

MEMORANDUM

March 22, 2019

TO: County Council

FROM: Glenn Orlin, Deputy Director ^{Go}

SUBJECT: Veirs Mill Corridor Master Plan—fiscal impact statement, evaluation of transportation adequacy at buildout; transportation elements

PURPOSE: Worksession

Councilmembers: Please bring your copy of the Final Draft Plan to this worksession.

This staff report addresses transportation adequacy at the time of the buildout, the transportation elements, and the fiscal impact statement. Attached are comments received from the State Highway Administration (©1-3) and the County Department of Transportation (©4-6).¹ Some technical corrections will be made to the final document, but they are not identified in this report.

The purpose of this worksession is two-fold: for the Council to make tentative decisions about the transportation elements of this plan. Those anticipated to attend include:

Gwen Wright, Director, Planning Department
Carrie Sanders, Area 2 Chief, Planning Department
Jessica McVary, Planner Coordinator, Planning Department
David Anspacher, Functional Planning & Policy Division, Planning Department
Eric Graye, Functional Planning & Policy Division, Planning Department
Christopher Conklin, Deputy Director, Department of Transportation (DOT)
Andrew Bossi, Director's Office, DOT

Fiscal Impact Statement (FIS). On February 1, the Office of Management and Budget (OMB) transmitted the Executive's FIS for this plan (©7-9). Executive staff estimates the County cost of new capital improvements associated with the Draft Plan to be \$175.3 million, all of which would be transportation improvements. The largest items are for their assumed County's costs to construct Veirs

¹ Key words: #VeirsMillCorridor, plus search terms master plan, road, transit, bikeway, sidewalk.

Mill Road Bus Rapid Transit (BRT) Alternative 2.5² (\$39.6 million) and, ultimately, to include continuous BRT lanes (Alternative 3, another \$34.4 million); and grade separating Veirs Mill Road over the Matthew Henson Trail (\$44.4 million). The \$56.9 million balance is almost entirely for a host of other bicycle and pedestrian improvements. The FIS notes that if the Matthew Henson Trail were bridged over Veirs Mill Road instead of vice versa, the grade separation cost would be \$11.2 million, bringing the overall County cost down to \$142.1 million.

The FIS makes certain assumptions about the share of costs between the County, State, and developers. A more detailed version of the capital budget portion of the FIS, showing the assumed breakdown, is on ©10-13. It presumes that the BRT cost would be split evenly between the State and County, even though the State has made clear to date that it is not participating financially in BRT. It also presumes that the State would pick up half the cost of bikeway and sidewalk improvements along Veirs Mill Road and Connecticut Avenue. Given the State's history of not providing significant funding for sidewalk and bikeway improvements along their highways, this is an optimistic presumption.

The total cost of the elements in the FIS is \$253.2 million, assuming the Matthew Henson Trail is bridged over Veirs Mill Road.³ The Council should anticipate that most of these costs will be the County's to bear. In his comments on the Plan, the County Executive expressed that one of his two major concerns is "the very significant costs of the public safety projects recommended in the plan."⁴

The FIS estimates the added operating cost, once implemented, that the BRT service would have an annual operating cost of \$4.8 million/year, and the cost of more bikesharing stations in the corridor increase the County's subsidy by \$700,000 annually (©9).

What is Veirs Mill Road, and what should it be? Veirs Mill Road is a 5.8-mile long State highway (MD 586) between Rockville Pike and Georgia Avenue (about 4 miles of which is encompassed in this master plan) and County master plans classify it as a "major highway." The County Code defines a major highway as:

a road meant nearly exclusively for through movement of vehicles at a moderate speed. Access must be primarily from grade-separated interchanges and at-grade intersections with public roads, although driveway access is acceptable in urban and denser suburban settings. (County Code, Section 49-31(c))

Like most major highways, Veirs Mill Road has a heavy volume of traffic because—unlike in city environments where there is a fine-grained street grid—in the suburbs there are far fewer route choices by which to convey people and goods, and much longer distances that need to be traversed.

The Draft Plan has the goal of recreating Veirs Mill Road as a "complete street." This concept—which would treat the safety and mobility needs of pedestrians, bicyclists, and motor vehicles more or

² Alternative 2.5 includes: queue jump lanes and signal priority for BRT and other buses at the 12 busiest intersections, BRT stations with level boarding and off-board fare collection, 15 60'-long articulated BRT buses, and associated bicycle and pedestrian access improvements to the new stations.

