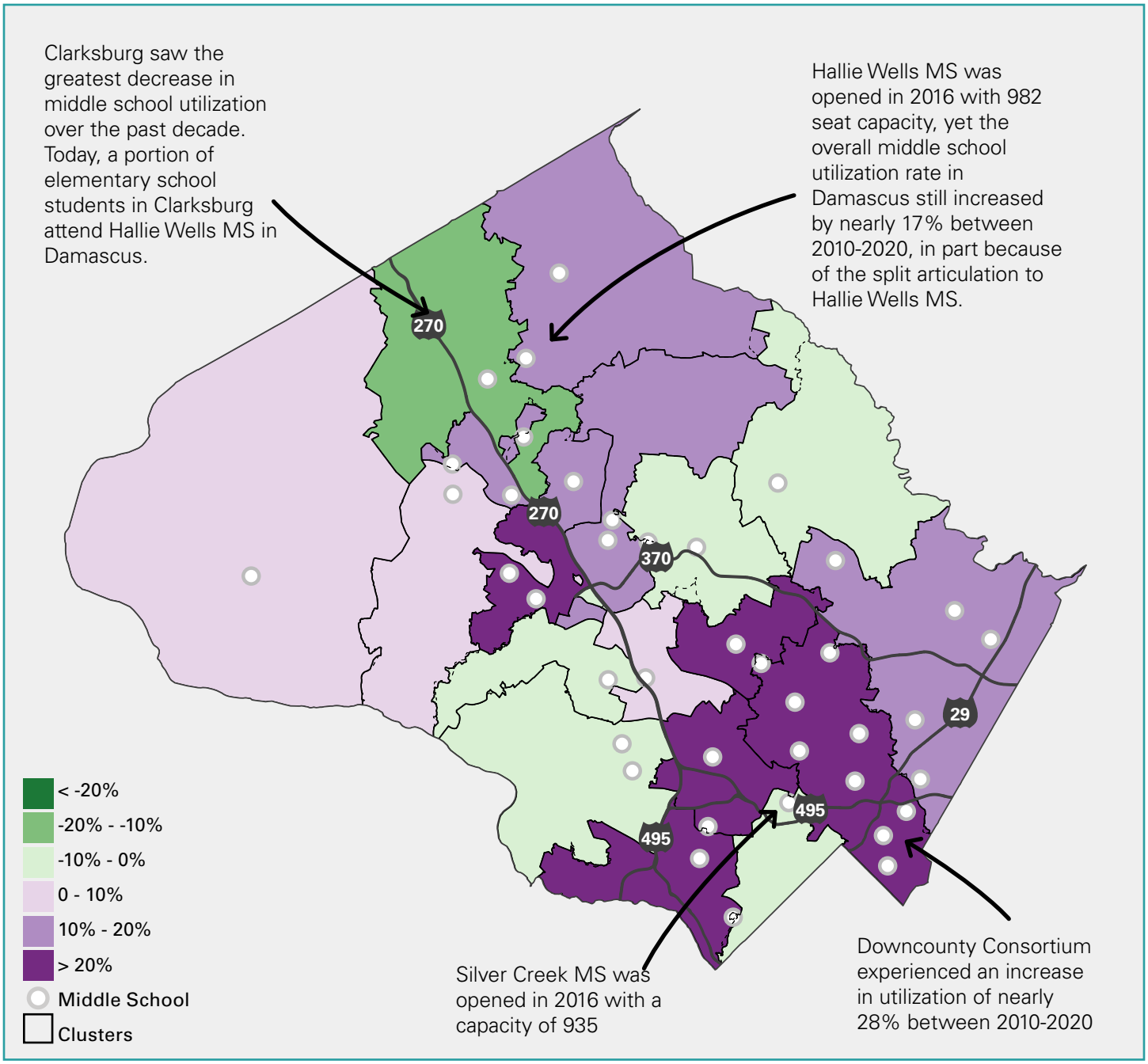


Figure 2.2.37 *Map of Change in Middle School Utilization by Cluster or Consortium, 2010-2020*

The map above shows changes in utilization at the middle school level, by cluster or consortium. The clusters shaded with green tones saw overall middle school utilization rates go down since 2010. Clusters shaded in purple tones saw overall middle school utilization rates go up since 2010. The darkest purple color indicates clusters where utilization rates rose by over 20 percentage points in the last decade. The steepest increase was in the Downcounty Consortium, where middle school utilization increased by 27.6%.

Change in High School Utilization by Cluster or Consortium, 2010 - 2020

At the high school level, the Wootton cluster experienced the greatest decrease in utilization over the past decade, from roughly 118% to 99%. It is among eight high school clusters or consortia that experienced net decreases in utilization over the past decade. Each of the other seven cases are within the target utilization range today. On the other hand, 11 high school clusters have experienced net increases in utilization rates over the past ten years. Of these eleven cases, eight are now somewhat overutilized, two are highly overutilized, and one remains within the target utilization range.

Over this time period, 13 clusters or consortia have added capacity, but no new schools have been built.

Cluster	Utilization Rate 2009-10	Utilization Rate 2019-20	Change in Utilization Rate
Thomas S. Wootton	118.36%	98.79%	-19.57
Sherwood	105.04%	90.51%	-14.53
Bethesda-Chevy Cluster	105.31%	91.94%	-13.37
Watkins Mill	92.74%	82.02%	-10.72
Col. Zadok Magruder	94.94%	87.58%	-7.36
Northeast Consortium	99.85%	93.93%	-5.92
Seneca Valley	93.94%	92.63%	-1.31
Damascus	88.86%	87.75%	-1.11
Poolesville	100.63%	103.16%	2.53
Gaithersburg	94.87%	98.73%	3.86
Richard Montgomery	104.24%	111.87%	7.63
Walt Whitman	99.47%	109.85%	10.38
Winston Churchill	103.50%	114.55%	11.05
Clarksburg	108.91%	121.53%	12.62
Downcounty Consortium	91.01%	108.20%	17.19
Northwest	96.51%	114.79%	18.27
Rockville	73.47%	93.94%	20.47
Quince Orchard	96.93%	120.60%	23.67
Walter Johnson	93.09%	118.40%	25.31

Figure 2.2.38 *Table of Change in High School Utilization by Cluster or Consortium, 2010-2020*

