Report of the Cross-agency Work Group on School Design Options

September 23, 2015

Executive Summary

The Cross-agency Work Group on School Design Options (work group) conducted an exploration of innovative school construction examples throughout the country to better understand the need for, and the rationale behind, alternative school designs. Some of the examples reviewed consisted of schools designed for small sites, and others consisted of schools designed for repurposed commercial buildings. The use of the term "commercial" in the context of this report includes office, industrial, and retail facilities. In the course of reviewing examples and discussing their benefits and drawbacks, a number of findings emerged. These findings are detailed in this report and summarized below:

- Necessity is frequently the mother of invention in providing schools where ideal land is scarce and there are no closed schools to reopen. These constraints are commonly found in the inner ring urban and suburban environments.

- As the county continues to develop, obtaining school sites will be more and more challenging. Montgomery County Public Schools (MCPS) will need to expand its innovative practices to adjust to the challenges of additional growth.

- Outdoor amenities, including parking, bus loading areas, student drop-off areas, playgrounds and/or athletic fields are frequently re-thought, reduced in size, multi-purposed, or eliminated in order to locate schools on small sites and in repurposed commercial buildings.

- MCPS has a combination of future school sites, closed schools, and properties that were surplused but remain in public ownership. These assets are likely to be tapped prior to measures that are required to locate schools on small sites and/or in repurposed commercial buildings.

- Alternative school designs are typically applied when there is a convergence of need and opportunity. A need would occur when schools are overutilized and there are no standard size sites available or closed schools to reopen. Opportunity would arise when either a small site or vacant commercial property is available in the area.

- The work group identified a number of potential challenges involved in pursuing innovative solutions. These challenges would need to be identified and addressed on a case by case basis if and when these solutions are pursued.

Background

In May 2015, Mr. Larry A. Bowers, interim superintendent of schools, established the Cross-agency Work Group on School Design Options (work group.) The purpose of the work group was to explore options that can enable schools to be located on less than standard sites through innovative design. Although there is no single solution that can solve all future constraints, use of smaller sites and/or repurposed vacant commercial buildings are important facility planning strategies. Work group members are listed in Appendix A.

The expertise and perspectives of the following organizations were represented on the work group:

- Cities of Gaithersburg and Rockville
- Maryland State Department of Education (MSDE)
- Montgomery County Council
- Montgomery County Council of Parent Teachers Associations (MCCPTA)
- Montgomery County—Office of Management and Budget and Department of General Services
- Montgomery County Planning Department
- Montgomery County Public Schools (MCPS)—Division of Long-range Planning and Real Estate Management Team, Department of Facilities Management; and one school principal
- Samaha Architects

The work group met on May 26, June 22, July 6, July 28, August 18, 2015; and September 1, 2015. At the August 18 and September 1 meetings, members of the work group reviewed and provided edits to this report. The paper was circulated to work group members on September 12, 2015, for final approval.

Innovation in School Design

For a variety of reasons, innovation in school design has been pursued in many communities. Reasons to innovate included cost constraints, land costs, size and complexity of sites, student populations, unique teaching programs, environmental concerns, and/or locations within urban and suburban environments. To address these challenges, schools have been constructed on small sites or located in repurposed commercial buildings. Design creativity and innovation were the means to overcome specific barriers and constraints. Prioritization of different land and construction costs, program necessities, enrollment counts, grade levels, and administrative budgets were all part of the discussions that led to innovative designs in these communities.

In MCPS, innovation in school design and operations has been a continuous process. Formation of the work group by Mr. Larry A. Bowers, interim superintendent of schools, is evidence of a longstanding commitment by MCPS to explore innovative approaches to facility challenges. MCPS has addressed an enrollment increase of more than 65,000 students over the past 32 years—an annual average increase of over 2,000 students. Accommodating enrollment growth in an educationally sound and cost effective manner has been a top priority of MCPS. Some examples of innovative approaches that have been pursued by MCPS for the past 32 years are listed below:

- MCPS is a leader in sustainable "green" design and was the first school system in Maryland to open a Leadership in Energy and Environmental Design (LEED) certified school (Great Seneca Creek Elementary School). Since that school's opening, another 21 LEED-certified schools have opened.

- MCPS has implemented Crime Prevention through Environmental Design (CPTED principles, making for safe and secure learning environments.

- MCPS constructs structurally flexible and adaptable schools that are amenable to reconstruction and additions, and enable learning spaces to be changed as needed.

- One of the six objectives that guide MCPS facility planning is *Objective 5: Support Multipurpose Use of Schools.* This objective recognizes the role schools play as centers of community activity and affiliation. Examples include leasing of available space for daycare operations and partnering with the county Department of Health and Human Services to house the Linkages to Learning Program and School-based Health/Wellness Centers. In addition, MCPS facilities provide for a wide range of community activities after school hours, managed by the Interagency Coordinating Board for Community Use of Public Facilities.

- In designing new schools, and revitalizing/expanding older schools, changes in curriculum and school operations are factored into project designs and customization of educational specifications for schools occurs so that each project is tailored to the programs offered at schools. In addition, lessons learned from each school project are factored into subsequent projects.

MCPS has many schools located on small sites. The following examples illustrate how MCPS maximizes use of small sites.

- Many schools are collocated with parks. Today there are 46 elementary schools, 12 middle schools, and 7 high schools collocated with parks. (See Appendix B for a complete list of school sites.)

- MCPS builds multi-story schools to adjust to small sites and address stringent environmental regulations.

In addition to the strategies listed above, alternative approaches to accommodate enrollment growth have been explored in the past and are likely to be needed in the future. Three examples of these approaches follow.

- In the 1990s, Montgomery Blair High School faced large space deficits as enrollment grew. Expansion of the high school at the original Wayne Avenue location was explored but was not found to be a feasible solution. Consequently, alternative sites for the school were considered. Among the alternatives considered were commercial properties that could be repurposed for the school. At that time, there were no viable commercial buildings available and MCPS purchased the current site of the school (formerly known as the Kay

tract). The facility on Wayne Avenue was converted to collocate Silver Spring International Middle School and Sligo Creek Elementary School.

- In the Clarksburg Cluster, enrollment patterns required the opening of a new middle school prior to the need for a new high school. Consequently, Rocky Hill Middle School was opened in 1995 but designed to be converted to a high school facility as enrollment increased. In 2004, Rocky Hill Middle School was reconstructed at its current location, and the former building was expanded to become Clarksburg High School, which opened in 2006.

- Oakland Terrace Elementary School was significantly overutilized from 2005 to 2010, with limited land available to accommodate relocatable classrooms. Flora M. Singer Elementary School was planned to relieve Oakland Terrace Elementary School when it opened in 2012. In order to reduce the enrollment at Oakland Terrace Elementary School on an interim basis, kindergarten students were relocated to an unoccupied section of Sligo Middle School for the 2010–2011 and 2011–2012 school years.

Planning Context

Montgomery County spans a wide range of land uses and development densities. Consistent with the 1963 general plan—*On Wedges and Corridors*—the county has seen most development along radial corridors aligned with transportation facilities. Today, more than 50 years after adoption of the general plan, high density "corridor cities" have been developed and are slated for increased density in master plans, sector plans, and zoning. Introduction of the Purple Line and the Bus Rapid Transit (BRT) network will enhance these existing and new centers.

Most new housing development is now focused in transit accessible, urbanizing areas of the county. At the same time, there remain large areas of the county that contain more traditional suburban communities and areas that are rural. Suburban areas are now approaching build-out, and most rural areas are located within the county Agricultural Reserve where only low density development is allowed. As suburban areas build-out and begin to densify at their centers, and urban areas experience increased density, open land of any significant size becomes scarce and finding sites for new schools more challenging.

MCPS is experiencing enrollment increases in nearly all parts of the county—suburban and urban. Housing turnover is the major driver of enrollment growth, while new housing developments further add to enrollment. Since 1983, MCPS enrollment has increased by over 65,000 students and 34 elementary schools, 17 middle schools, and 6 high schools have opened. Numerous additions to existing schools also have been built. Enrollment is projected to increase by another 11,500 students by 2020, and four new schools are scheduled to open by 2018. All of these new schools have sites that are adequate under current school building standards and include parking, bus loading areas, student drop-off areas, playgrounds and athletic fields. Therefore, the need for alternative design approaches is predictable, but not immediate.

Interest by county leaders in rethinking school site requirements and repurposing commercial buildings for schools increased in the past year. The following led to this interest:

- Continuing enrollment growth in urbanized areas of the county where land is at a premium.

- A study of public facility collocation, including schools, as a means to better utilize sites. The Montgomery County Planning Department is taking the lead on this effort, and the study engages numerous county agencies, as well as MCPS.

- Community concerns over the ability of schools to accommodate increased enrollment, spurred by work on Sector Plans in the lower county area.

- Sponsorship by Councilmember Roger Berliner of a daylong "Infrastructure Forum" (March 7, 2015) that informed the community on how MCPS and county planners work together and generated discussion of improvements to planning processes. The forum also included presentations of schools on small sites and in repurposed commercial buildings.

- The opening in fall 2014 of Bailey's Upper Elementary School, Fairfax County Public Schools, in a repurposed office building.

- Increasing office and retail vacancies in Montgomery County and the Washington region, where changing work environments and reduced Federal spending and consolidation have resulted in vacancies. Today, transit accessible offices in more mixed-use and walkable urban centers are preferred, while buildings in office parks and independent campuses suffer vacancies. In 2015, 15 percent of office space in the county is vacant. In addition, nationally, auto-oriented retail malls are closing at a rate of 18 percent annually.

MCPS Strategies to Address Enrollment Growth

In order to place the need to use small sites or repurposed commercial buildings in context, the work group was briefed on strategies MCPS employs to address enrollment growth. When a school is projected to be over its capacity, MCPS seeks the most educationally suitable and cost effective solution to address the issue. The following strategies, in order of their consideration, are evaluated:

- Change school boundaries to reassign students to a school with available capacity.
- Add capacity to the school that is over its capacity.
- Add capacity to a nearby school and reassigning students to that school.
- Reopen a closed school in the area.
- Construct a new school on a Board of Education (Board)-owned site.
- Construct a new school on a site dedicated through the master plan process.
- Construct a new school on a former Board property that is still publicly owned and can be returned for public school use.
- Construct a school on land that is purchased from a private owner.

MCPS facility planning guidelines are provided in the recently updated Regulation FAA-RA, *Long-range Educational Facilities Planning*. In terms of school site sizes, FAA-RA states the minimum usable site size for elementary schools is 7.5 acres, middle schools 15.5 acres, and high schools 35 acres. However, a number of MCPS schools sit on sites smaller than these minimums

and adjustments are made as needed. In the future, a wide range of strategies to address school needs will continue to be explored when situations require alternative solutions to be considered.

Also included in the facility planning guidelines in FAA-RA are preferred enrollment ranges for schools. As enrollment has grown in the county, the upper end of enrollment size for schools has increased. This enables the school system to maximize use of existing schools to accommodate enrollment growth by adding to their capacities. Listed below are the preferred ranges of enrollment for schools:

- Elementary Schools—450 to 750 students
- Middle Schools—750 to 1,200 students
- High Schools—1,600 to 2,400 students

Since a large number of MCPS schools are below the upper end of these ranges, additions are a cost-effective way to accommodate enrollment growth. Additions to schools are usually planned before considering construction of new schools.