³ This estimate does not include the already master-planned Veirs Mill Road/Randolph Road interchange. There is no cost estimate for it. The Randolph Road/Georgia Avenue interchange is somewhat similar and cost about \$80 million, but the midpoint of its construction was a few years ago. So, a reasonable cost estimate for this interchange is \$90-95 million.

⁴ The other major concern was the "likely displacement of current residents and a net loss of affordable housing for a population already burdened by rental housing costs."

less equally—is normally reserved for urban environments where all are moving closer to the same pace. However, Veirs Mill Road, from where it leaves the Wheaton CBD to where it enters the Rockville CBD, traverses what is clearly a suburban environment, and the Draft Plan’s land use recommendations would not change that. Except for the Veirs Mill commercial area, there is no concentration of pedestrian-oriented uses that would warrant urban-type street treatments.

The Draft Plan calls for an expensive package of improvements, and each improvement would enhance transit, bicycle, or pedestrian mobility. On the other hand, all the road changes newly proposed by the plan would render more difficult the mobility of people in motor vehicles: taking away through lanes, eliminating channelized turn lanes, and eliminating double left-turn lanes, among others. As for the only road improvement that would improve motor vehicle mobility for thousands of daily commuters—the already master-planned grade separated interchange at Veirs Mill Road and Randolph Road—the Draft Plan entertains its elimination. The Draft Plan even goes so far as to address future traffic congestion by redefining the congestion standards to allow for more vehicle delay.

To quantify the effects of these impacts on mobility for people driving or riding in motor vehicles, Council staff asked Planning staff to estimate the peak period travel time between Rockville and Wheaton in 2040 both with and without the proposals. Planning staff estimates that the addition of more “protected” (i.e., signalized) pedestrian crossings and lowering the speed limit would make only a marginal difference in vehicle travel time. However, reducing the existing double left-turn lanes to a single lane would substantially increase in vehicle travel time. The findings are shown below:

	AM Eastbound	AM Westbound	PM Eastbound	PM Westbound
Existing	18 minutes	18 minutes	19 minutes	19 minutes
Draft Plan*	35 minutes	47 minutes	36 minutes	30 minutes
Draft Plan w/double-lefts*	32 minutes	22 minutes	29 minutes	19 minutes

*Neither scenario assumes the planned Veirs Mill/Randolph intersection, which would reduce these times by a few minutes. The travel time savings on Randolph Road would be substantially more.

A major goal of the County and of this plan is Vision Zero: eliminating deaths on the road, whether they be bicyclists, pedestrians, or people who drive or ride in motor vehicles. It is generally agreed that the main contributor to deaths and severe injuries on the road is speed. As SHA notes, it sets speed limits based on a host of contextual factors: adjacent land use, roadway design and geometrics, prevailing speeds, transition between urban and suburban areas, school zones, accident history, etc. (©2). However, it is human nature that drivers typically exceed the speed limit. Therefore, it is appropriate to take measures that inhibit speeding on Veirs Mill Road, applying all three “E’s”: engineering, enforcement, and education.

Another significant contributor to deaths and injuries is the lack of safe passage for bicyclists and pedestrians along or across this major highway. This will become even more important when the Veirs Mill Road BRT is implemented. Providing for continuous bikeways and sidewalks along the road and more frequent “protected” (i.e., signalized) crossings is also appropriate.

Veirs Mill Road is not unique. There are many other suburban major highways in Montgomery County that run through or form the edges of residential neighborhoods and that experience road-related deaths and injuries. For example, compare Veirs Mill Road with Georgia Avenue. Most of the homes

with a Veirs Mill Road address are either in apartments set off the road or are in single-family detached houses that sit on a frontage street. The frontage streets are County-maintained secondary residential streets. Access in and out of the houses is on a street with very little auto traffic, which travels at a low speed. There is ample on-street parking, and the sidewalks are well separated from the highway by the frontage street and the grass strip.

On the other hand, the single-family homes on Georgia Avenue front directly onto the highway. There is no on-street parking. In fact, for these homes to be viable, many have paved over much of their front yards to park their vehicles and turn them around so as not to back out into traffic. The sidewalks directly abut the curb—no grass strips between the sidewalks and the highway.