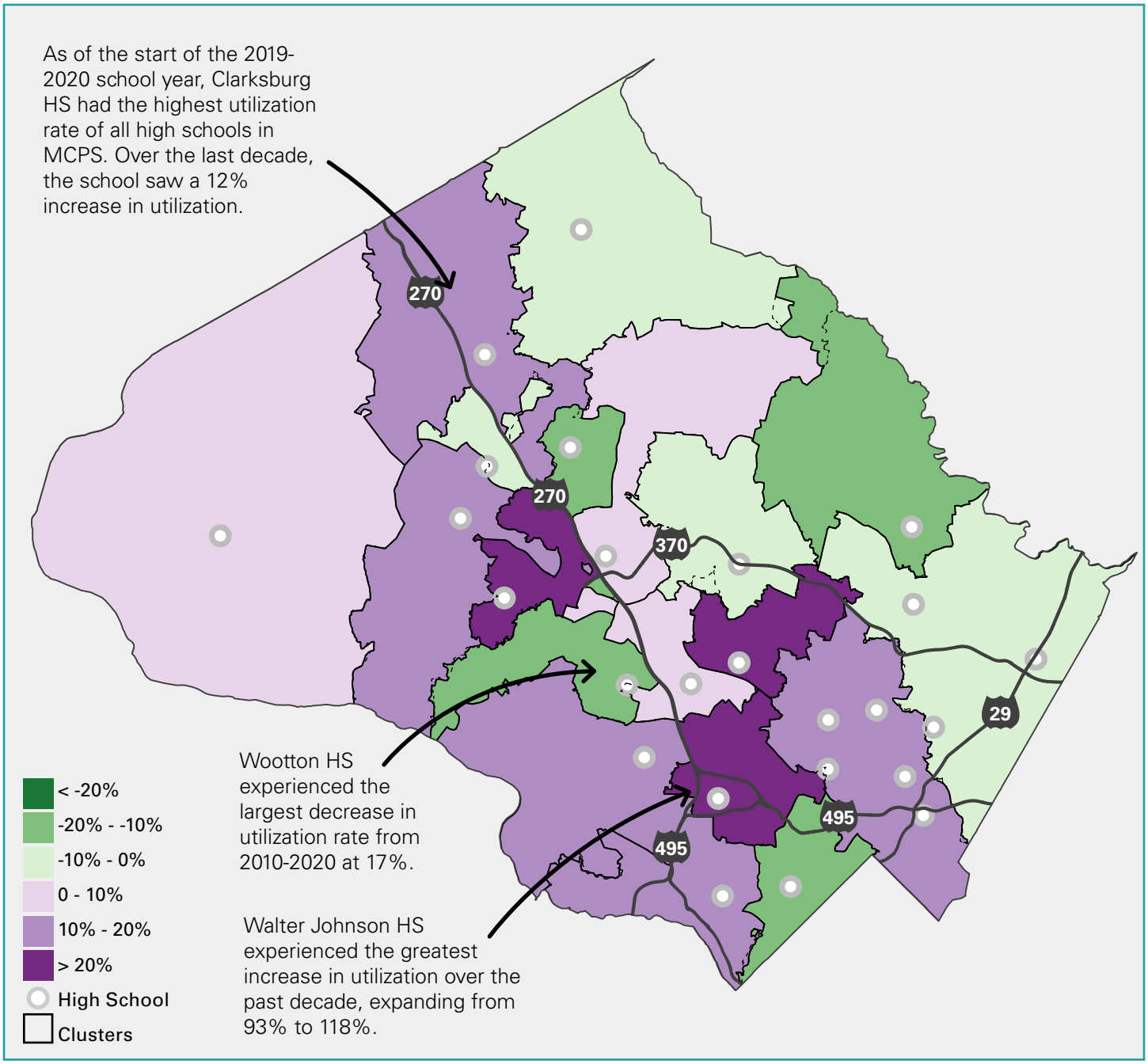


Figure 2.2.39 *Map of Change in High School Utilization By Cluster, 2010-2020*

The map above shows changes in utilization at the high school level. The clusters shaded with green tones saw overall middle school utilization rates go down since 2010. Clusters shaded in purple tones saw overall middle school utilization rates go up since 2010. The darkest purple color indicates clusters where utilization rates rose by over 20 percentage points in the last decade. The steepest increase was in the Downcounty Consortium, where middle school utilization increased by 27.6%.

D.2 Change in Capacity by Cluster or Consortium, 2010-2020

Change in Capacity at the Elementary Level

In the following figure, the x-axis represents cluster level utilization rate, and the y-axis represents the percent change in capacity between 2010 and 2020. The shaded portion of the table highlights schools within the target utilization range (80-100%). At the elementary school level, the Clarksburg cluster represents an outlier, having added substantially more capacity than other clusters, yet it remains above the target utilization range in 2019-2020. Other clusters that added capacity present a range of utilization rates today.

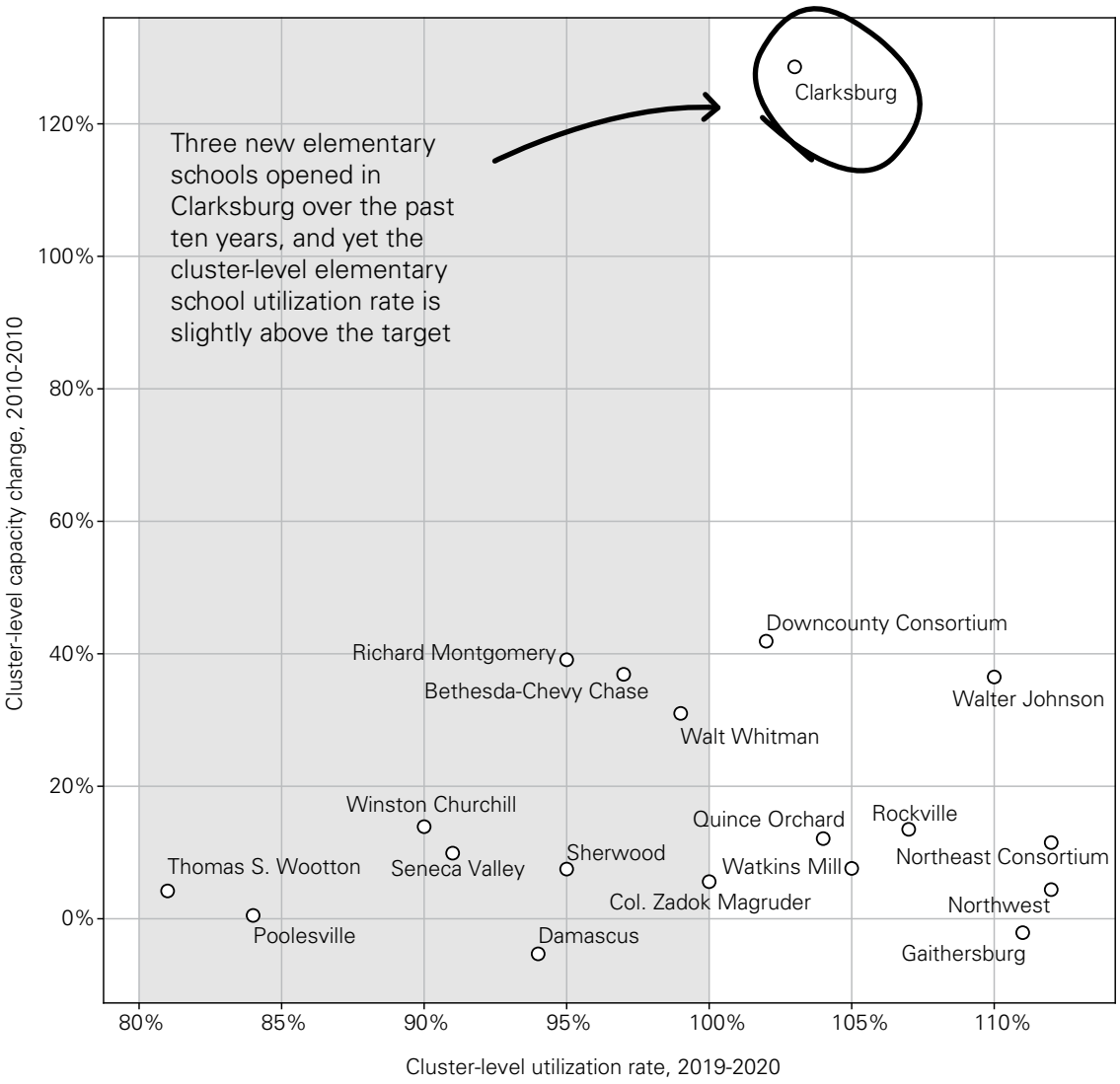


Figure 2.2.40 *Change in Elementary School Capacity (2010-2020) and Current Utilization by Cluster*

Change in Capacity at the Middle School Level

At the middle school level, clusters that have gained the most capacity have also managed to stay within the target utilization range at the cluster level. However the Damascus Cluster, which added over 140% capacity, is approaching the upper limit of this range in 2019-2020. It should be noted that the new MS in Damascus (Hallie Wells) was built to offset overutilization in the neighboring Clarksburg cluster, from which students split articulate. Both the most overutilized cluster (Walt Whitman) and most underutilized cluster (Magruder), are among the clusters that added the least amount of capacity (both hovering just above 0% increases).