Considering all of the guidelines and strategies listed above, MCPS has a wide range of options to accommodate future enrollment increases, both in the short and long term. It is important to note that MCPS facility planning focuses on two time periods. First, the MCPS six-year enrollment projection and facility planning timeframe aligns with the county capital budgeting period. In the most recently County Council approved *Amendments to the Fiscal Year* (FY) *2015–2020 Capital Improvements Program (CIP)*, that period spans the 2014–2015 to 2020–2021 school years. The CIP provides funding for school capacity projects that are warranted by the six-year enrollment projection.

MCPS also considers a second timeframe that extends well beyond the six-year CIP period. MCPS enrollment projections extend to 15 years. These projections enable judgments to be made about the longer range need for school capacity projects and thereby may influence what is requested in the six-year CIP. In addition, MCPS tracks master plans and sector plans as they are developed to evaluate the long-range need for school sites, and to consider how capacity solutions being put in place in the near term will be impacted by further growth. Important to being prepared for the long-term is the MCPS inventory of closed schools and future school sites. Alternatives reviewed by the work group also are important to the ability of MCPS to address long-range growth.

Appendix C presents a table organized by cluster that shows enrollment projections and cluster utilization levels in the year 2020 given the most recently approved CIP. Appendix C also displays options that are available in each cluster to accommodate enrollment growth beyond the year 2020. These options include increasing the capacity of existing schools through additions, reopening closed schools, and constructing new schools on available sites. It is anticipated that in almost all cases one of these options would be utilized prior to selecting small sites for schools or repurposing commercial buildings for schools.

Work Group Findings

At the June 22, 2015, meeting of the work group, members were presented with examples of schools designed on constrained, small sites and in repurposed commercial buildings. Two

members of the work group—Mr. Paul Falkenbury, partner and principal, Samaha Architects, and Mr. Paul Mortensen, chief and senior urban designer, Montgomery County Planning Department—provided these examples and led discussion of their attributes.

Schools on Small Sites

Schools on small sites included elementary and secondary schools on sites ranging from .54 acres to 16 acres. The following MCPS schools were presented: Chevy Chase Elementary School on 3.8 acres, and Somerset Elementary School on 3.7 acres; and Bethesda-Chevy Chase High School on 16.4 acres. The following out-of-county schools also were presented:

- Dunbar Senior High School, Washington D.C.—It has a capacity for 1,100 students, Grades 9–12, on an 8.5 acre site. Additional features include faculty and staff parking under the building, the gymnasium stacked over the swimming pool, LEED Platinum rating, a large central atrium space used for school gatherings and public social events and galas, a four-story classroom wing, and a football field and track with bleacher seating.

- Union City High School, Union City, New Jerse—It has a capacity for 2,400 students, Grades 9–12, on an 8.4 acre site. The school includes a four-story "L" shaped classroom wing and a three-acre rooftop athletic field used for football, soccer, and baseball with seating for 2,100 spectators.

- School Without Walls, Washington D.C.—It has a capacity for 550 students, Grades 9–12, on a .5 acre site. The school shares the athletic, library, and auditorium facilities at George Washington University. The shared uses and school renovation were instituted through an agreement with the University that enabled the University to expand student housing on a portion of the School Without Walls site.

- Public School #330, New York, New York—It has a capacity for 420 students on a .54 acre site. Unique features include a four-story design with the gymnasium/auditorium partially underground which maintains day lighting into the space. It also features small outdoor playgrounds on synthetic turf and a cafeteria that looks down into the gym. Different colored floors were designed for way finding. The school has no parking due to its location in the center of a high density neighborhood with abundant transit.

- Frederico Garcia Lorca Elementary School, Chicago, Illinois—It has a capacity for 900 students, Grades K–8 on a 3.0 acre site. This school, within an existing higher density mixed-use neighborhood, has a small playground space and uses a sports field in an adjacent public park.

All of these examples had unique site constraints that were addressed through innovative design and building approaches. Where possible, adjacency to parks or shared public or private uses helped these schools meet several of their program needs for fields and/or larger meeting spaces.

Schools in Repurposed Commercial Buildings

There were several examples provided of schools located in repurposed commercial buildings. Although there were many obstacles to overcome due to floor sizes, vertical circulation constraints, the need for athletic and recreational facilities, bus access and parking, and unobstructed communication between teachers and administration, these obstacles were overcome through innovative design that has led to successful school facilities. These examples include:

- North Atlanta High School, Atlanta, Georgia—It is located in a former IBM office building with a capacity for 2,400 students in Grades 9–12. The building has 11 stories and the site is only 11.4 acres. One office building was removed to create an indoor athletic and assembly facility and some of the parking lots were converted into sports fields. Each grade takes up two individually colored floors with a central stair linking the grades. Elevator software was developed to prioritize different groups going to individual floors, and roughhouse-proof glazing was used at all windows.

- The Calhoun School, New York, New York—It is located in a former five-story office building and serves 700 students in Grades 2–12. Three stories were added above the existing building. They include a performing arts center featuring theaters, rehearsal space, a set design shop, music instructional space, arts department, and a 5,200 square foot gymnasium. There also is a green roof that is used for passive recreation and fresh air for students, faculty, and the community at large.

- The World School, New York, New York—It is located in an historic 1928 ten-story warehouse and serves 1,600 students, K–12. A partial 11th story was added to provide a full-height gymnasium at the 10th floor, with the rest of the roof space used for outdoor recreation. A central atrium was added to provide day lighting at the center of the building and to allow for visual connections. Bus and student drop-off is located on the street.

- Community Charter School of Paterson, Paterson, New Jersey—It is located in an historic industrial building on .6 acres and serves 500 students, PreK–Grade 5.5 . The building was selected for the school to help foster a sense of community in a more open configuration. Bright colors were used within the building for way-finding, and large gathering spaces are located within the center of the building.

- High Tech High, San Diego, California— It is located in a former Naval Training Center and serves 400 students in Grades 9–12. The buildings complex shares spaces with a culinary school, an architectural school, a community college, an artist colony, a micro-economic development core, and various public and private agencies.

- The Pueblo School Complex, Pomona, California—It is located in a former retail mall on 9.8 acres and serves 1,800 elementary school students and 120 high school students. The Pomona Unified School District faced significant problems in their community. The economy was depressed in the town center area, populations were growing quickly, students were bused long distances, student-to-teacher ratios were very high, and they had no land for new schools. The school district purchased a dilapidated mall, which not only

satisfied their needs for a new school facility, but helped revitalize a depressed section of downtown.

In addition to these examples, Bailey's Upper Elementary School provides a nearby and successful example of repurposing a former office building for a school. Bailey's Upper Elementary School is located at 6245 Leesburg Pike, Falls Church, Virginia. The new school is located in a former five-story office building of 99,000 square feet on a site of 3.4 acres.

The new school was opened for the 2014–2015 school year to relieve severe overcrowding at the original Bailey's Elementary School that served Grades preK–5. Appendix D provides a September 2, 2014, newspaper article about the opening of the school. The new school is 1.4 miles from the original school and the two schools now function as paired schools. Last year, 770 students in Grades preK–2 were enrolled at the original Bailey's Elementary School and 550 students in Grades 3–5 were enrolled at the new Bailey's Upper Elementary School. One of the reasons the new school serves Grades 3–5 students is due to the size of each floor in the former office building. Due to the limited square footage of the floors, it was not possible to accommodate lower grades on the lower levels of the building (as required by fire codes). By pairing the schools, and only serving Grade 3–5 in the new school, the school system was able to meet fire safety requirements while accommodating the expanding student population. The new school is recognized for providing an abundance of natural light in its public spaces and meeting rooms, and, it is believed that internal stairs between floors facilitate greater teacher collaboration.

Because the building that now houses Bailey's Upper Elementary School was older and rated Building Class B, Fairfax County Public Schools was able to purchase the building for the affordable price of $9.3 million. In addition to the purchase price, $11.5 million was spent to repurpose the building for school use, for a total cost of $20.8 million. A second phase of construction is planned to include a gym addition and playground. For comparison purposes, it is noted that the new Route 1 Area Elementary School, also funded in the Fairfax County Public Schools 2014–2018 Capital Improvements Program, was projected to cost a similar amount, at $21.2 million.

The decision to repurpose this vacant office building for a school reflected a convergence of the need for school capacity—the original Grades preK–5 school enrolled 1,300 students with 19 relocatable classrooms—and the availability of a vacant, affordable office building in the same service area as the existing school. In addition, due to severe overutilization at the existing school, more student capacity was needed as soon as possible. The county was able to repurpose the office building in six months. Design of the site enabled a student drop-off area. A bus loading area will be provided at the second phase.

A primary concern with placing Bailey's Upper Elementary School in the former office building was student safety at this high traffic location. The entire school property was fenced to address this concern. In addition, concerns over the small site which would limit outdoor play areas and parking, also were raised. (It was determined that the roof was not adequate for play areas.) Although there was some skepticism expressed at the outset of the project, it is reported that the school is now embraced and functions well.

Common Characteristics of Schools on Small Sites and in Repurposed Commercial Buildings

A commonality of the schools reviewed by the work group—whether on small sites or in repurposed commercial buildings—was the very limited amount of land for outdoor facilities. Reduced in size or eliminated were parking, bus loading areas, student drop-off areas, playgrounds and athletic fields. It also was found that in the repurposing of office buildings to schools, classrooms are the most easily built feature. Creating more specialized spaces, such as gyms, media centers, and auditoriums is more difficult and increases costs.

Several examples of schools in former commercial buildings housed special program and charter schools. Students choose to attend these schools, rather than being assigned according to defined boundaries. In addition, several of the examples were schools with lower enrollment than is typical in MCPS. In all cases, the examples responded to situations where more traditional, suburban school design on more ample sites was not an option.

Cost to Repurpose a Vacant Office Building in Montgomery County

The Montgomery County Planning Department provided information for the work group on vacant office buildings in the county. The MCCPTA, on behalf of parents and school staff, raised concerns for student safety and school management if a repurposed office building was shared with other tenants. Therefore, fully vacant office buildings were reviewed for cost purposes. However, it should be noted that innovative designs could be used to address safety concerns in shared use of office buildings. In order to have a building of sufficient square footage to repurpose as a school, vacant buildings of 100,000 square feet or greater were examined.

In summer 2015, there were nine vacant office buildings that were 100,000 square feet or greater in size. Six of these office buildings were located in the Walter Johnson Cluster, one in the Clarksburg Cluster, one in the Gaithersburg Cluster, and one in the Wheaton Cluster. Seven of the nine office buildings are Building Class A. The buildings in the Clarksburg and Wheaton clusters are Building Class B. The class of the building reflects its condition and affects the cost to lease or purchase. Appendix E provides characteristics of all nine buildings. (Appendix E also contains a listing of vacant and partially vacant strip commercial properties that was reviewed by the committee, but not pursued.)

A five-story building of approximately 150,000 square feet in the Walter Johnson Cluster was selected, and the cost to repurpose the building into a 900-seat capacity middle school was developed. (It is not possible to identify the building due to concerns that any estimate of costs could affect the valuation of the property.) The following assumptions and estimate of cost were made.

Construction Costs

The cost to repurpose the office building for classrooms is the same whether it is a leased facility or purchased, as follows:

- It was estimated that it would cost $18 to $23 million to repurpose the building for classrooms sufficient to serve 900 students. This cost included clearing all floors of

existing subdivisions, constructing classrooms, and upgrading building systems to comply with current educational specifications and code requirements.
- Design costs for repurposing the building were estimated at $1.0 to $1.5 million.
- The cost estimate only covered conversion to classrooms and did not include a gym, cafeteria, or outdoor features. These costs were more difficult to estimate without access to the building. Providing these features would add to the cost.