The safety experience on the two highways also differs. A map in a Draft Plan appendix (©14) shows that between 2015 and 2017 there were 3 fatal and 7 severe-injury crashes on Veirs Mill Road from just north of the Wheaton CBD to the Rockville boundary. Two of the fatal crashes were due to the unique circumstance of the at-grade crossing for the regional Matthew Henson Trail. The same map shows that on Georgia Avenue from just north of the Wheaton CBD to the Matthew Henson Trail crossing of Georgia Avenue—nearly the same distance—there were 2 fatal and 16 severe-injury crashes, nearly twice as many serious accidents than on Veirs Mill Road during the same period.

All this is background to the two-part approach for the specific recommendations in this staff report. The first is to support those plan elements that enhance the mobility and safety of bicyclists, pedestrians, and transit users in the corridor, but in a way that does not negatively affect the capacity of Veirs Mill Road needed to provide people in motor vehicles with at least a tolerable commute, as the current SSP standards define as tolerable. The second is to reduce the overall projected cost of the long-term improvements, so there is a closer match between the Plan’s aspirations and what the County can realistically afford to build in the next 20-25 years, a concern also evoked by the County Executive.

The PHED Committee concurs with the recommendations in the Draft Plan except where noted in this staff report.

Transportation adequacy at buildout. Every master plan should have a balance between its proposed land use and its proposed transportation network and services. For a quarter-century this “balance” has been defined as what would be needed to meet the current adequate public facilities requirements as described in the Subdivision Staging Policy (SSP), last updated by the Council in 2016. Achieving this balance in a plan is not an academic exercise: if a plan is not balanced, then at some point in the future a proposed master-planned development will be unable to proceed because it will have no means to meet the adequate public facility requirements.

The Draft Plan’s study area covers parts of four policy areas: Rockville City, North Bethesda, Kensington/Wheaton and Aspen Hill. The SSP measures transportation level of service according to average vehicle delay (in seconds) during peak periods. The standards vary by policy area, and where an intersection straddles two areas, the tighter standard applies. Thus, at the key intersections between the Rockville and Wheaton CBDs the adopted standards for tolerable congestion are:

Veirs Mill Road/Twinbrook Parkway	71 seconds/vehicle
Veirs Mill Road/Aspen Hill Road	59 seconds/vehicle

Veirs Mill Road/Parkland Drive/Montrose Parkway	59 seconds/vehicle
Veirs Mill Road/Randolph Road	80 seconds/vehicle
Connecticut Avenue/Randolph Road	80 seconds/vehicle
Veirs Mill Road/Connecticut Avenue	80 seconds/vehicle

The standard in the Rockville and Wheaton CBDs is 120 seconds/vehicle.

The Draft Plan recommends amending the standard for the intersections between Rockville and Wheaton CBDs to 100 seconds/vehicle. Procedurally, transportation adequacy standards are set in the SSP, not in a local master plan. If the desire is to amend them, they should be examined holistically with other standards throughout the County, to understand what the effect new standards would have on the entire transportation system. (The next comprehensive update of the SSP will be in 2020.) If Veirs Mill Road were to have a single standard, does that mean Georgia Avenue, Wisconsin Avenue/Rockville Pike/Frederick Road, Connecticut Avenue, River Road, Colesville Road/Columbia Pike, New Hampshire Avenue, and other major highways should have the same standard throughout their lengths? SHA notes that using a single congestion standard may not be appropriate throughout the corridor as the land use and traffic contexts change (©3). Furthermore, the Draft Plan does not propose a single standard that is the average of the current ones, but one that would tolerate more congestion than any of them. Depending on the intersection, a 100-second/vehicle standard would allow for 25%, 41%, or 69% more delay than the most recently approved standards. *Council staff recommends deleting references to changing the current standards.*

PHED Committee recommendation (3-0): Concur with the 100 seconds/vehicle standard for all Veirs Mill Road intersections between the Wheaton CBD and the Rockville boundary. To reflect this, the staffs recommend a new paragraph after the last paragraph under “Section 2.5 Transportation” and a new bullet under section “2.5.13 Intersection Recommendations” as follows:

The Veirs Mill Corridor Master Plan recommends an amendment to the 2016-2020 Subdivision Staging Policy to create a unique intersection delay standard of 100 seconds per vehicle at signalized intersections on Veirs Mill Road between the Wheaton Central Business District Policy Area and the Rockville City Policy Area. Due to the high level of fatalities and severe crashes on Veirs Mill Road, there is particular urgency to prioritizing road safety over congestion there.