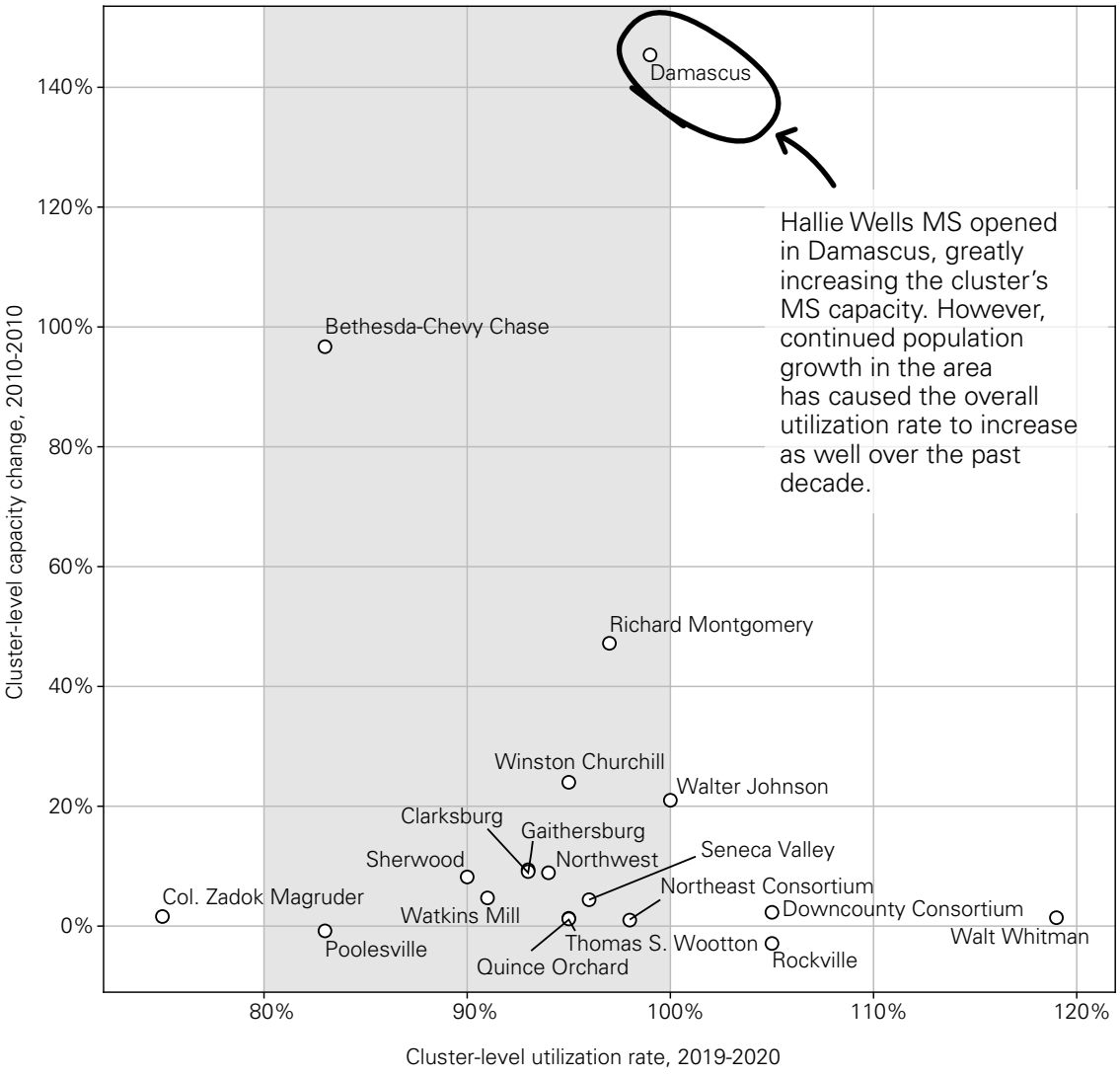


Figure 2.2.41 *Change in Middle School Capacity (2010-2020) and Current Utilization by Cluster*

Change in Capacity at the High School Level

The figure below illustrates the percent change in utilization at each HS cluster in the district. Almost 60% of HS clusters saw a rise in utilization rates in the last decade, with increases ranging from 1% (Damascus and Seneca Valley), to 28% in Rockville.

At the HS level, we see a different spread in the relationships between capacity change and utilization rates. In this case, the Bethesda-Chevy Chase cluster has added the greatest amount of capacity (nearly 50%), and has managed to stay within the target utilization range at the cluster level. Among schools that have added less capacity, there is a mild positive correlation between utilization rate and capacity change, with some of the more overutilized clusters also gaining the greatest capacity during the last decade (including Clarksburg and Richard Montgomery).

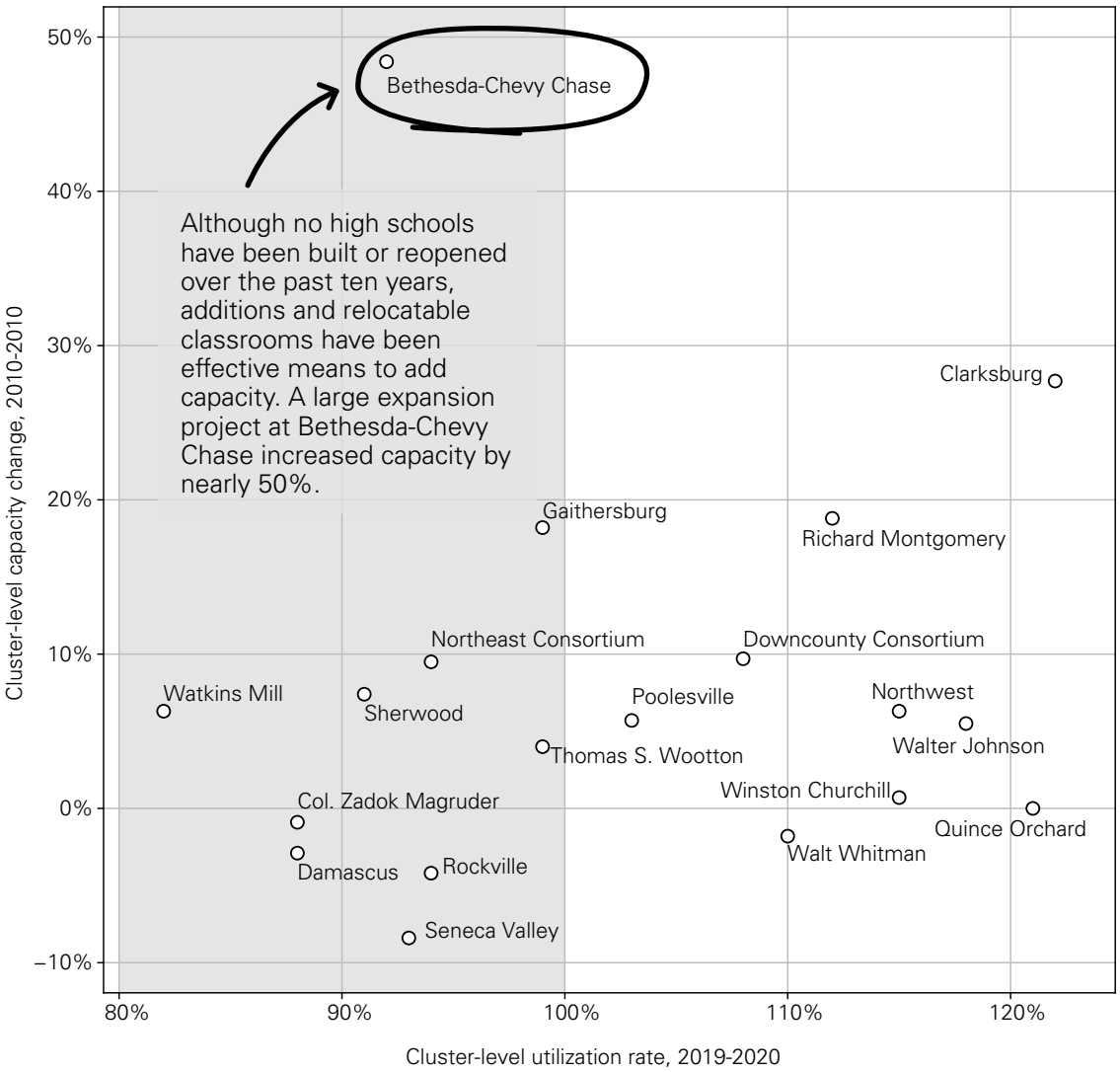


Figure 2.2.42 *Change in High School Capacity (2010-2020) and Current Utilization by Cluster*

2.2 Data Analysis Utilization

E. Special Conditions

This set of analyses related to MCPS's unique assignment conditions and program offerings. School choice, magnet programs, and the consortia create unique utilization conditions that require special consideration. In addition, some MCPS attendance areas include particular features, such as island assignments and paired schools. Title I schools require additional support and resources, which makes an understanding of utilization challenge at these schools important. In this section, we consider how these kinds of conditions may impact school utilization rates.