Cost to Lease the Building

- Leasing costs were estimated to be $27 per square foot and an 11-year lease period was selected.
- Given annual estimated increases of 2.5 percent, the lease cost over the 11-year period would be $55.3 million.
- Under a lease approach, it was estimated the building owner would provide an allowance of $3 to $4 million to repurpose the building for classrooms.

Cost to Purchase the Building

- The estimated cost to purchase the building, based on the last time the building was sold and current assessments, is approximately $40 million. It should be noted that the sample building is not listed for sale. Of the nine office buildings examined, only the former Comsat building in Clarksburg is listed for sale.

Total Costs

- Total cost of leasing the building for 11 years and repurposing it for classrooms totals approximately $70 to $76 million.
- Total cost of purchasing the building and repurposing it for classrooms totals approximately $59 to $65 million.

While all these cost projections are preliminary figures, they are higher than the $53.8 million that is programmed for Clarksburg/Damascus Middle School which is opening in August 2016 with a capacity for 965 students. In addition, this school will include all of the indoor facilities and outdoor features of a standard MCPS middle school. The cost estimates developed above indicate it is more cost effective to purchase a building than to lease one, unless circumstances demanded otherwise.

It should be noted that the costs listed above are for repurposing a Class A office building. If vacant Class B or lower buildings were available, then the lease or purchase costs would be reduced considerably. The experience of Bailey's Upper Elementary School illustrates how the cost to purchase a vacant Class B commercial building, if it were available in an area of need, can be lower than the costs listed in the example.

Benefits and Drawbacks of Schools on Small Sites and in Repurposed Commercial Buildings

Following the briefing on schools on small sites and in repurposed commercial buildings, work group members discussed the pros and cons of these approaches. A complete list of pros, cons, and comments received from the work group appears in Appendix F. Work group members also

were provided the opportunity to add more expansive comments to this report. Three members of the work group provided commentaries and these comments appear in Appendix G.

Near the end of the work group process, members were polled on the primary issues they believe need to be communicated in this report. These issues include the benefits and drawbacks of alternative school design options and additional considerations.

Benefits of Schools on Small Sites

- Use of small sites may be the only way to provide for schools in urban areas.
- Use of small sites may increase the options for locating schools. Small sites may also be easier to acquire than large sites.
- Use of small sites for schools may result in less acreage to maintain.
- Schools on small sites may fit better in the urban environment.

Drawbacks of Schools on Small Sites

- Parking, bus loading areas and/or parent drop-off areas may be reduced or eliminated, possibly compromising student safety.
- Playgrounds and/or athletic fields may be reduced and/or eliminated, compromising the physical education program and/or recreation.
- Equity issues can be raised between schools on small sites with reduced site amenities and other MCPS schools with these amenities.
- Use of underground parking to make up for small sites may increase construction costs and may raise safety concerns.

Benefits of Schools in Repurposed Commercial Buildings

- Vacant commercial buildings may be repurposed for schools more quickly than construction of new school facilities.
- Leased commercial buildings may respond to temporary school enrollment needs until a permanent solution is available.
- Innovative educational programming may lend itself to repurposed commercial buildings.
- Repurposed commercial buildings— served by robust public transportation—may increase options for staff and/or students to travel to school, thereby reducing traffic and parking needs.
- Undesirable vacancies of office buildings may be addressed by repurposing them for schools.

Drawbacks of Schools in Repurposed Commercial Buildings

- Many of the drawbacks of schools on small sites apply to repurposed commercial buildings, including:
    - Parking, bus loading areas and/or student drop-off areas may be reduced or eliminated, possibly compromising student safety.
    - Playgrounds and/or athletic fields may be reduced and/or eliminated, compromising the physical education program and/or recreation.

    - Equity issues may be raised between schools in repurposed commercial buildings with reduced site amenities and other MCPS schools with these amenities.
- Commercial buildings may not be in residential areas, which may reduce walkability.
- Leasing or purchasing vacant commercial buildings and repurposing them for schools may be as costly, or more costly, than traditional school construction.

In addition to identifying the benefits and drawbacks listed above, the work group made the following related comments that are worth considering when selecting small sites for schools or repurposing commercial buildings for schools.

Comments

- Parents and staff may have concerns for safety if schools are located in a portion of a commercial building that has non-MCPS tenants in other parts of the building. If partial use of a commercial building was considered, then access issues would need to be addressed and a clear separation of tenants from students would be necessary. The acceptability of partial use of an office building also could depend on the type of office use (i.e. public or private).

- Schools on small sites and in repurposed commercial buildings may be more acceptable as schools of choice—special program schools or charter schools—as opposed to schools with fixed boundaries that students are required to attend. This could resolve the equity issue.

- Office buildings in office parks are more likely to have land that can be repurposed for playgrounds and/or fields than office buildings in highly urban settings.

- Collocation with parks could make use of small sites and repurposed commercial buildings more viable.

- At the elementary school level, fire safety rules require Kindergarten and Grade 1 students to be housed on lower levels for safe evacuation. This requirement, with the need to locate administrative areas on the ground level, limits the potential height of elementary schools.

- Schools on small sites and in repurposed commercial buildings could be used for self-contained special programs that pull from multiple schools or clusters (i.e., Head Start, pre-Kindergarten)

- Multi-story school buildings are better suited for middle schools and high schools.

- Multi-story school buildings in neighborhoods could meet community resistance.

- Depending on the number of floors, the vertical organization of office buildings could present challenges in the movement of students through the facility. Elevators and/or escalators may be needed.

- Most vacant office buildings in the county are in suburban office parks where more traditional approaches to provide schools may be available.

- Office buildings in dense urban locations—where there may be a greater need for alternative school design—are more fully leased and less available for repurposing.

- MCPS and county staff located in closed schools could be moved to vacant commercial office space before students are moved to vacant office buildings. The closed schools could then be reopened as operating schools.

- If commercial space is leased, it would be paid through operating budget funds and would compete with funds for school staffing and operations. In addition, leasing costs would add to the level of maintenance of effort requirements.

- Currently, MCPS is only eligible for State funding of capital projects for Board-owned facilities. (Exceptions may be possible for very long-term leases or lease-purchase arrangements.)

- When a new school is needed, the MCPS site selection process could be expanded to consider small sites and commercial buildings, in addition to more traditional site options.

Summary

Members of the work group represented the key planning agencies in the county and state, as well as the cities of Gaithersburg and Rockville, and County Council. MCPS staff and Samaha Architects provided expertise on current facility designs, educational program, regulatory requirements, and current options for accommodating enrollment increases. The school principal provided perspective on school management and operations. MCCPTA representatives provided the parent and teacher perspective.

Although there is no silver bullet in alternative school design that satisfies every site, program, student, parent, and/or administrative need, the examples provided in this report demonstrate how the convergence of need and opportunity resulted in a successful school outcome. The work group submits this report to increase understanding of the benefits and drawbacks of uniquely designed schools. Small sites and repurposed commercial buildings represent opportunities to address potentially significant siting issues. When these options are selected there are many variables that will play into the physical design of unique school buildings at these locations. As MCPS continues to work with the Montgomery County Planning Department in its Sector Planning process and conducts facility planning in the short-term and long-term future, the findings of the Cross-agency Work Group on School Design Options should be referenced when nontraditional approaches to locate or design schools are under consideration.

APPENDICES

Appendix A

Work Group Members

Members of the Cross-agency Work Group on School Design Options

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Appendix B

MCPS School Site Sizes

Elementary School Sites, from Smallest to Largest

Average Elementary School Site is 9.1 acres

Elementary School Name	Site Acres	Park Adjacent?
Piney Branch	1.97	Yes
Somerset	3.7	
Chevy Chase	3.8	
Rolling Terrace	4.3	
Cannon Road	4.4	Yes
Garrett Park	4.4	Yes
Takoma Park	4.7	
Wood Acres	4.78	Yes
Farmland	4.8	Yes
Little Bennett	4.81	Yes
Arcola	5	Yes
Beverly Farms	5	Yes
New Hampshire Estates	5.4	
Pine Crest	5.6	Yes
Rosemary Hills	6.1	
Broad Acres	6.2	Yes
Luxmanor	6.5	Yes
Highland View	6.6	
Bradley Hills	6.7	Yes
Burning Tree	6.8	Yes
Darnestown	7.2	
Rock View	7.4	
Westover	7.6	
Forest Knolls	7.8	
Germantown	7.8	
Roscoe R. Nix	7.8	Yes
College Gardens	7.9	Yes
North Chevy Chase	7.9	
Rock Creek Forest	8	
Wheaton Woods	8	
Ashburton	8.3	
Bannockburn	8.3	
Gaithersburg	8.39	
Beall	8.4	Yes
East Silver Spring	8.4	
Meadow Hall	8.4	Yes
Mill Creek Towne	8.4	
Bethesda	8.42	
Brookhaven	8.57	
Jackson Road	8.8	
Whetstone	8.8	Yes
Bel Pre	8.9	Yes
Rosemont	8.9	
Brown Station	9	Yes
Carderock Springs	9	
Clopper Mill	9	Yes
Fallsmead	9	Yes
Galway	9	Yes
Sargent Shriver	9.17	
Ritchie Park	9.2	
Flower Valley	9.3	
Travilah	9.3	
Wayside	9.3	
Damascus	9.4	
Lake Seneca	9.4	
Oakland Terrace	9.5	Yes
Wyngate	9.5	
Bells Mill	9.6	
Cresthaven	9.8	
William T. Page	9.8	
Kensington-Parkwood	9.9	
Olney	9.9	
Seven Locks	9.96	
Clarksburg	9.97	
Lucy V. Barnsley	10	
Clearspring	10	Yes
Cloverly	10	Yes
Captain James Daly	10	Yes
Diamond	10	Yes
DuFief	10	Yes
Fields Road	10	
Flower Hill	10	Yes
Glen Haven	10	Yes
Greenwood	10	Yes
Kemp Mill	10	
Ronald McNair	10	Yes
Potomac	10	
Sequoyah	10	Yes
Stedwick	10	
Waters Landing	10	
Watkins Mill	10	Yes
Woodfield	10	
Cedar Grove	10.1	
Harmony Hills	10.2	Yes
South Lake	10.2	
Summit Hall	10.2	Yes
Cashell	10.24	
Montgomery Knolls	10.3	
Stonegate	10.3	
Fox Chapel	10.34	Yes
Viers Mill	10.4	
Laytonsville	10.43	
Belmont	10.5	
Goshen	10.5	
Rock Creek Valley	10.5	
Twinbrook	10.5	
S. Christa McAuliffe	10.6	Yes
Lois P. Rockwell	10.6	
Washington Grove	10.7	
Strathmore	10.8	Yes
Strawberry Knoll	10.8	Yes
Sherwood	10.85	
Brooke Grove	10.96	
Georgian Forest	11	Yes
Highland	11	Yes
Woodlin	11	
Weller Road	11.1	
Oak View	11.3	
Candlewood	11.8	
Fairland	11.8	
Spark M. Matsunaga	11.8	
Stone Mill	11.8	
Burtonsville	11.9	
Dr. Charles R. Drew	12	
Thurgood Marshall	12	
Glenallan	12.1	
Jones Lane	12.1	
Poolesville	12.3	
Rachel Carson	12.4	
Cold Spring	12.4	
Westbrook	12.5	Yes
Singer	12.7	Yes
Judith A. Resnik	13	
Lakewood	13.1	
Dr. Sally K. Ride	13.5	
Great Seneca Creek	13.71	
Burnt Mills	15.1	
Sligo Creek	15.6	Yes
Maryvale	17.7	
Greencastle	18.9	
Monocacy	27	