Planning staff evaluated conditions at ten intersections, some of which are beyond the boundary of Draft Plan study area, to better understand the nearby effects of the recommendations. Three of these intersections are failing now: Veirs Mill Road/Twinbrook Parkway, during both peak periods; Veirs Mill Road/Connecticut Avenue in the evening peak only; and Randolph Road/Connecticut Avenue during both peaks (©15). By the design year of 2040, four intersections will fail: the three noted above, plus Veirs Mill Road/Randolph Road if no grade-separated interchange were to be built there (©16).

To bring these intersections to a tolerable level of congestion, as per the SSP standards, would require optimizing traffic signal splits and offsets at all of them, and:

At Veirs Mill Road/Twinbrook Parkway:

- Adding an eastbound right-turn overlap signal phase
- Adding a southbound left-turn lane
- Retaining the westbound-to-southbound double left-turn lanes

At Veirs Mill Road/Randolph Road

- Adding a second westbound left-turn lane
- Adding an exclusive southbound right-turn lane

At Connecticut Avenue/Randolph Road

- Adding a second westbound left-turn lane
- Adding an exclusive southbound right-turn lane

DOT notes that analyses had not been performed at Veirs Mill Road/Aspen Hill Road and Veirs Mill Road/Parkland Drive/Montrose Parkway (©5). SHA's Veirs Mill Road BRT Study had forecasted conditions at these intersections for Year 2040. The SHA study showed that Veirs Mill Road/Aspen Hill Road would operate within Aspen Hill's 59 seconds/vehicle standard if the double left-turn lanes remain. Veirs Mill Road/Parkland Drive/Montrose Parkway would fail in the morning peak hour, but the problem may be resolved based on the final design of the BRT lanes there.

In several plans—Great Seneca Science Corridor, Chevy Chase Lake, and Bethesda CBD are examples—specific interchange and intersection improvements needed to provide a tolerable level of congestion were explicitly included in the Plan. The right-of-way would be preserved to protect the option to build them. However, among County officials the preference will likely continue to be to mitigate traffic by adding transit service, the bike/ped improvements, and transportation demand management measures.

Council staff recommends including these intersection improvements in the Plan. They would be a backstop should these other actions not result in a tolerable level of congestion for vehicles. Without these improvements, even with more congestion-tolerant 100 seconds/vehicle standard, several intersections will fail, which means the Veirs Mill Corridor Master Plan will be out of balance between land use and transportation.

PHED Committee recommendation (3-0): Do not include these intersection improvements in the Plan.

Veirs Mill Road/Randolph Road interchange. This already master-planned interchange is conceived to be of a “tight diamond” design, with four through lanes of Randolph Road passing beneath Veirs Mill Road. The existing grades work well for an underpass; Planning staff has determined that the underpass could begin north of Selfridge Road and emerge south of Colie Drive. A tight diamond design would have the ramps to and from Veirs Mill Road hug the edge of the underpass. Two examples of this design are the North Capitol Street interchanges at New York Avenue and at Rhode Island Avenue in the District of Columbia. An exhibit presented as part of the public hearing testimony graphically displays how this design conceptually would fit in the Veirs Mill/Randolph context (©17).

This interchange will have many benefits. It would bring the intersection in compliance with the SSP standard of 80 seconds/vehicle and would remove a major bottleneck for commuters from the central and eastern county going to and from workplaces in White Flint and the I-270 Corridor, whether travelling by car, local bus, or by the master-planned Randolph Road BRT. It would enhance bicycle and pedestrian safety and mobility by reducing the number of lanes needed to cross Randolph Road:

currently there are 7 lanes to traverse, compared to 4 lanes (in two separate 2-lane stages) with the interchange. Finally, it would obviate the need for two blocks of Selfridge Road between Randolph and Gridley Roads—a secondary residential street with 4 single-family homes fronting it—to be used as the designated left-turn route for eastbound vehicles on Randolph Road making a left turn onto northwest-bound Veirs Mill Road.

There would need to be a bypass roadway to handle Randolph Road traffic during construction. It would likely require taking the fast-food restaurant on the east corner and up to 4 single-family dwellings abutting Randolph Road at or near the south corner between Veirs Mill and Selfridge Roads. The outside curb-to-outside curb distance of Randolph Road and its ramps would probably be 20-25 feet wider than the current cross-section distance. After construction, there should be enough space on the east corner to restore a small commercial use, and the remaining property near the south corner could be developed into a local park serving the Veirs Mill commercial area and the neighborhood.