Questions:

Are schools that have island assignments more or less utilized than schools without island assignments?
Are schools with choice and magnet programs more or less utilized than other schools?
How does utilization compare between Title I schools and other schools in the district?
How do schools in the Northeast and Downcounty consortia fare in terms of utilization when compared to the district's other schools and clusters?

Analyses:

E.1 Utilization Rates and Island Assignments
E.2 School Utilization for Choice and Magnet Schools
E.3 Utilization Rates in Consortia
E.4 Other Special Conditions: Paired Schools, Title I

Insights

1. Island assignments are attendance areas that contain non-contiguous geographic areas. Schools with island assignments face the same utilization challenges as non-island assignment schools.

Island assignments may have historically helped to resolve utilization issues. However, today they are no longer yielding better utilization rates than other typical attendance areas.

2. Some attendance areas separate kindergarten through second grade into one school building and third to fifth grade into another school building – this is referred to as "paired schools." The average utilization rate for paired schools is slightly below the typical elementary school average utilization rate.

Counting each paired school individually, the average utilization rate is within the target utilization range, at 98.79%. If sets of paired schools are counted as single elementary schools (where their total capacity and total enrollment is used to calculate utilization), the average utilization rate remains within the target range at 98.28%. By comparison, the districtwide ES average is 102%.

3. Through choice and magnet programs, students may attend a school other than their base school through an application or lottery process. Special program schools are utilized at comparatively similar rates to non-special program schools, with the exception of schools with Spanish Immersion (SI) programs, which tend to be overutilized.

All three SI elementary schools are overutilized.

- One of the SI schools is somewhat overutilized and two of the SI schools are highly overutilized. Approximately 20% - 45% of these schools' students come from outside the school's attendance areas.

4. Title I is a statewide program that directs support to identified elementary schools impacted by poverty. Title I schools are on average slightly more overutilized than other schools.

There are 23 Title I elementary schools in MCPS. The average utilization rate of Title I schools is 108%, compared to 102% for non-Title I schools.

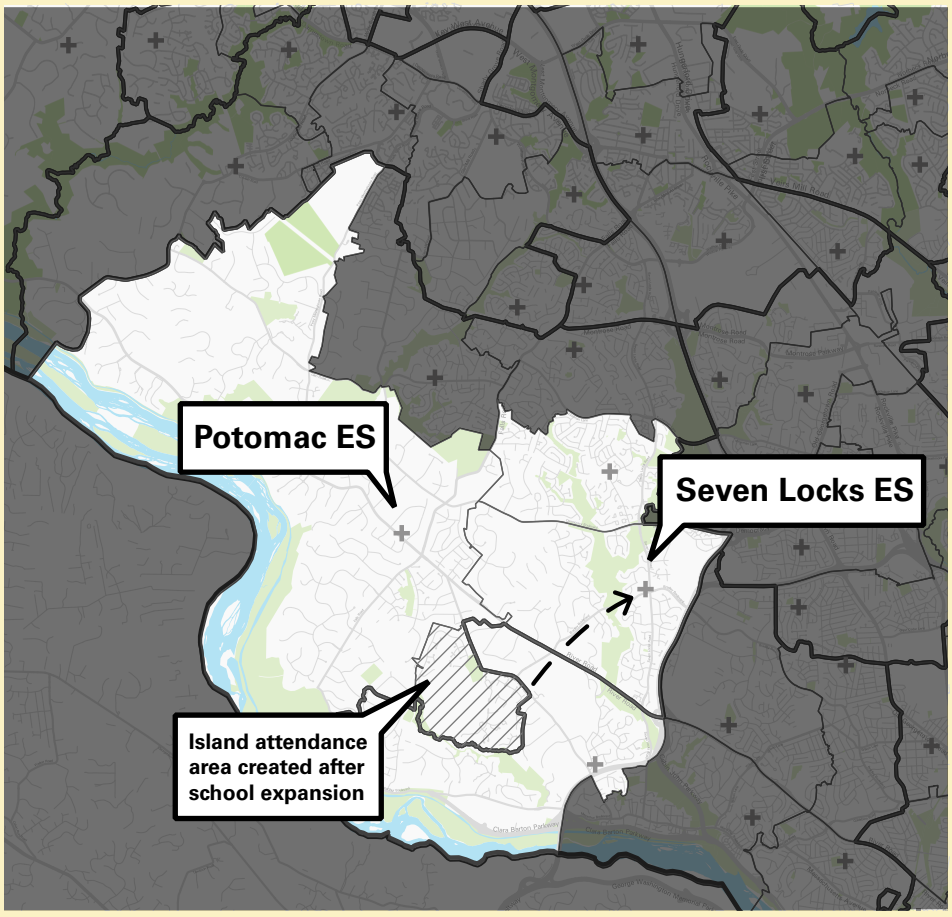
5. The Downcounty Consortium (DCC) and Northeast Consortium (NEC) face greater issues of overutilization across all levels, as compared to clusters across the district.

- At the elementary school level, schools in the consortia have an average utilization rate of 107%, as compared to an average of 101% among ES outside of consortia.
- Total utilization rate for middle schools within the DCC and NEC is 102%, compared to an average of 94% among MS outside of the consortia.
- Consortia high schools have an average utilization rate of roughly 103%, as compared to an average of 102% among high schools outside of the consortia.

In this set of analyses, we look at a range of special conditions in school assignment and attendance areas, to better understand how utilization rates are impacted by these conditions.

E.1 Special Conditions: Utilization Rates and Island Assignments

Island assignments are attendance areas that include non-contiguous areas in their geographies. Attendance areas have historically included islands for a number of reasons, including to balance school utilization. There are 36 elementary schools, 15 middle schools, and seven high schools that have island assignments. Island assignments are no longer created very frequently. There has been one new island assignment (Seven Locks ES in Winston Churchill) created in the last 10 years, and one other island assignment (Rosemary Hills in Bethesda-Chevy Chase) that was modified in the last 10 years. Seven Locks ES is used as an illustrative example below.



A modernization project was completed for Seven Locks ES in 2012, increasing the capacity from 251 to 410 students.

A boundary change followed to reassign some students from Potomac ES to Seven Locks to balance utilization at each school.

School	Utilization Rate
Seven Locks ES	
2010	104%
2015 (after reassignment & expansion)	94%
2020	100%
Potomac ES	
2010	133%
2015 (after reassignment)	112%
2020	88%

☐ Cluster boundaries ☐ School attendance areas + Elementary school

Figure 2.2.43 *Island Assignment Case Study (Seven Locks ES, Winston Churchill Cluster)*

Currently, schools with island assignments have similar utilization rates, albeit slightly less utilized rates, to schools without island assignments:

- Island assignment elementary schools have an average utilization rate of 101.5%, and non-island assignment elementary schools have an average utilization rate of 103.2%
- Island assignment middle schools have an average utilization rate of 93.1%, and non-island assignment middle schools have an average utilization rate of 96.6%
- Island assignment high schools have an average utilization rate of 98.2%, and non-island assignment high schools have an average utilization rate of 102.6%

Appendix B10: Table: Island Assignment Schools, Utilization Rates, and Number of Non-Contiguous Areas on page 472 has a table for all island assignment schools, with their utilization rates and the number of non-contiguous areas that are part of the attendance area. The maps on the following pages show the island assignments by attendance area and utilization rate.