Source: Montgomery County Public Schools, July 2015

Secondary School Sites, from Smallest to Largest

Average Middle School site is 19.7 acres. Average High School site is 35.4 acres

Middlde School Name	Site Acres	Park Adjacent?
Middle Schools:		
Lakelands Park	8.11	Yes
Newport Mill	8.4	Yes
Earle B. Wood	8.5	Yes
Parkland	9.2	Yes
Silver Spring International	10.64	Yes
Thomas W. Pyle	14.32	
Eastern	14.5	
Montgomery Village	15.1	
Col. E. Brooke Lee	16.5	Yes
A. Mario Loiederman	17.08	
White Oak	17.3	
Cabin John	18.2	
Kingsview	18.5	Yes
Takoma Park	18.83	Yes
Martin Luther King, Jr	19	
Herbert Hoover	19.1	
North Bethesda	19.1	
Argyle	19.9	
Roberto Clemente	19.9	
Benjamin Banneker	20	
William H. Farquhar	20	
Ridgeview	20	
Shady Grove	20	
John Poole	20.5	
Francis Scott Key	20.6	
Redland	20.64	Yes
Julius West	21.3	
Sligo	21.7	Yes
John T Baker	22	Yes
Rocky Hill	23.29	
Rosa Parks	24.1	Yes
Gaithersburg	24.2	
Robert Frost	24.8	
Westland	25.1	
Neelsville	29.2	
Briggs Chaney	29.4	
Tilden	29.8	
Forest Oak	41.2	

High School Name	Site Acres	Park Adjacent?
High Schools:		
Bethesda-Chevy Chase	16.4	
Springbrook	25.13	Yes
Albert Einstein	26.67	Yes
Richard Montgomery	26.71	
Thomas S. Wootton	27.37	
Wheaton	28.2	
John F. Kennedy	29.1	
Seneca Valley	29.4	
Northwood	29.6	
Col. Zadok Magruder	30	
Quince Orchard	30.1	
Montgomery Blair	30.2	Yes
Winston Churchill	30.3	
Rockville	30.3	
Walt Whitman	30.7	Yes
Walter Johnson	30.9	
Damascus	32.7	
Paint Branch	33.6	
Northwest	34.6	Yes
Poolesville	37.2	
Gaithersburg	40.48	Yes
Sherwood	49.3	
Watkins Mill	50.99	Yes
Clarksburg	62.73	
James Blake	91.09	

Source: Montgomery County Public Schools, July 2015

Appendix C

Options for Accommodating Enrollment Increases

Capacity Analysis in 2020 and Options to Address More Enrollment

CLUSTER_NAME	Level	School Year 2020-21 Projected Enrollment	2020-21 Capacity (with funded CIP)	2020-21 Percent Utilization	2020-21 Space Avail./Deficit	Options to Address More Enrollment (Acreage of closed schools and sites in parentheses)
Bethesda-Chevy Chase	ES	3,526	3,861	91%	335	Closed Schools: Lynbrook (4.2) , Rollingwood (4.1)
Bethesda-Chevy Chase	MS	1,765	2,019	87%	254	Increase Capacity: B-CC MS #2, Westland MS
Bethesda-Chevy Chase	HS	2,367	2,399	99%	32	Closed School: Woodward HS (29.8)
Winston Churchill	ES	2,571	2,913	88%	342	Increase Capaciy: Potomac ES, Seven Locks ES
						Closed Schools: Georgetown Hill ES (10.4), Tuckerman ES (9.1) Site: Kendale ES (10.5)
Winston Churchill	MS	1,422	1,696	84%	274	Site: Brickyard MS (20.0)
Winston Churchill	HS	2,142	2,013	106%	-129	Increase Capacity: Churchill HS
Clarksburg	ES	4,390	3,857	114%	-533	Increase Capacity: Cedar Grove ES, Clarkburg ES New ES: Clarksburg Village ES Site #2 (9.8) - opening date TBD in FY17-22 CIP Other ES Sites: Cabin Branch (size TBD), West Old Baltimore Road (9.3)
Clarksburg	MS	2,164	2,322	93%	158	Increase Capacity: Clarksburg/ Damascus MS, Rocky Hill MS
Clarksburg	HS	2,458	2,160	114%	-298	Reassignments to: Seneca Valley HS in 2019
Damascus	ES	1,923	2,193	88%	270	Increase Capacity: Damascus ES, Rockwell ES, Woodfield ES Sites: Hawkins Creamery (13.5), Oak Drive (13.0)
Damascus	MS	919	841	109%	-78	Increase Capacity: Clarksburg/ Damasucs MS Sites: Kings Bridge MS (30.3)
Damascus	HS	1,467	1,551	95%	84	Increase Capacity: Damascus HS (revitalization/expansion opens approximately 2027)
DCC - Blair	ES	4,505	4,335	104%	-170	Increase Capacity: East Silver Spring ES, Montgomery Knolls ES/ Pine Crest ES, New Hampshre Estates ES/ Oak View ES, Highland View ES, Rolling Terrace, Takoma Park ES/ Piney Branch ES Closed Schools: Parkside ES (11.6)
DCC - Blair	MS	2,756	2,354	117%	-402	Increase Capacity: Takoma Park MS, Eastern MS (rev/ex project with completion August 2021)
DCC - Blair	HS	3,212	2,921	110%	-291	Increase Capacity: Blair HS
DCC - Einstein	ES	3,062	3,056	100%	-6	Increase Capacity: Woodlin ES Closed Schools: Forest Grove ES (6.2), MacDonald Knolls ES (8.1), Pleasant View (6.2)
DCC - Einstein	MS	1,296	1,420	91%	124	Increase Capacity: Newport Mills MS, Sligo MS Closed School: Montgomery Hills MS
DCC - Einstein	HS	1,978	1,739	114%	-239	Increase Capacity: Einstein HS
DCC - Kennedy	ES	3,035	3,199	95%	164	Increase Capacity: Bel Pre ES/ Strathmore ES Closed Schools: Saddlebrook ES (10.6), Spring Mill ES (7.7)
DCC - Kennedy	MS	1,775	1,536	116%	-239	Increase Capacity: Argyle MS, Lee MS, Parkland MS
DCC - Kennedy	HS	1,975	1,833	108%	-142	Increase Capacity: Kennedy HS
DCC - Northwood	ES	3,778	3,582	105%	-196	Increase Capacity: Highland View ES, Sligo Creek ES
DCC - Northwood	MS	1,854	1,550	120%	-304	Increase Capacity: Lee MS, Silver Spring International MS, Sligo MS
DCC - Northwood	HS	1,963	1,744	113%	-219	Increase Capacity: Northwood HS
DCC - Wheaton	ES	3,181	3,805	84%	624	Closed Schools: Bushey Drive ES (6.1), Rocking Horse Road ES (8.3)
DCC - Wheaton	MS	1,771	1,551	114%	-220	Increase Capacity: Loiederman MS, Parkland MS
DCC - Wheaton	HS	1,737	1,596	109%	-141	Increase Capacity: Wheaton HS

Source: Montgmery County Public Schools, July 2015

Capacity Analysis in 2020 and Options to Address More Enrollment

Continued

CLUSTER_NAME	Level	School Year 2020-21 Projected Enrollment	2020-21 Capacity (with funded CIP)	2020-21 Percent Utilization	2020-21 Space Avail./Deficit	Options to Address More Enrollment (Acreage of closed schools and sites in parentheses)
Gaithersburg	ES	4,549	4,160	109%	-389	Increase Capacity: Laytonsville ES, Rosemont ES, Strawberry Knoll ES, Summit Hall ES, Washington Grove ES Site: Jeremiah Park, (size TBD)
Gaithersburg	MS	1,994	1,882	106%	-112	Sites: King Farm MS (size TBD), Laytonsville MS (22.7)
Gaithersburg	HS	2,451	2,407	102%	-44	Site: Crown Farm HS (32.1)
Walter Johnson	ES	4,277	4,630	92%	353	Site: White Flint ES (3.6) Closed Schools: Alta Vista ES (3.5), Arylawn (3.1), Grosvernor (10.2), Kensington ES (4.5), Montrose (7.5)
Walter Johnson	MS	2,212	2,408	92%	196	Increase Capacity & Reassignments to: Wood MS
Walter Johnson	HS	2,798	2,335	120%	-463	Increase Capacity: Walter Johnson HS Closed School: Woodward HS (29.8)
Col. Zadok Magruder	ES	2,661	2,877	92%	216	Increase Capacity: Candlewood ES, Cashell ES, Flower Hill ES, Mill Creek Towne ES, Resnik ES, Sequoyah ES Sites: Blueberry Hill (10.1), Woodwards Road ES (11.1)
Col. Zadok Magruder	MS	1,278	1,624	79%	346	Increase Capacity: Redland MS, Shady Grove MS Site: Oakdale MS (18.4)
Col. Zadok Magruder	HS	1,686	1,941	87%	255	Increase Capacity: Magruder HS Site: Crown Farm HS (32.1)
Richard Montgomery	ES	2,724	2,884	94%	160	Increase Capacity: Ritchie Park ES Sites: Fallsgrove ES (size TBD), King Farm ES (size TBD)
Richard Montgomery	MS	1,351	1,445	93%	94	Reassignments to: Shady Grove MS
Richard Montgomery	HS	2,479	2,237	111%	-242	Site: Crown Farm HS (32.1)
NEC - Blake	ES	2,557	2,555	100%	-2	Increase Capacity: Burnt Mills ES, Fairland ES, Page ES, Stonegate ES Site: Northwest Branch ES (11.4)
NEC - Blake	MS	1,263	1,345	94%	82	Increase Capacity: Banneker MS, Briggs Chaney MS, Key MS, White Oak MS
NEC - Blake	HS	1,781	1,743	102%	-38	Increase Capacity: Blake HS
NEC - Paint Branch	ES	2,533	2,493	102%	-40	Increase Capacity: Cloverly ES, Greencastle ES Closed School: old Fariland ES (9.2) Site: NEC ES #17 (size TBD)
NEC - Paint Branch	MS	1,404	1,401	100%	-3	Increase Capacity: Banneker MS, Briggs Chaney MS Site: Briggs Chaney Road MS (20.0)
NEC - Paint Branch	HS	2,158	2,034	106%	-124	Increase Capacity: Paint Branch HS
NEC - Springbrook	ES	3,307	3,328	99%	21	Increase Capacity: Cannon Road ES, Drew ES. Nix ES/Cresthaven ES, Leleck ES, Westover ES Closed School: Colesville ES (11.1) Site: White Oak Science Gateway ES (size TBD)
NEC - Springbrook	MS	1,251	1,250	100%	-1	Increase Capacity: Key MS, White MS
NEC - Springbrook	HS	1,976	2,162	91%	186	Increase Capacity: Sprinbrook HS
Northwest	ES	4,146	4,530	92%	384	Increase Capacity of: Clopper Mill ES, Germantown ES
Northwest	MS	2,220	2,229	100%	9	Increase Capacity and Reassignments to: Poole MS, King MS
Northwest	HS	2,540	2,241	113%	-299	Reassignments to: Seneca Valley HS in 2019