The Draft Plan states that “A grade-separated interchange at this intersection is inconsistent with the overall transportation goals of this plan, which seek to improve conditions for pedestrians, bicyclists and transit users on Veirs Mill Road and the surrounding communities [p. 54].” In fact, just the opposite is true if the interchange is designed as described, for the reasons already noted.

The Draft Plan recommends considering eliminating this interchange from the current master plan, but if it is constructed, it must be built so that it does not inhibit pedestrian, bicycle and pedestrian accessibility, and to minimize disruption to local businesses and homes. For the reasons noted above, the interchange should remain in the Plan, but with the caveats noted by the Planning Board.

PHED Committee recommendation (3-0): Delete references to the possible elimination of the Veirs Mill Road/Randolph Road interchange, but retain the language calling for its design to not inhibit pedestrian, bicycle and pedestrian accessibility, and to minimize disruption to local businesses and homes. Note that is a lower priority than constructing the Veirs Mill Road BRT. Include a diagram illustrating how the interchange should be designed.

To reflect this recommendation, “Section 2.5.12 Intersections” would be amended to delete the third sentence in the second paragraph, and the start of the third paragraph would be amended to read “[If such an] When the interchange is constructed, ...”. Furthermore, the staffs recommend amending the last bullet under section “2.5.13 Intersection Recommendations” as follows:

[Consider the elimination of] Confirm the proposed interchange at Veirs Mill Road and Randolph Road [from] in the Master Plan of Highways and Transitways. The construction of the interchange must not be prioritized over the construction of Bus Rapid Transit on Veirs Mill Road, and [If such an interchange is constructed,] it must be constructed in [such] a way that would not inhibit pedestrian, bicycle and transit accessibility. In addition, it should minimize disruption to local businesses and homes, as conceptually shown in Figure 18.

Eliminating double left-turn lanes. The Draft Plan recommends reducing double left-turn lanes to a single lane wherever they occur on Veirs Mill Road. As noted above, doing this would increase congestion levels at these intersections considerably. Furthermore, as DOT points out in its comments:

Currently all double-lefts have exclusive signal phasing such that there are no conflicting WALK phases across either crosswalk traversed by a left-turn. Converting double-lefts to single-lefts would necessitate longer cycles given to left-turn phases, reducing the amount of WALK time available and potentially increasing instances where pedestrians cross during a DON'T WALK phase. (©5)

The Draft Plan also includes the statement that “double left-turn lanes ... enable high-speed turns” (p. 54). But the speed of these turns is less than for single-lane left-turns: where two lanes of traffic are turning together, each driver is wary of the driver to the left or right and proceeds more cautiously. *Council staff recommends deleting the Draft Plan’s proposal to eliminate double left-turn lanes at intersections, and deleting the statement noted above.*

PHED Committee recommendation (3-0): Allow the continuation of double-left turns at existing intersections where their removal would result in failing levels of congestion but mitigate their effect on pedestrian and bicycle safety and mobility. Replace the sixth bullet under “Section 2.5.3 Street Network Recommendations” to read as follows:

As a goal, the number of additional lanes at signalized intersections should be minimized so that crossing distances and exposure of pedestrians and bicyclists to traffic when crossing the road is also minimized. Wherever it is determined to be beneficial to safety and does not create unacceptable congestion levels as defined by the applicable Subdivision Staging Policy congestion standard, the number of left turn lanes at a signalized intersection should be limited to one. Where dual left turn lanes are provided, consider the implementation of strategies to mitigate the speed of left-turning vehicles and to mitigate the additional width of the road that pedestrians and bicyclists must cross.

Eliminating channelizations at intersections. The Draft Plan recommends eliminating channelized right turns at the intersections along Veirs Mill Road, and those at Connecticut Avenue in particular (©18). The concern is that channelizations can allow vehicles to make uninterrupted high-speed turns across crosswalks. However, removing a channelized right-turn lane can increase the overall congestion at an intersection by having the right-turning traffic passing through it. The Veirs Mill Road/Connecticut Avenue intersection already fails the congestion standard, and it is forecast to fail in the future as well.

In some circumstances this problem can be mitigated significantly by rebuilding the channelization to reduce its turning radius, thus reducing the speed by which a vehicle can negotiate it. This is precisely what is occurring at the Rockville Pike/Woodmont Avenue intersection on the north side of the Bethesda CBD (©19). For many years, vehicles heading southbound on Rockville Pike have been able to make a fast transition onto southbound Woodmont Avenue. However, the turn goes across a heavily used crosswalk that connects Downtown Bethesda with the NIH campus, posing a dangerous condition for pedestrians. A project now nearly completed has changed the channelization so that the turning radius is smaller, resulting in much slower turns; nevertheless, the turning traffic is still separated from the center of the intersection, so its capacity is unaffected.