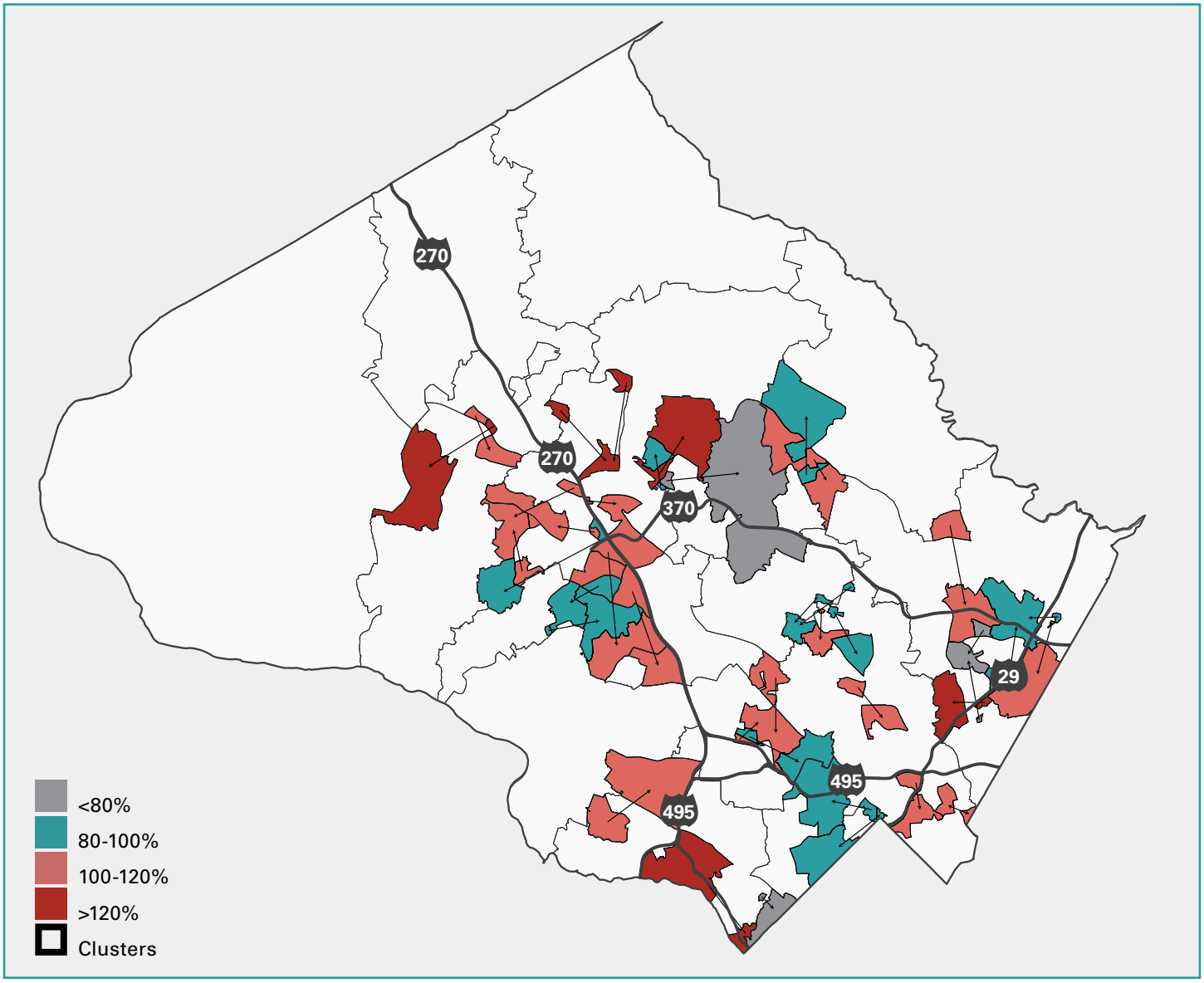


Figure 2.2.44 *Map of Elementary School Island Assignments*

Of the 33 elementary schools with island assignment attendance areas, 12 have island areas with less than 10% of total current students, while seven schools have island areas that are home to less than 5% of total students. These schools are highlighted in the map above—with arrows illustrating the attendance area with which the island assignment corresponds. Island assignments are discussed further in the **Diversity** and **Proximity** sections of this report.

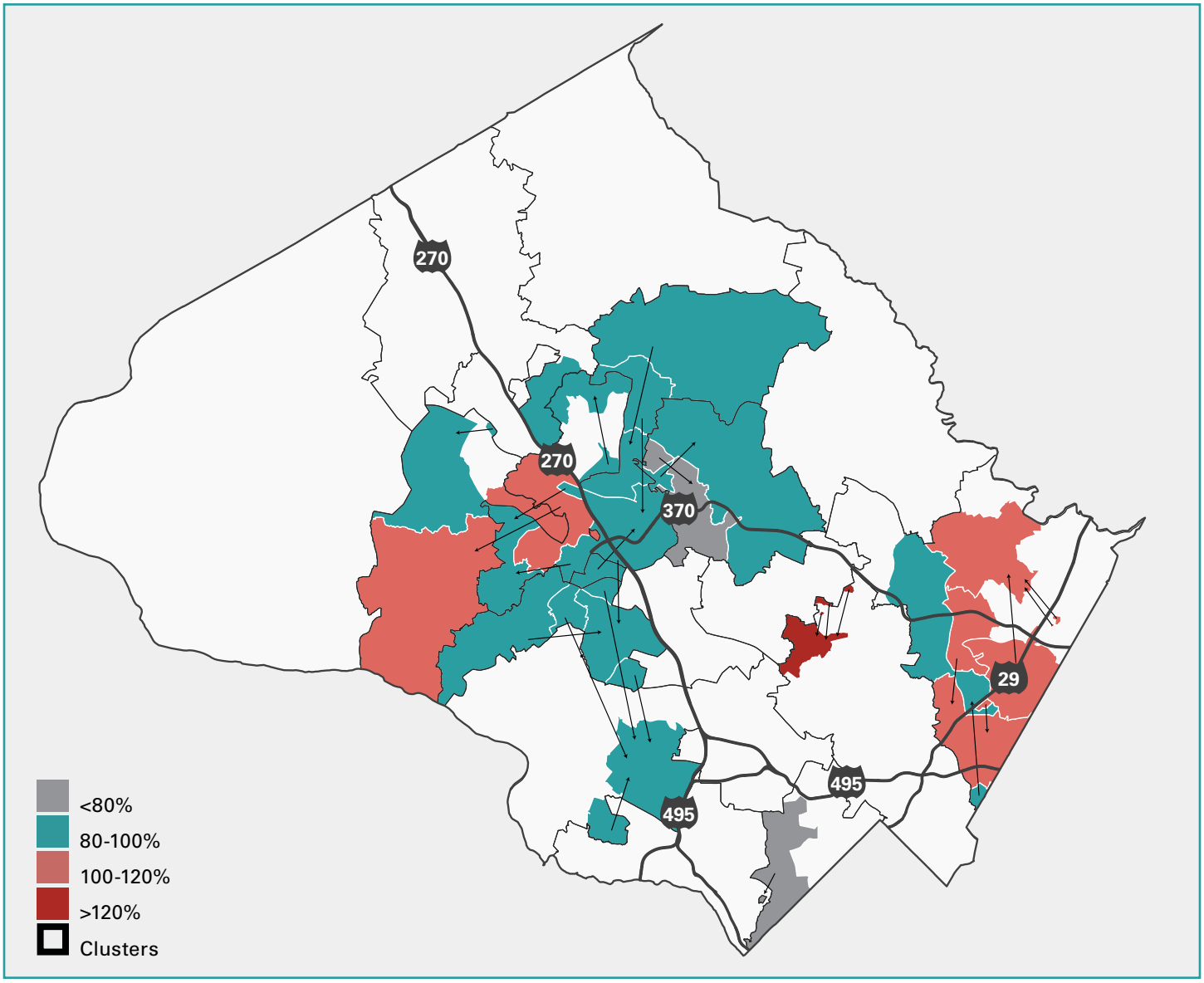


Figure 2.2.45 *Map of Middle School Island Assignments*

This map shows middle school island assignments, and their utilization rates. The majority of these attendance areas fall in the target utilization range, which is consistent with districtwide trends.