Source: Montgmery County Public Schools, July 2015

Capacity Analysis in 2020 and Options to Address More Enrollment

Continued

CLUSTER_NAME	Level	School Year 2020-21 Projected Enrollment	2020-21 Capacity (with funded CIP)	2020-21 Percent Utilization	2020-21 Space Avail./Deficit	Options to Address More Enrollment (Acreage of closed schools and sites in parentheses)
Poolesville	ES	583	758	77%	175	Increase Capacity: of Monocacy ES, Poolesville ES Closed School: Taylor ES (11.5)
Poolesville	MS	300	468	64%	168	Increase Capacity: Poole MS
Poolesville	HS	1,208	1,170	103%	-38	Increase Capacity: Poolesville HS
Quince Orchard	ES	3,194	2,770	115%	-424	Increase Capacity: DuFief ES, Fields Road ES, Jones Lane ES
Quince Orchard	MS	1,503	1,636	92%	133	Increase Capacity: Ridgeview MS
Quince Orchard	HS	2,019	1,857	109%	-162	Increase Capacity: Quince Orchard HS Site: Crown Farm HS (32.1)
Rockville	ES	2,554	2,643	97%	89	Increase Capacity: Flower Valley ES, Meadow Hall ES, Rock Creek Valley ES Closed Schools: Aspen Hill ES (6.0), English Manor ES (8.3), Lone Oak (7.1) North Lake ES (9.7)
Rockville	MS	1,053	961	110%	-92	Increase Capacity: Wood MS
Rockville	HS	1,536	1,571	98%	35	Increase Capacity: Rockville HS
Seneca Valley	ES	2,344	2,494	94%	150	Increase Capacity: Lake Seneca ES, Ride ES Site: Waring Station ES (10.0)
Seneca Valley	MS	1,242	1,397	89%	155	Increase Capacity: King MS
Seneca Valley	HS	1,395	2,400	58%	1,005	Site: Crown Fam HS (32.1)
Sherwood	ES	1,986	2,410	82%	424	Increase Capacity: Belmont ES, Brooke Grove ES, Greenwood ES, Olney ES, Sherwood ES Site: Sherwood ES #6 (17.0)
Sherwood	MS	1,118	1,429	78%	311	Increase Capacity: Farquhar MS, Rosa Parks MS
Sherwood	HS	1,772	2,166	82%	394	Increase Capacity of, and Reassignments to: Magruder HS, Rockville HS
Watkins Mill	ES	2,799	2,871	97%	72	Increase Capacity: South Lake ES Site: Stewartown ES/ Centerway Park
Watkins Mill	MS	1,346	1,339	101%	-7	Increase Capacity: Montgomery Village MS, Neelsville MS
Watkins Mill	HS	1,779	1,906	93%	127	Increase Capacity: Watkins Mill HS Site: Crown Farm HS (32.1)
Walt Whitman	ES	2,439	2,571	95%	132	Increase Capacity: Bannockburn ES, Burning Tree ES, Carderock Springs ES Closed Schools: Clara Barton ES (4.0), Brookmont ES (5.7), Concord ES (3.5) Fernwood ES (6.2) Radnor ES (9.0)
Walt Whitman	MS	1,443	1,289	112%	-154	Expand Capacity and Reassignments to: Westland MS
Walt Whitman	HS	2,155	1,891	114%	-264	Expand Capacity: Whitman HS Closed School: Woodward HS (29.8)
Thomas S. Wootton	ES	2,686	3,224	83%	538	Increase Capacity: Cold Spring ES, DuFief ES, Fallsmead ES, Lakewood ES, Stone Mill ES, Travilah ES Sites: Great Seneca Science Corridor ES, Wootton ES #7
Thomas S. Wootton	MS	1,443	1,632	88%	189	Increase Capacity of, and Reassignments to: Forest Oak MS, Gaithersburg MS, Ridgeview MS
Thomas S. Wootton	HS	2,188	2,167	101%	-21	Increase capacity: Wootton HS Site: Crown Farm (32.1)

Source: Montgmery County Public Schools, July 2015

Appendix D

Article about Opening of Bailey's Upper Elementary School

Education

At Bailey's elementary, Fairfax County students head to class in office building

By T. Rees Shapiro and Michael Alison Chandler September 2, 2014

At Fairfax County's newest school, the first buses rolled into the parking lot Tuesday at 8:23 a.m. The giggling, jittery students poured out and looked up.

The new Bailey's Upper Elementary School for the Arts and Sciences is a five-story brick structure that nine months ago housed an office complex. **Now, it's Fairfax County's tallest school.**

County leaders call it a "vertical school," and administrators say the school district is likely to see more of them.

"As we continue to be a fast-growing school system and property becomes harder to come by, we will have to think differently" about school design, said Superintendent Karen Garza. "Vertical buildings will be part of our plan throughout the county."

School districts throughout the region are hungry for space to build new schools. In Northern Virginia, many schools opened their doors this year to swelling enrollments.

Arlington officials said they were 350 students over their spring projections by the first day. As they anticipate adding nearly 6,000 more students by 2023, the school board is looking for land to build a new elementary and middle school. It's also considering taller designs.

"We have looked at everything," said schools spokesman Frank Bellavia, including community centers and parkland. "There just aren't that many possible sites."

Loudoun County started the school year with three newly built schools — as well as its first charter school — keeping pace with demand that has made it one of the nation's fastest-growing school districts. Prince William County opened two new schools.

Fairfax school officials projected 186,785 students will enroll this year as the county's population grows. That's up nearly 2 percent from last year's enrollment of 183,200.

The new Bailey's facility, located in the Seven Corners area, is about $1^1/_2$ miles from the original school. The building will hold grades three, four and five. It will serve as a second campus for Bailey's, which had become one of the county's most crowded schools, with more than 1,300 students. The original building will house kindergarten through second grade.

Fairfax School Board member Sandy Evans, whose Mason district includes the new Bailey's building, said that the county's construction team pulled off a miracle to ensure the new facility was ready for Tuesday's crush of students. Workers pulled double shifts putting the finishing touches on the new school, which will have 600 students this year.

As many as 19 trailers with temporary classrooms dotted the Bailey's Elementary campus in recent years. Most of the students at Bailey's are from poor immigrant families; more than 65 percent qualify for additional English language lessons, and 70 percent receive free or reduced-price meals.

On the outside of the new Bailey's, the structure is all business, standing like a monolithic ode to corporate culture. On the inside, it feels like a school, with shimmering linoleum floors, lime-colored chairs and canary-yellow accents.

Principal Marie Lemmon spent the morning hustling up and down the stairs to visit teachers spread out over the five floors.

"As an elementary principal, you never know what the day will bring," said Lemmon, who will mark her second full year as principal at Bailey's this fall. A former collegiate basketball athlete, Lemmon zipped around the new building, boasting of the school's modern features.

Walls in many of the classrooms have a special coating that allows teachers to use them like oversized dry-erase boards. The science lab on the fifth floor has panoramic views of the District, and children can watch planes take off from nearby Reagan National Airport.

Three wood-floored rooms with padded walls provide indoor space for physical-education class. A state-of-the-art television studio gives budding journalists the chance to produce their own school news show.

"We tore this building apart," said Assistant Superintendent Jeff Platenberg, who oversaw the renovation. "The only thing left was the columns. Everything was gutted."

One school hallmark is still missing: a playground. Garza said that a second construction phase could begin this year to add a playspace in what is now an asphalt parking lot.

For the time being, students will be able to use a pair of hopscotch sets and four-square courts painted on the concrete beneath a parking overhang.

Bailey's parent Sani Moser said the new school is beautiful and much nicer than her child's previous school.

"It's artistic," said Moser, the mother of a third-grader. "But they need a playground for the children."

T. Rees Shapiro is an education reporter.

Michael Alison Chandler writes about schools and families in the Washington region.

Appendix E

Vacant Office Buildings
Vacant Strip Retail Centers

Vacant Office Buildings of Over 100,000 Square Feet in Montgomery County, as of 2nd Quarter 2015

Cluster	Building Name	Location	Year Built	Building Class	Square Feet	Floors	For Sale?	Last Sale Price	Average Rent Per Sq. Foot
Clarksburg	Comsat	22300 Comsat Dr. Clarksburg, MD	1969	B	537,784	2	Yes	$45,750,000	withheld
Gaithersburg	Shady Grove Exec. Center 5	9200 Corporate Blvd. Rockville, MD	1982	A	109,803	4	No	$22,300,000	$24.00
Wheaton	13900 Conn. Ave. (formerly Vitro)	13900 Conn. Ave. Silver Spring, MD	1979	B	262,923	3	No	not available	withheld
Walter Johnson	Rock Spring Park	6560 Rock Spring Dr. Bethesda, MD	1993	A	180,393	7	No	not available	$29.75
Walter Johnson	Capital Gateway Rock Spring Park	6700 Rockledge Dr. Bethesda, MD	1993	A	151,181	5	No	not available	$29.75
Walter Johnson	Rockledge Exec. Plaza 2	6610 Rockledge Dr. Bethesda, MD	1982	A	150,792	6	No	not available	$26.75
Walter Johnson	6116 Exec. Blvd.	6116 Exec. Blvd. Bethesda, MD	1989	A	209,717	8	No	not available	withheld
Walter Johnson	Executive Plaza South	6120 Exec. Blvd. Bethesda, MD	1985	A	174,211	8	No	$36,750,000	withheld
Walter Johnson	Executive Plaza North	6130 Exec. Blvd. Bethesda, MD	1985	A	154,248	8	No	$36,750,000	withheld

Source: Montgomery County Planning Department, July 2015

Strip Centers in Montgomery County with Vacancies - August 2015

Building Address	Building Name	City	State	Percent Leased	Percent Vacant	Rentable Building Area	Land Area (AC)	Year Built	Number Of Stories
8000 Flower Ave		Takoma Park	MD	0	100	3000	0.1618	1938	1
612-616 S Stonestreet Ave		Rockville	MD	3.35	96.65	3311	0.5905	1970	1
11307 Georgia Ave		Silver Spring	MD	4.55	95.45	6600	0.1714	1951	2
211 N Frederick Ave		Gaithersburg	MD	43.69	56.31	15982	0.99	1966	1
255 Market St W		Gaithersburg	MD	67.3	32.7	2936	0.0281	2001	3
2-12 N Washington Ave	Courthouse Center	Rockville	MD	69.18	30.82	37982	2	1970	2
2501-2519 University Blvd	Georgia Crossing at the Anchor Inn	Wheaton	MD	69.61	30.39	18000	0.3913	2008	2
109-119 E Diamond Ave	Fliegel Building	Gaithersburg	MD	70.55	29.45	6791	0.549	1975	1
11130-11136 Rockville Pike		Rockville	MD	71.5	28.5	24000	1.17	1958	2
8123-8125 Wisconsin Ave		Bethesda	MD	72.37	27.63	7246	0.2163	1967	1
15509-15537 New Hampshire Ave	Cloverly North Center	Silver Spring	MD	72.4	27.6	28065		1976	1
11261-11269 Triangle Ln		Silver Spring	MD	74.89	25.11	2919	0.2345	1952	1
815-825 Olney Sandy Spring Rd		Sandy Spring	MD	75.49	24.51	10200	0.4151		2
9991-10007 Stedwick Rd	Building B	Montgomery Village	MD	75.55	24.45	12740	1.7443	2011	1
8355-8377 Snouffers School Rd	Airpark Place Building 1-Retail	Gaithersburg	MD	77.45	22.55	12240	1.14	1984	1
4927-4933 Saint Elmo Ave		Bethesda	MD	78.57	21.43	7000	0.0574	1966	2
8528-8540 Piney Branch Rd		Silver Spring	MD	78.64	21.36	23993	2.3814	1962	1
9320-9332 Georgia Ave	Dale Shopping Center	Silver Spring	MD	81.36	18.64	8583	0.3883	1955	1
13503-13541 Clopper Rd	Seneca Park Plaza	Germantown	MD	81.56	18.44	25000	2.0403		1
16-36 Vital Way	Vital Way Retail Center	Silver Spring	MD	84.57	15.43	6819	0.551	1985	1
11325-11339 Georgia Ave	Gateway Wheaton Bldg	Wheaton	MD	84.62	15.38	13000	0.1	1991	2
11401-11423 Georgia Ave		Silver Spring	MD	84.62	15.38	19500	1	1947	1
18909-18939 Earhart Ct		Gaithersburg	MD	86.16	13.84	26296	2.0355	1989	2
343-347 Kentlands Blvd	The Boulevard Shops at the Kentlands	Gaithersburg	MD	86.21	13.79	6092	0.8975	1997	1
2211-2321 University Blvd	Wheaton Manor Shopping Center	Silver Spring	MD	86.25	13.75	37138			1
8301-8325 Grubb Rd	Rock Creek Shopping Center	Silver Spring	MD	88	12	28521	2.691	1949	1
13840-13884 Old Columbia Pike		Silver Spring	MD	88.49	11.51	23624	2.64	1987	2
751-763 Hungerford Dr	Flagship Shopping Center	Rockville	MD	88.79	11.21	16880	0.92	1968	1
2300-2318 Price Ave		Silver Spring	MD	88.9	11.1	7882	0.2895	1988	1
11200-11208 Grandview Ave		Wheaton	MD	89.15	10.85	16000	0.1213	2002	2
17501-17533 Redland Rd	Redland Shopping Center	Derwood	MD	89.92	10.08	23045	2	1974	1
18749 N Frederick Ave	Tri-Peaks Shopping Center	Gaithersburg	MD	91.33	8.67	16268	2.39	1990	1
12114-12168 Darnestown Rd	The Shops at Potomac Valley - South	Gaithersburg	MD	91.6	8.4	27984	3	1998	1
8001 Wisconsin Ave		Bethesda	MD	91.78	8.22	12131	0.2621	1986	2
11234-11254 Georgia Ave		Silver Spring	MD	93.29	6.71	16390	0.5972	1956	2
19710 Fisher Ave	Poolesville Village Center	Poolesville	MD	93.4	6.6	20000	1.9019	1990	1
807 Rockville Pike	Wintergreen North	Rockville	MD	93.73	6.27	25500	1.08	1981	2
12838 New Hampshire Ave		Silver Spring	MD	94.85	5.15	19430	0.3146	1949	1
505-531 Quince Orchard Rd	Firstfield Shopping Center	Gaithersburg	MD	95.52	4.48	22327	2.43	1980	1

Appendix F

Pros, Cons and Comments

Cross-agency Work Group on School Design Options

Work Group Pros, Cons and Comments for

Schools on Small Sites and in Repurposed Commercial Buildings

School Design for Small Sites

Following is a summary of the work group pros, cons, and comments concerning school design for small sites.

Pros:

- As the county continues to urbanize, and density levels increase, use of small sites may be the only way to provide for schools.
- In urban areas purchase of land is expensive and use of smaller sites may be the only cost effective approach.
- Use of small sites increases the options for locating schools, especially in urban areas.
- Schools on small sites, at more frequent locations, may increase walkability.
- Small sites may be easier to acquire than large sites.
- School design for small sites could result in innovative building solutions and could spur new ideas for instruction and programming.
- New design styles would be more reflective of college and work place facilities. This could help children adapt at a younger age to these environments.
- Schools on small sites would result in less acreage to maintain.

Cons:

- Playgrounds, fields and athletic areas could be eliminated or severely limited, compromising MCPS physical education program requirements.
- The potential absence of bus loading area, bus loop, and parent drop off could compromise student safety.
- Absence of staff parking (and student parking for high schools) could result in parking in neighborhood, or requiring paid parking in decks or underground garages.
- Construction of underground parking would add to the cost of building schools on small sites.
- Higher, multi-story schools on small sites would face challenges in addressing required storm water management on site.
- Higher, multi-story school buildings in residential areas may be opposed by neighboring homeowners.

Comments

- Equity concerns would be raised by schools on small sites with little to no playgrounds, fields, athletic areas, parking and bus loops, compared to other MCPS schools that include these features.
- Shared fields, gyms and parking could be provided for multiple schools to make up for loss of these at schools built on small sites.
- Schools on small sites may be more acceptable as schools of choice—special program schools or charter schools—as opposed to schools with fixed boundaries where students are required to attend.
- Multi-story buildings on small sites are better suited for middle schools and high schools.
- Schools on small sites could be used for self-contained special programs that pull from multiple schools or clusters, (e.g., Head Start, Pre-kindergarten.)
- Schools on small sites could be used on a temporary basis—similar to relocatable classrooms—for housing students from over utilized schools until additional capacity is provided.
- Schools on small sites collocated with parks would make for more efficient use of limited land, while providing for outdoor programs.
- Taller buildings, housing more than one school level, could promote some integration of students in different grade levels.
- Schools need to react to what is going on around them—such as dense, urban development—instead of preserving a suburban model.
- At the elementary school level fire safety rules require kindergarten and Grade 1 students to be housed at ground level for safe evacuation. This requirement, with need to locate administrative areas on ground level, could limit how high an elementary school building can be constructed.
- Repurposing of commercial and industrial buildings for schools should be considered only after determining that there is not a more cost effective alternative, such as:

    - Changing school boundaries to reassign students to a school with available capacity.
    - Adding capacity to existing schools.
    - Reopening a closed schools in the area that has adequate site size for outdoor needs (playgrounds, athletic fields, parking, bus loading area and loop, parent drop off.)
    - Building on a publicly owned site that is large enough to support outdoor needs (playgrounds, athletic fields, parking, bus loading area and loop, parent drop off.)

Repurposing Commercial Buildings for Schools

Following is a summary of the work group pros, cons, and comments concerning repurposing commercial buildings for schools.

Pros:

- Existing commercial buildings may be refitted for school use more quickly than construction of new schools or additions to existing schools. Providing MCPS with a nimble way to address space needs.
- Parking is already in place for most commercial buildings—underground, in decks or surface parking.
- In office park environments—where density is not as high as in urban areas—surface parking lots and green spaces could be redesigned to accommodate playgrounds and fields for athletic programs.
- MCPS could take advantage of unique buildings and site locations for specific innovative programming, such as use of industrial space for technical education.
- School design for commercial or industrial spaces could result in innovative solutions and could spur new ideas for instruction and programming.
- Repurposing commercial space in urban areas would provide for more transit accessibility for staff, students and parents.
- Use of commercial spaces could allow for short term relief for over-utilized schools, until permanent solutions can be built.
- Use of commercial spaces on a leased basis could accommodate temporary "bubbles" in enrollment. Leases could end when enrollment goes down and the space is no longer needed, avoiding the cost of building more permanent facilities.
- Undesirable vacancies of commercial buildings would be relieved by repurposing them for schools.
- Schools in single use commercial area could provide greater economic vitality through a mix of uses.
- Environmentally sound to repurpose commercial buildings.

Cons:

- Work group members stated that repurposing of commercial buildings for schools could result in some of the same "cons" as schools on small sites, including:

    - Playgrounds, fields and athletic areas could be eliminated or severely limited, compromising MCPS physical education program requirements.
    - Shared fields, gyms and parking could be provided for multiple schools to make up for loss of these at repurposed commercial building.
    - The potential absence of bus loading area, bus loop, and parent drop off could compromise student safety.
    - The absence of staff parking (and student parking for high schools) could result in parking in neighborhood, or requiring paid parking in decks or underground garages.

- Commercial buildings are usually not in residential areas which could limit walkability and raise safety concerns.
- Partial use of a commercial building, with tenants in other parts of the building, would present safety concerns.
- Most vacant office buildings are in suburban office parks where more traditional approaches to providing schools are available. Office buildings in urban locations, where there may be a need for nontraditional school facilities, are more desired and less available for repurposing.
- Educational space requirements and building codes for schools are different than the requirements for commercial buildings. Adhering to the educational program and building code requirements could make repurposing these facilities as expensive, or more expensive, than construction of new schools.
- Depending on the number of floors, the vertical organization of office buildings would present challenges in the movement of students through the facility. Elevators and/or escalators may be needed.

Comments

- Many of the work group comments on repurposing commercial buildings for schools were the same as comments made for schools on small sites, including:

    - Equity concerns would be raised by schools in repurposed commercial buildings with little to no playgrounds, fields, athletic areas, parking and bus loops, compared to other MCPS schools that include these features.
    - Schools in repurposed commercial buildings may be more acceptable as schools of choice—special program schools or charter schools—as opposed to schools with fixed boundaries where students are required to attend.
    - Repurposed multi-story office buildings may be better suited for middle schools and high schools.
    - Schools in repurposed commercial buildings could be used for self-contained special programs that pull from multiple schools or clusters, (e.g., Head Start, Pre-kindergarten.)
    - Schools in repurposed commercial buildings could be used on a temporary basis—similar to relocatable classrooms—for housing students from over utilized schools until additional capacity is provided.
    - Schools in repurposed multi-story commercial buildings, housing more than one school level, could promote integration of students in different grade levels.
    - Schools need to react to what is going on around them—such as dense, urban development—instead of preserving a suburban model.
    - At the elementary school level fire safety rules require kindergarten and Grade 1 students to be housed at ground level for safe evacuation. This requirement, with need to locate administrative areas on ground level, could limit use of repurposed, multi-story commercial buildings.

- Repurposing of commercial buildings for schools should be considered only after determining that there is not a more cost effective alternative, such as:

    - Changing school boundaries to reassign students to a school with available capacity.
    - Adding capacity to existing schools
    - Reopening a closed schools in the area that has an adequate site size for outdoor amenities (playgrounds, athletic fields, parking, bus loading area and loop, parent drop off)
    - Building on a publicly owned site that is large enough to support outside amenities (playgrounds, athletic fields, parking, bus loading area and loop, parent drop off)

- MCPS houses some staff in closed schools contain. These staff members could be moved out to vacant commercial space so that the closed school could be reopened as a school (instead of moving a school into a vacant commercial building.)
- School buildings have multiple types of spaces, whereas office space is more homogenous. Therefore repurposing office spaces for schools incurs higher costs than building out offices.
- Commercial buildings would need to be located in proximity to a cluster that is experiencing over-utilization.
- The costs of refitting a commercial building for a school could not be recovered on the basis of a short-term lease. Purchase of a commercial building may be the more cost effective approach.
- It is likely that there would be parental resistance to sharing office space, with workers on some floors and students on other floors. Instead, a whole building would need to be used for a school.
- Other types of facilities that may lend themselves to public school use include failing malls and private schools that are closing.