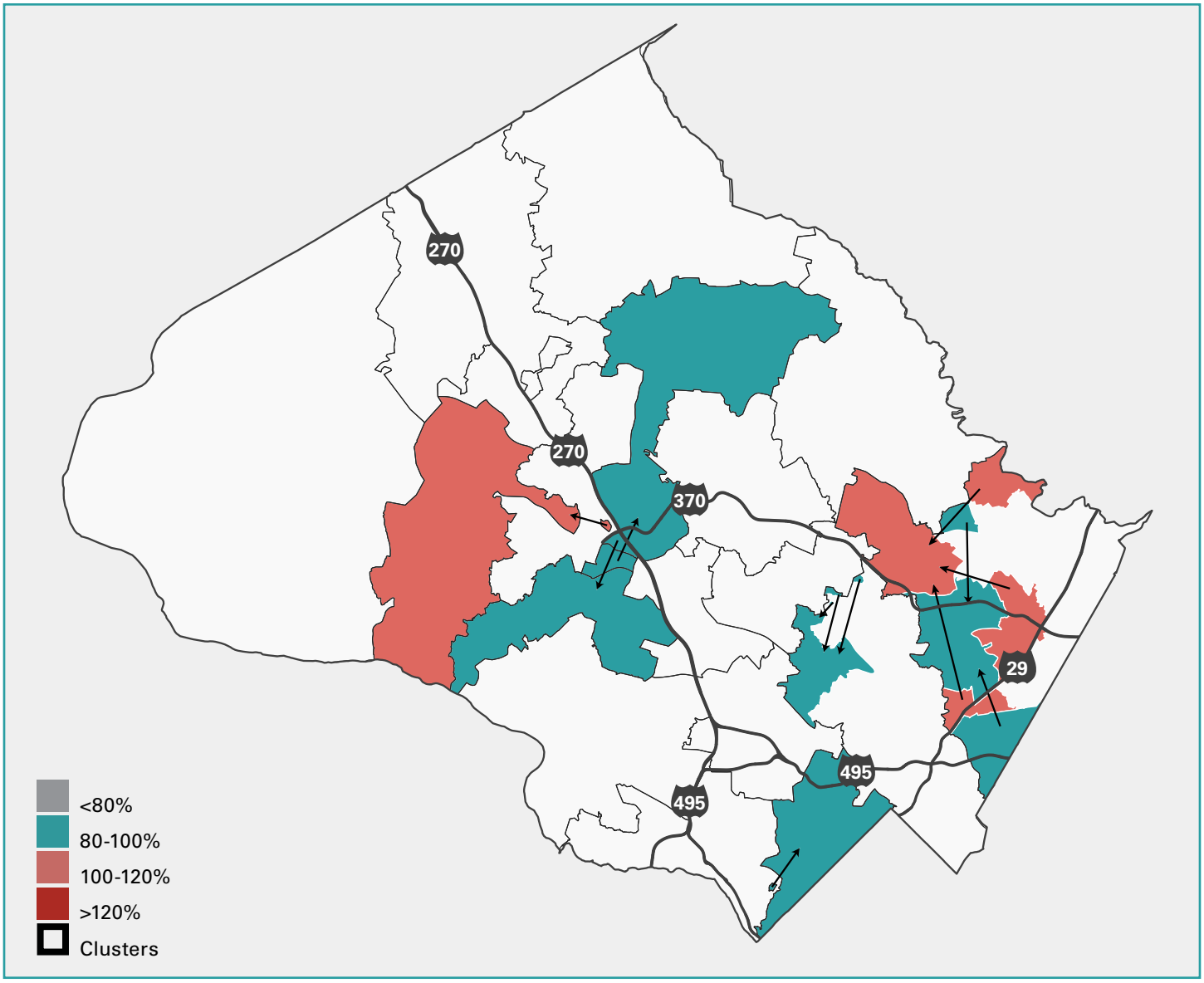


Figure 2.2.46 *Map of High School Island Assignments*

This map shows high school island assignments, and their utilization rates. The majority of these attendance areas fall in the target utilization range, meaning these assignment areas have a lower instance of overutilization than high schools tend to have districtwide.

E.2 Special Conditions: School Utilization for Choice and Magnet schools

While the majority of students in MCPS attend their base school, roughly 7% of students attend a school in a different attendance area. The majority of these students opt to attend one of the various special programs offered at schools across grade levels throughout the district.

At the elementary school level there are four types of special program schools, and 17 schools in all:

- Spanish Immersion (3)
- Center for Enriched Studies (9)
- Chinese Immersion (2)
- French Immersion (2)
- Primary Magnet (1)

The Spanish Immersion programs are somewhat or highly overutilized, with approximately 20% - 45% of the schools' students coming from outside the attendance areas. The Center for Enriched Studies schools include one underutilized, three within the target range, three somewhat overutilized and two highly overutilized, with 18% - 35% of students coming from outside the attendance areas. The Chinese Immersion programs are within the target range, with 6% and 22% of the students coming from outside the attendance area. One of the two French Immersion programs is within the target range with 54% of students coming from outside the attendance area, while the other is somewhat overutilized (102%) with 39% of students coming from outside the attendance area.

At the middle school level, there are seven types of special programs and 11 schools in all, including one underutilized, four within the target range, four somewhat overutilized and two highly overutilized. The percentages coming from outside the attendance areas ranges from approximately 7% to 20%.

At the high school level, there are three types of special programs and seven schools in all, including two within the target range and five somewhat overutilized. The percentages coming from outside the attendance areas ranges from approximately 2% to 21%, with Poolesville being an outlier at approximately 52%.

In general, there is a weak correlation between the percentage of students attending a school who do not live in that school's attendance area and the utilization rate of that school. Of the 35 total special program schools with choice programs, 57% are somewhat or highly overutilized. This is consistent with the total percentage of non-special program schools that are somewhat or highly overutilized districtwide.

More detailed information about special program schools can be found in **Appendix B11: Table: Special Program Schools on page 474**.

E.3 Special Conditions: Consortia

There are a total of 44 schools within DCC and 23 in NEC. Of the total elementary schools within the two consortia, about 61% are overutilized at an average rate of 107%. Compared to the districtwide average, this indicates that elementary schools in consortia are about 6% more utilized than the average elementary school not within the consortia (approximately 101%).

Similarly, the total utilization rate for middle schools within the consortia is 102%, compared to schools in the rest of the district at 94%.

High schools in the consortia have an average utilization rate of 103% compared to non-consortia high schools, which have an average utilization rate of 102%.