Appendix G

Work Group Member Commentaries (3)

Paul Mortensen, Chief & Senior Urban Designer
Montgomery County Planning Department

MCCPTA, Submitted by Frances Frost, President, and
Cheryl Peirce, Former CIP Chair

Paul Falkenbury, Partner & Principal, Samaha Architects

Memorandum:

Re: White Paper on issues facing School Facility Design
By: Paul Mortensen, RA, LEED-AP
Chief and Senior Urban Designer in Director's Office
Date: July 23, 2015
To: Cross-Agency Schools Innovation Work Group

The Cross-Agency Work Group has now seen several innovative school precedents from across the country that have stimulated discussion with a focus on smaller sites and reuse of existing office buildings. However, these precedents seem to be discussed as if they are iconic buildings simply being built for innovation sake, without understanding the circumstances that generated their design. As Bruce Crispell stated, they were the culmination of the "convergence of opportunity and need." Certainly if these building programs were built on available open tracts of land, they could have likely been built for less money and fewer "costly" innovations. That is understood. However, the standard option was not available to them so innovation was required to fit their needs. Montgomery County, Maryland and the US are changing in ways that will affect all of our lives and grandchildren's lives into the future. Global warming, increased populations, shifts in demographics, and the effects of densification of our cores will all have significant impacts on how and where schools will be designed and built into the future. Design innovation is not contingent on "if" change comes, but rather "when" the change comes. In many cases in this county, the changes have already begun. It seems the following questions should be addressed:

1.) What are the extraordinary circumstances that Montgomery County will likely face in the next 2, 5, 10, or 40 years?
2.) Why will innovations such as smaller sites, or reuse of empty office buildings or malls for school sites, or other unique opportunities be likely options for MCPS?
3.) Why is Montgomery Planning a partner in this effort?

I believe we need to discuss the premise of change and make it an important component of this report in order to understand why innovation will be needed. Additional density is the result of many County decisions, market desires, successful urban precedents, and global conditions. It will help this report tremendously to understand these issues before solutions such as smaller sites or reuse of buildings are proposed.

There are a wide variety of County programs, policies and planning decisions that have or will affect how we design future schools and where they are located. Some of these include:

- New transit options, including the final alignment, design, station locations and adjacent concentrated development, and construction of the Purple Line through the County and alignments of the routes, station locations and corresponding development at those locations, and implementation of the Bus Rapid Transit (BRT) service throughout the County.
- Continued protection of the Agricultural Reserve, environmentally sensitive areas, parks, and single family neighborhoods, which results in only 19 percent of the total County land still being available for new development.
- The potential implementation of the International Green Construction Code (IgCC) adopted by the state as a voluntary building code (at this point….may be required in the future) for all counties. Some requirements of the Code mandate a highly efficient use of land, increased pervious surfaces, and a reduction of overall direct or indirect energy use. (ie: not only efficient fixtures, but less auto trips)
- Federal and State agencies are already reviewing and implementing goals and programs for reducing greenhouse gases, conserving water, protecting habitat, and combatting global warming and its increasing effects. As we heard at the Infrastructure and Schools Summit, California has

already implemented carbon dioxide restrictions for all existing and future developments which begins to restrict the defined area a school can draw from, length and number of trips generated by a school, how much auto and school bus use can occur, how expansive buildings can be, and how much impervious surfaces can be created.

- Implementation of the recently adopted, currently under review, or future County Sector and Master Plans which all propose focused centers, increased density, mixed-use development, walkability and the creation of an expanded public realm. White Oak, White Flint, Long Branch, Bethesda, Westbard, Lyttonsville, Rock Spring, and White Flint 2 are a few of these new plans created or in process over the past couple of years.
- Montgomery County *Climate Protection Plan* provides recommendations for a more sustainable County with 80 percent less greenhouse gases being created than in fiscal year 2005. These were recommendations accepted by the County Council.
- Promoting affordability throughout Montgomery County. Affordability is not only related to the cost of purchasing or renting a home. It is also affected by increased cost of infrastructure, cost of commuting to and from work and schools each day, and the inability to work certain jobs that require full attendance in a day without the ability to leave or arrive late from driving children to school. Although the cost of constructing a school may be reduced by building it further out from existing communities, it may be more expensive to those who need to be driven to school or pay taxes.

Some of these programs are just preliminary proposals at this point, but the question should be asked: Does MCPS, through innovative design, want to be out in front of these changing paradigms and programs and be a leader in them, or do they want to just "react" once initiatives become reality?

There are also several circumstances from which innovative school siting and design can provide an opportunity to resolve planning and urban design problems within the County. Some of these include:

- Allowing the County to continue to grow and prosper through continued new and infill development.
- The creation of a civic center within communities which currently lack this focus. New schools could help to create these centers in our existing and proposed Sector Plans if done in a more efficient and integral way to the overall design of the neighborhood or community.
- Shared Uses. Many areas within the County lack public amenities which are necessary for socially sustainable communities. Elements such as parks, play fields, gyms, pools, theaters and auditoriums, libraries, adult classroom space, daycare centers, etc. could be designed into new schools which benefit students and the greater community alike.
- Building schools closer in within neighborhoods and communities helps to foster more walking and biking to schools. The County benefits from this school development pattern through reduced congestion, reduced school transportation costs, improved air quality and the reduction of greenhouse gasses, and greater student health. These schools also foster greater walkability and higher walkability scores within neighborhoods which most economic and real estate studies indicate create greater home values.
- Allowing schools to help promote the use of new transit modes through reduced parking, shared parking, on-street parking, carpooling, facing school buildings directly onto streets to better support pedestrian activity along the streets, and transit use incentives.

Some of the policies that could be enacted by MCPS that would address these types of issues include:

1. Schools must be seen as central public/civic facilities within a community.
2. Schools must work within communities to help minimize global warming by dramatically reducing the creation of greenhouse gasses from transportation and on site.
3. Schools must be located on or near transit stops.

4. Schools must be built to last 75 - 100 years minimum.
5. Schools must be designed to be net zero buildings.
6. Schools must be located so that a majority of students can either walk or ride a bike to school.
7. Eliminate minimum School site sizes. Allow the program and available sites to dictate sizes. This also could be different for different parts of the County. For example, sizes could be dictated for all Schools north of White Flint with no size requirement south of White Flint.
8. Allow a range of School population sizes with a fixed maximum size.

Once these initiatives, ideas, and goals are fully understood, I believe we can then address several of the following questions related to innovative design of schools:

1. How do we address the need to dramatically reduce car trips and congestion in this county?
2. How do we use innovative design to allow schools to be built on smaller and/or more complex sites that may not be flat as "ideal" sites become scarcer?
3. How do we minimize our carbon footprint in an environment that continues to heat up from greenhouse gasses through global warming?
4. How do we minimize social isolation between kids living in the same community?
5. How can a school promote greater walkability in our communities?
6. How will schools work, act, and participate in the greater community 10 years, 20 years, and 40 years from now?
7. How do we deal with immediate rather than 6 year issues?
8. How do all of these elements rank hierarchically? Is surface parking more important than an additional soccer field? Is bus parking on site more important than a parking lot or an additional gym or music room? Can bus parking and after school parking be combined? Are 4 tennis courts more important than an auditorium space? Is it more important to park buses or pick-up queuing cars on site rather than parallel parked on a fronting street with an innovative safety plan, so you can use the on-site space for a play field or classroom wing? Can a centralized sports facility with fields be built between a group of schools rather than all schools having their own facilities that are only partially used? Is it more efficient to bus 100 athletes to this facility each afternoon rather than a thousand kids to a further out school with their full array of fields?

Some statistics of note that should be understood and can also influence this discussion:

- Since late 90's, the share of automobile miles driven by Americans in their twenties has dropped from 20.8 percent to 13.7 percent.
- Number of 19 year olds who have opted out of earning driver's licenses has almost tripled since the later 70's from 8 percent to 23 percent.
- 77 percent of millennials want to live in an urban core that is walkable.
- 2013 Community Preference Survey by the Chicago-based National Association of Realtors stated that 60 percent of respondents said they favored neighborhoods with a mix of houses, stores, and other businesses that could be accessed through walking, compared to 35 percent who said they preferred to drive to such places.
- Households with kids: 1950 – 44%; 2005 – 23%
- Traditional one worker family: 7.9 percent of U.S. Households.
- Stay at home mom family: 6.3 percent of U.S. Households.
- Stay at home dad family: 1.6 percent of U.S. Households.
- Other households with children: 12 percent of U.S. Households.
- 50 percent of the population walked to school in 1969. Less than 15 percent do today.
- 12 percent of the population drove in private cars to school in 1969. More than 44 percent drove to school in private cars in 2009.
- 1/3 of children born after 2000 will become diabetics (CDC). This is due to diet but also planning. Past planning has created one of the least active generations in American history.

Bibliography:

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This compilation of pros and cons from MCCPTA reflects input from PTA leaders from across Montgomery County. During the time Work Group members were asked to compile and submit pros and cons, the MCCPTA officers were holding multiple Area Meetings. Area Meetings provide an opportunity for PTA leaders (cluster coordinators and local PTA officers and members) from several clusters to meet with MCCPTA officers to determine MCCPTA priorities for the coming school year. During these meetings, Work Group member Frances Frost, MCCPTA President, sought input on this topic as well. In addition, PTA leaders who actively participated in the Infrastructure Symposium, coordinated by Councilmember Berliner, also provided detailed feedback.

ALTERNATIVE DESIGN: SMALLER SITES

PROS

General

- Availability (Although MCPS already has small developer designated sites, former schools, and current schools)
- Reduces land acquisition costs, where that is necessary
- In high density areas (Bethesda, Silver Spring) – would be able to fit in a school where most needed – students can stay in their neighborhood, walk to school, may reduce cost of busses
- Taller buildings can be a great thing, most of our buildings in high development areas should be constructed/supported so that they could add another floor on top if needed
- Smaller sites could be used for self-contained special programs that pull from multiple schools or clusters (e.g., Head Start, pre-K)

Play space

- Building up – may allow preservation of some land for outdoor play areas, the possibility of “green” rooftop playgrounds would be plus
- Inclusion of more indoor play space: Recess areas inside will allow indoor recess to be active--an important consideration as more of our winters and springs have become too inclement to participate in outdoor recess

CONS

General

- Necessity of students "commuting" between floors may increase safety and access concerns (staircases) as well as maintenance issues for elevators (operating budget impact)
- If smaller sites ends up equaling smaller schools (enrollment), that will increase the total number of schools needed and that negatively impacts the CIP and operating budgets
- If smaller sites ends up separating grades levels (e.g., K-3, 4-6, 7-8) that is counter to current best practices (e.g., working in BCC to eliminate K-6 elementary schools with the new MS), increases the number of sites needed, as above, negatively impacting the operating budget
- Building taller is limited to areas where the surrounding structures, particularly residential, are also tall or where the site grading allows for a tall building to appear smaller (e.g., building into a hill)
- Impractical for kindergarten and first grade, especially if a school suddenly experiences growth in those grades. For emergency purposes, they cannot be moved up into the higher floors.

Underground parking

- Underground parking puts the parking lot out of site, negates the need for removing snow (just driveways need to be plowed), and protects the teacher and staff vehicles during the workday
- May increase the ability to provide ample parking so that teachers and students will not park in neighborhoods
- Preserves land for school siting, outdoor play/recreation space

Play space

- Students may lose recess play area (elementary) / athletic fields (middle & high); loss of opportunity for athletic participation
- Playground space is critical to skills development for young kids, and fields are important for group work and developing leadership in tweens and teens. Physical activity is critical for focus and attention - a major issue for today's kids. If we give up outdoor space, and have to build more gyms and indoor play spaces as a result, how much money have we saved?

(Continues on next page)

Underground parking

- Security issues of providing "hidden" spaces, both during and out of school hours may provide a neighborhood nuisance. Addressing this may add to operating costs.
- Increases security issues, particularly at high schools, by providing a possible "hidden" space for students to use for everything from truancy and bullying to smoking/drinking/sexual activity. Addressing security may add to operating costs.
- High school drivers are inexperienced drivers. Parking structures are sometimes difficult for experienced drivers to navigate. There is a high likelihood of pillar contact incidents.
- Given the costs of constructing structured parking, particularly underground, would we save money on small lot sizes just to spend it on highly expensive parking garages?