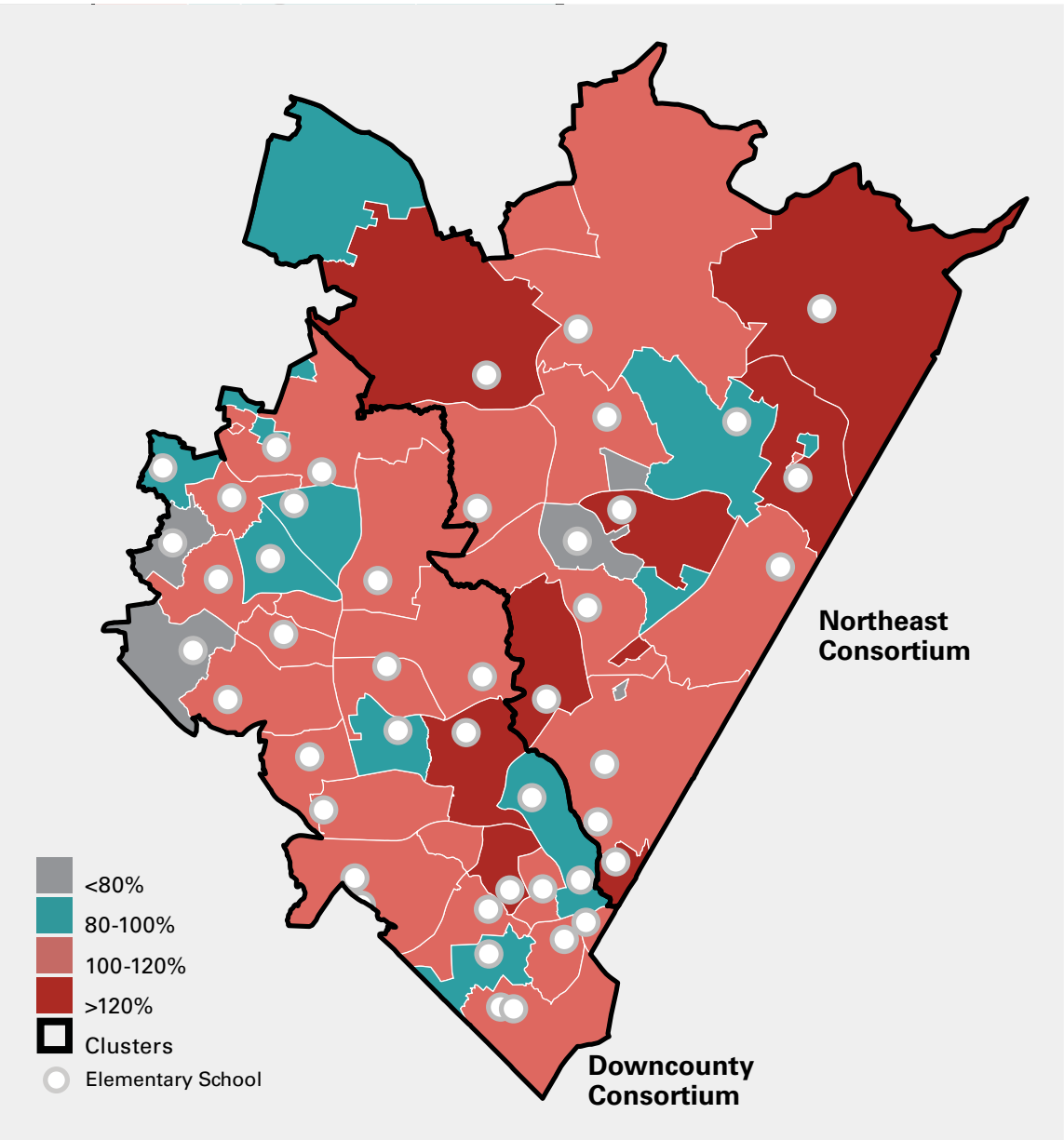


Figure 2.2.47 *Map of Elementary School Utilization in Consortia*

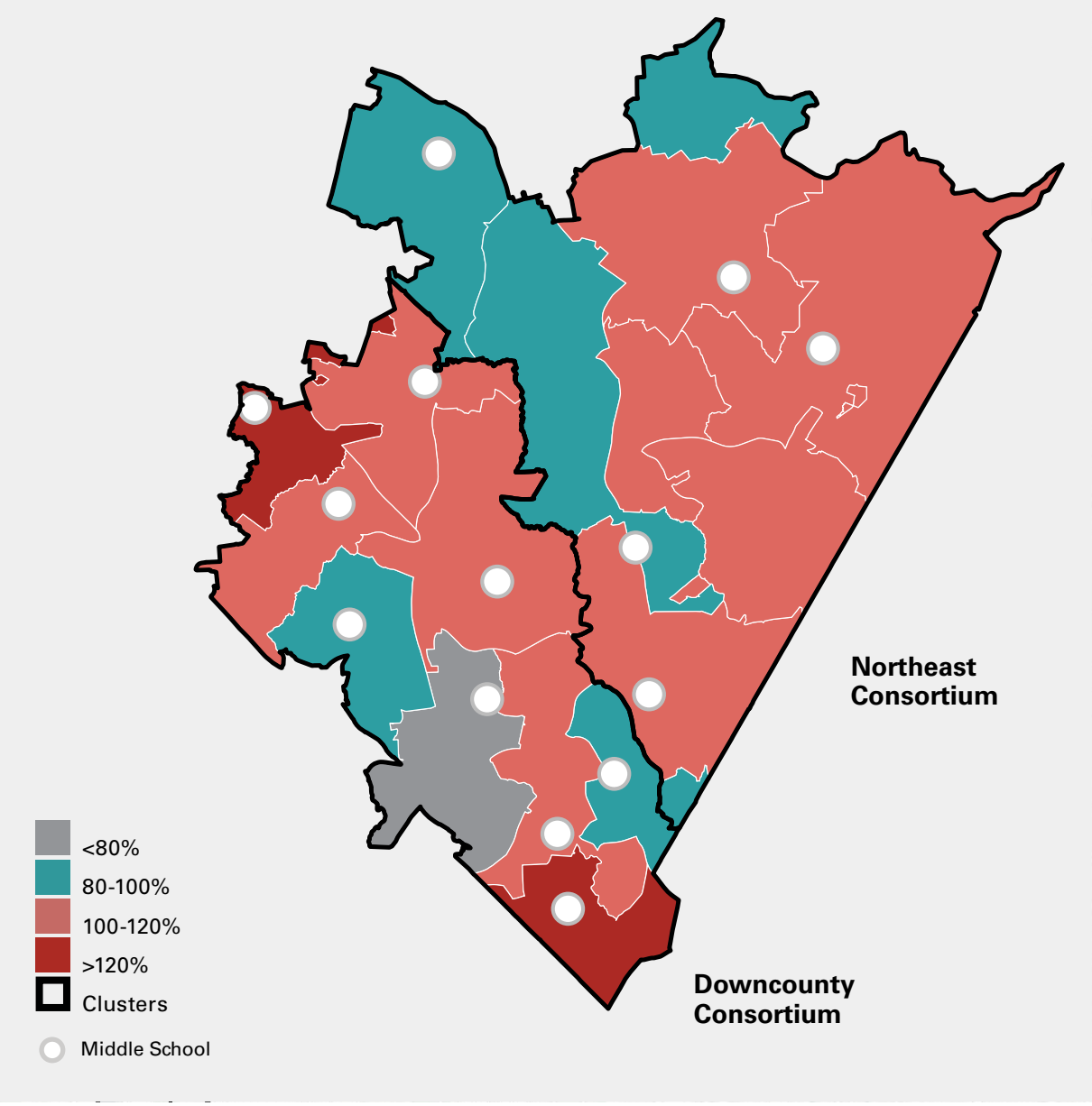


Figure 2.2.48 *Map of Middle School Utilization in Consortia*

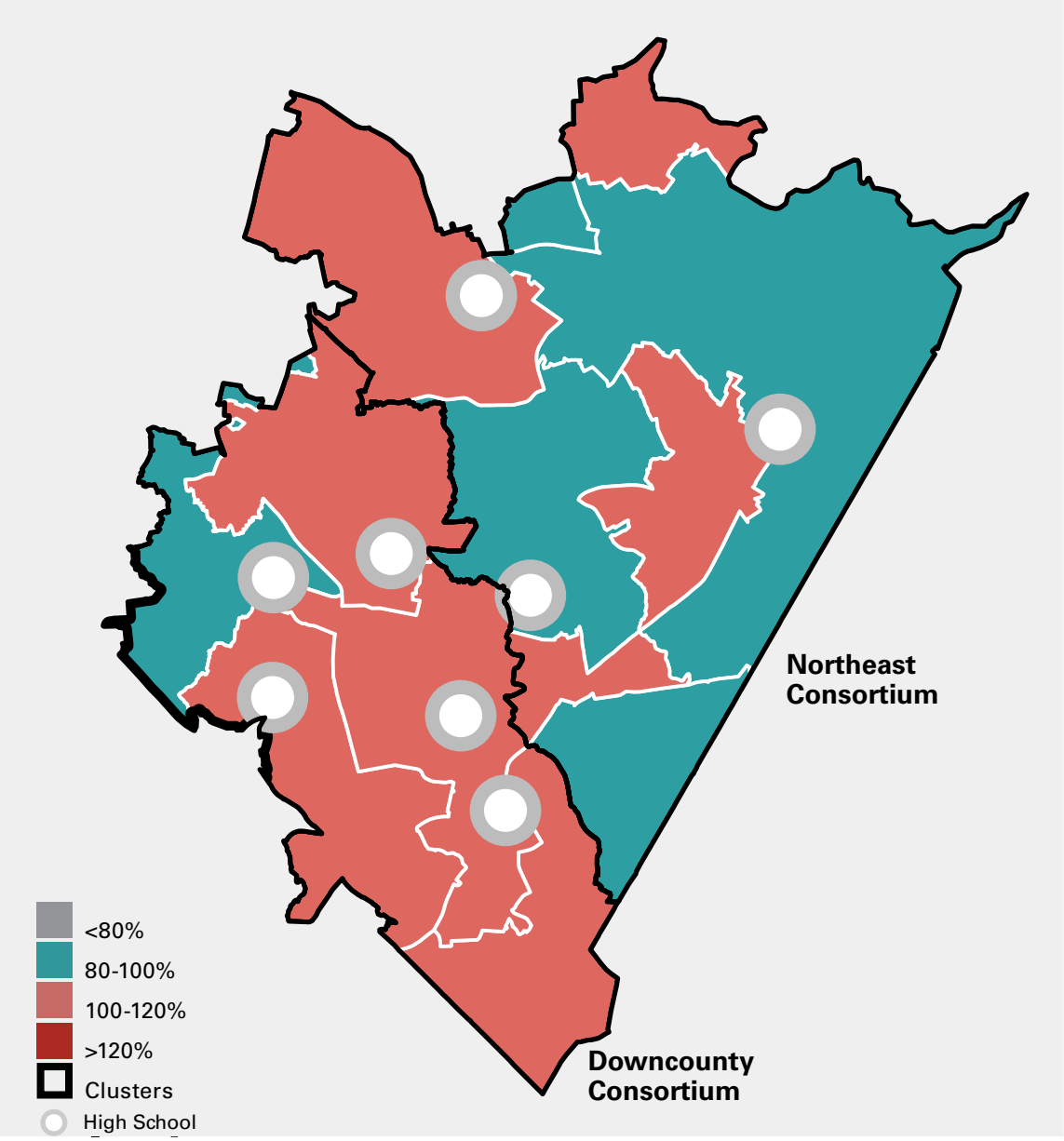


Figure 2.2.49 *Map of High School Utilization in Consortia*

E.4 Other Special Conditions: Paired Schools, Title I

Title 1 Schools:

There are 28 Title 1 schools with an average capacity of 591 seats per school. On an average Title 1 schools have a utilization rate of 108% compared to Non-Title I school utilization rate of 101.9%.[1]

Paired Schools:

There are 13 individual schools which make of seven paired school combinations (one school, Rosemary Hills ES, is paired with both Chevy Chase ES and North Chevy Chase ES. Of the 13 individual schools, four are somewhat overutilized and one is highly overutilized, while seven are within the utilization rate and one is underutilized. Even if each paired school is counted as one (where their total capacity and total enrollment is used to calculate utilization), four pairs are somewhat overutilized and three pairs are within the target utilization range (see map in **Appendix B12: Map: Paired Schools on page 476**).

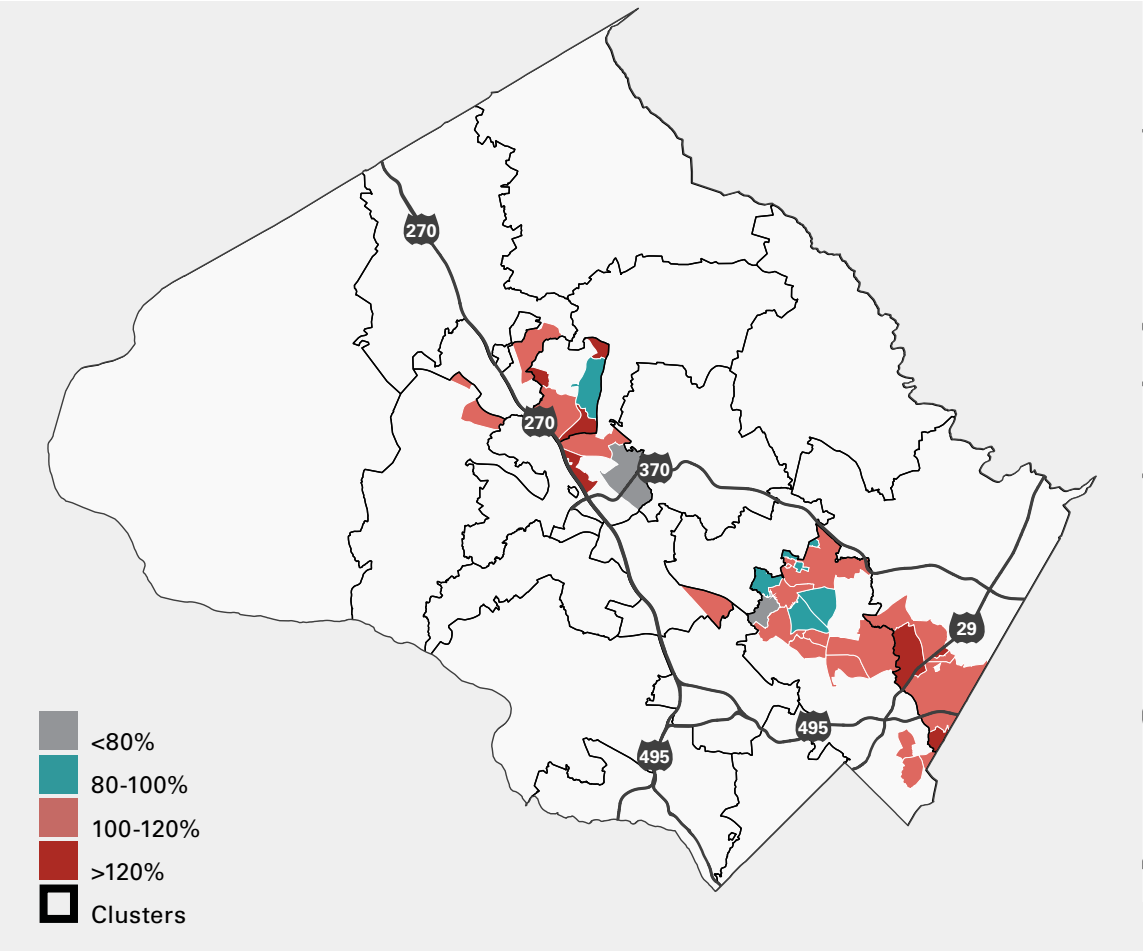


Figure 2.2.50 *Map of Utilization in Title I Schools*

1 For more information about the Division of Title I Programs, see: https://www.montgomeryschoolsmd.org/departments/dtecps/title1/

Further Inquiry

These analyses of utilization reveal several initial insights about the current conditions of school boundaries and facilities in MCPS, which have been highlighted over the course of the chapter. There are many possible directions for further inquiry, including but certainly not limited to the list below.

Directions for further inquiry:

- Further analysis of school facility and site size as compared to utilization
- Analysis of developable land and need for capital expansion
- Classification and analysis of schools nearing overutilization and high overutilization (i.e. schools in high growth areas within a particular number of percentage points away from 100% and 120%)
- Analysis of changing utilization rates over time, including comparisons to past enrollment projections
- Analysis of building age and school capacity and utilization

In addition to the directions above, there is ample opportunity for analysis on the interrelatedness of the key lenses in this report: utilization, diversity, proximity, and assignment stability. Further stages of this Districtwide Boundary Analysis will focus on interrelatedness.