Comments:

- Design of school structures needs to be strengthened to allow additional floors on top of whatever design is finally built to accommodate increases of 100, 200, etc.
- Limit use of small lot sizes to places where that's truly necessary - probably high development areas

ALTERNATIVE DESIGN: COMMERCIAL & INDUSTRIAL SPACE

PROS

- Possibly quicker build than rev/ex or new school
- Some sites are "campuses" with green space, multiple buildings - allow for larger schools with athletic fields
- May be more conducive to particular magnet programs (e.g., industrial sites for vocational/technical programs)
- May be more centrally located to public transportation – easier access for high school students, parents without cars
- May be a possibility for Head Start/Pre-K in transportation accessible residential high-rise space (apartment buildings) or adjacent to them, allowing parents to drop off and pick up their very young children on the way to and from work.
- If leased – relieve population "bubbles" without investment in permanent solutions, likely only a short-term and program specific option
- Cost of providing parking for teachers and students, so they will not park in neighborhoods, may not be a factor in reclaimed office buildings which often already have parking.

CONS

- Concern regarding materials/toxins on sites of industrial spaces
- Traffic/safe access in areas where school is an oddity compared to other uses
- Surrounding neighborhood may not be desirable or safe for students
- May remove "neighborhood" school benefits such as walkability (which would increase the need for buses and drivers, again negative impact on operating budget)
- Such sites may require increased security to redirect traffic and individuals. Addressing those security concerns may increase operating costs
- Size/complexity - Impractical for kindergarten and first grade, especially if a school suddenly experiences growth
- Would there be safe/secure outdoor play/recess/athletic space?
- Retrofitting existing structures could prove more costly than additions to existing schools and new school construction

Comments:

- Would not be considered a viable option for many parents unless entire building would be the school or co-located with approved facility (i.e., no continued commercial/industrial use), due to real and perceived security issues. This would be true for day-to-day activities (e.g., security screening of non-MCPS staff, contractors, subcontractors) and emergencies (e.g., Where does everyone take shelter? Who accounts for visitors? Who is "in charge" during an emergency?)
- Would this be a preference of new generation of parents? Will future parents, who currently prefer to live/work near public transportation, also like schools closer to public transportation and do they want their children to ride public transportation? Will they look for something different when they have children?
- What's the funding consideration for alternative design ideas, because they can be significantly more expensive? If MCPS spends major money on a school with a new design, will the County make up the difference, or is the differential just subtracted from funds available for other schools?

CO-LOCATION OF SCHOOLS & OTHER COUNTY FACILITIES

PROS

- Library/rec-center/school co-location: spreads CIP and Operating costs throughout programs--no longer in competition with them for county money.
- Possibility of co-locating some MCPS departments with schools (e.g., curriculum development staff/offices, health/social services) would be an advantage for students, teachers, and support staff
- Easier access to other community facilities for students (e.g., school swim teams could practice on campus)
- Co-location of schools on a single site would allow flexibility when level population fluctuations occur

CONS

- Perceived safety issues – managing public access to the non-school spaces during school hours and during after and evening school activities through site design and other considerations.
- Co-located spaces would need to be identified specifically, with no possibility of the space shared with a school being subsequently repurposed without notification to the school and neighborhood communities and public hearings.
- Mixing age levels on one site has challenges that would need to be addressed through site design and other considerations

Comments:

- The discussion of co-location of schools with other county agencies continues to be a concern for PTA members. While there are many current uses that are supported – Judy Centers, School-based Health/Wellness Centers, Linkages to Learning – and there are some possibilities that may be supported under certain circumstances and with specific safeguards – libraries, recreation/community centers, other grade level or special schools – a proposal to co-locate must be approached with the priorities of the school's needs as the first consideration and with adequate school community and public notice and multiple opportunities to provide input. The primary concerns are for safety and security for students, staff and buildings during school operating hours, during after school and evening school activities, and for the safety and security of the building during non-school use.

SAMAHA

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Memorandum:

Re: White Paper on MCPS School Facilities and the Future
By: Paul H. Falkenbury, AIA, REFP, Samaha Associates, P.C., Principal Owner
Date: August 18, 2015
To: Cross-Agency Work Group on School Design Options

For the last few months the Cross-Agency Work Group has seen examples and discussed innovative school designs both within the County, in adjacent jurisdictions, and nationwide. Our team has considered commercial, retail, and industrial conversions into educational space, and reviewed a list and map of closed school sites, potential school sites, and vacant commercial properties. This review led to a lively informative dialogue regarding the future of MCPS schools and their facilities. Before we begin to describe the path forward we should provide some background and context.

Montgomery County Public Schools (MCPS) is considered one of the best school systems locally, in the state, and nationwide. A 2010 winner of the Malcom Baldrige award, it is also one of the best managed school systems. This is no simple task. With over 153,000 students attending 202 schools, it is a county undergoing rapid change and growth. Parts of Montgomery County are experiencing urbanization while other parts retain evidence of an agrarian past. Predominately, Montgomery County remains composed of post-World War II suburban developments and continues to expand this suburban pattern to the outer reaches of the County. As the County grows so does the school system, adding approximately 2,000 students each year. Growth brings on additional duties and responsibilities to meet the needs of all students and continue to serve the community in exemplary fashion. The pressures are enormous; beyond student growth other key factors include:

1) FARMS (Free and Reduced Meals) eligibility is increasing (approximately 54,000 students last year, 35% of the total enrollment)
2) ES0L (English for Speakers of Other Languages) is increasing (approximately 21,000 students last year, 14% of the total enrollment)
3) Aging facilities
4) Less available land
5) A constituency that demands excellence and equity
6) Increasing regulatory requirements
7) More individual and specialized education
8) Financial constraints

All of these issues create an atmosphere that demands the continued exceptional leadership of MCPS. With a staff of 45, MCPS-DOC and DLRP administer a CIP that averages $257 million per year from FY 2015–FY2020. In August 2016 and 2017 two new middle schools will open, and in August 2018 two new elementary schools will open. . In addition, MCPS is adding onto and revitalizing/expanding numerous existing schools to meet current and future needs. Very few local jurisdictions accomplish this amount of work so successfully in such a cost effective manner with so few staff.

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Samaha architects have been working with MCPS for over 25 years, having designed over 20 projects including five high schools, two middle schools, and two LEED Gold certified schools. Over those 25 years, MCPS has led the way in innovative design. For a large school system, change is incremental and iterative. Innovation is built into each successive school through MCPS' programming and design process. MCPS also leads the way in sustainable design as the first school system in the state of Maryland to design and build a LEED Gold certified school: Great Seneca Creek Elementary School in Germantown, MD. Since that time MCPS has added twenty-one LEED certified schools (twenty Gold and one Silver) with twelve more registered and in the planning and design stages. Despite growing fiscal constraints MCPS continues to lead the state and nation in sustainable practices and energy efficient design. In addition to sustainable buildings, MCPS designs and constructs 21st century learning environments that are:

1) Centers of their communities
2) Designed through an open and inclusive public engagement process
3) Student centered and focused on individual learning and teaching styles
4) Flexible and adaptable
5) Safe and secure—implementing CPTED (Crime Prevention through Environmental Design) principles
6) Healthy and sustainable environments that exceed state requirements
7) Community assets providing much needed services and functions:
    a. Performing arts centers
    b. Athletic facilities, gymnasiums courts, fields, and stadiums
    c. Community meeting/gathering spaces, libraries, multi-purpose rooms, auditoriums, and classrooms
    d. School-based Health andwellness centers
    e. Community centers
    f. Adult education
    g. Early childhood development centers, pre-education program (PEP), and Head Start
    h. English for Speakers of Other Languages (ESOL)

8) Efficient sites:
    a. Shared with Parks & Recreation Department
    b. Shared facilities with sports and after school programs
    c. Operating on less than ideal school sites while providing equitable facilities for all County students

9) Schools that are a unique reflection of the neighborhood and community they serve

MCPS strives to meet the needs and goals of a diverse community with competing agendas and does so through an open inclusive process that leads to innovative and creative designs that are cost efficient and unique to the community they serve. Unlike many jurisdictions, the program and design evolves through a community engagement process that emphasizes listening and developing a unique program to create more effective learning environments. Furthermore, each successive program builds on the past while continually evolving and improving. Innovation and change are constants in MCPS' process.
As MCPS moves forward, five, ten, twenty, and even fifty years from now, it will continue to face many challenges, some of which we have discussed in our work group. These challenges include

1) Smaller sites
2) Less flat open space available for schools
3) Few sites close to transit —typically sites are located in post-World War II suburban developments accessed by the automobile
4) Equity —County residents demand equity of facilities within the school system

However, many potential opportunities exist within the County to move forward into the future. Our work group has discussed several possibilities for new school sites moving forward:

1) Schools on small sites
2) Schools in vacant commercial buildings

These options have issues associated with their use as a new school site and meeting the demands of the community for equity, cost efficiency, and convenience. MCPS' process for determining the need for a new school is as follows:

1) Is redistricting an option to move students from an overcrowded school to a school below capacity?
2) Can the existing school be added to accommodate the need?
3) Is there an existing school-owned site available?

Only after the above factors are analyzed will the school system consider converting a commercial property to an educational use. Conversion of commercial properties has its own set of potential difficulties and implications:

1) Equity with comprehensive schools
2) Site safety and amenities
3) Cost to convert property
4) Location of commercial property in relation to the student population

These challenges, although a hindrance to MCPS' standard operating procedure, also can be seen as an opportunity for innovation, as shown in the examples that Paul Mortenson and I introduced. For instance, it may be an opportunity to provide early learning or some other specialty programs outside of a comprehensive school. As educational delivery systems and curricula evolve in the coming years, there may be a need for more self-contained specialty programs ideally suited for purchase and conversion of a commercial property. I believe MCPS is prepared for this kind of innovation through the work of this group and the dedicated staff who work there.

As we move forward the question should be "how the organizations represented in this work group can support MCPS' growth and evolution?" And, "as the County becomes more urban and transit friendly, with less open land, how can government assist MCPS' innovation?" Adequate funding is always a key to successfully implement change, as is supporting schools through a positive engagement process. Government entities, members of this work group, and schools could look for opportunities to create shared facilities in schools such as libraries, senior centers, recreation centers, pools, and health and wellness centers. The regulatory process for schools could be streamlined with designated individuals identified to serve as liaisons to schools. Lastly, to foster collaboration, periodic meetings of work groups such as this could be organized to discuss potential upcoming and future projects. More directly, since the Montgomery County Planning Department and MCPS share many common goals it should be possible to:

1) Streamline the regulatory process for schools in planning
2) Develop sector/master plans with sites that meet MCPS guidelines/standards and/or facilitate shared facilities
3) Meet monthly to discuss ongoing work, potential sites, and potential syngergies
4) Foster teamwork and collaboration

In summary, MCPS is currently designing and constructing innovative, cost-effective facilities. Each successive school's program is developed based on a county standard that is individualized to the unique set of circumstances of a particular school community's site, population, goals, and needs. MCPS continually adapts to the changing conditions within the County, developing innovative and comprehensive educational facilities on limited sites with ever shrinking financial resources. MCPS is at the forefront of 21st century learning pedagogy and leads the region and nation in student achievement and performance. MCPS facilities are healthy, sustainable buildings that lead the state, region, and country in LEED certified sustainable environments. MCPS facilities are unique responses to the site, program, school needs/goals, community, and regulatory and state agency requirements.

This work group, organized by MCPS, is a testament to the forward thinking of MCPS and their desire to maintain the high standards its residents expect from their schools. We look forward to seeing how the findings of this work group drive innovation in the design of MCPS facilities.

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