PHED Committee recommendation (3-0): Amend the Plan to say that, depending on the circumstances, channelizations may either be eliminated or rebuilt with a turning radius resulting in a much lower design speed. The staffs recommend amending the second bullet under section “2.5.13 Intersection Recommendations” as follows:

Wherever it is determined to be beneficial to safety, remove channelized right-turn lanes, particularly at the intersection of Veirs Mill Road and Connecticut Avenue, if feasible. If channelized right-turn lanes prove to be necessary, design the lanes to limit the exposure of vulnerable road users including implementing measures to reduce the speed of turning vehicles so that vehicles yield, as required, to . . . pedestrians and, bicyclists crossing the turn lane.

Target speed and lane widths. The posted speed limit on Veirs Mill Road north of the Wheaton CBD is generally 40 mph all the way to the Rockville CBD, including through the Twinbrook residential area, where there are frontage streets on both sides. The exception is the section between Turkey Branch Parkway and Twinbrook Parkway, where the limit is 45 mph. In this latter section west of Robindale Drive there is parkland along the south side and no homes that front on the north side. The Draft Plan calls for a target speed of 35 mph throughout. SHA “encourages the plan to allow for varying contexts and consider target speeds appropriate to those contexts” (©2).

PHED Committee recommendation (3-0): Concur with setting the target speed at 35 mph, except in the Veirs Mill commercial area between Havard Street and Bushey Drive that should be designated as a Road Code Urban Area with a target speed reduced to 25 mph, recognizing the more prevalent pedestrian activity there. The staffs recommend amending the third bullet under “Section 2.5.3 Street Network Recommendations” as follows:

Reduce target speeds on Veirs Mill Road to 35 miles per hour, outside the Road Code Urban Area, to improve safety. Define the areas between Havard Street and Bushey Drive on Veirs Mill Road as a Road Code Urban Area with a target speed of 25 miles per hour.

The travel lanes on Veirs Mill Road are consistently 12’ wide. This is the width of an Interstate Highway lane. However, there is a well-recognized correlation between lane width and speed, so reducing the width can contribute to slowing traffic down without affecting the road’s capacity to carry traffic. The Draft Plan’s proposed standard cross-sections (pp. 32-33) show 10’-wide lanes except for 11’-wide lanes for reserved BRT (and right turns), once the continuous lanes are built in the long term. SHA notes that it has implemented 10’-wide lanes in urban settings on a case-by-case basis; it would conduct studies specific to each segment of traffic density and speed and truck traffic volume before concurring with a 10’ width (©2).

These proposed cross-sections all have curb and gutter. Where there is curb and gutter the distance from the curb needs to be 1’ wider, to provide room for the gutter and sufficient shy area from the curb. The same is true for the inside lane. If the outside curb lane is to be reserved for BRT, then large trucks would be prohibited from using it; the outside lane is usually wider to accommodate the extra width of heavy trucks. The middle lane will be the de facto lane for trucks to use, so it, too, will need to be at least a foot wider. *Council staff recommends that, for a safe design, the lane widths in these planned cross-sections should be revised, from outside to inside, to 12’-11’-11’ rather than 11’-10’-10’.* Thus, the planned cross-section will need to accommodate 6’ more pavement (3’ in each direction) and the right-of-way widths either broadened by 6’ or reductions made in other elements. In the three of the four cross-sections on pp. 32-33 the median could be reduced by 6’ to make up the difference. **PHED Committee recommendation (3-0): Concur with the lane widths shown in the Draft Plan, and include language that the dimensions of the cross-section elements are illustrative and subject to refinement during detailed design.** The staffs recommend amending the “Veirs Mill Road” sub-section in “Section 2.5.2 Street Network” as follows:

This plan proposes to maintain the existing right-of-way of Veirs Mill Road, which varies between 100 feet and 175 feet based on the existing residential service roads. The right-of-way is generally characterized by four conditions [(shown in Figures 10 through 13)] including: (1) no residential service roads (Figure 10); (2) one service road on either the north or south (Figure 11); (3) [one service road on the south;] and (3[4]) service roads on both the north and the south (Figures 12 and 13). Figure 12 represents the recommended cross-section in locations adjacent to residential uses, while Figure 13 represents the recommended cross-section at areas with commercial land use. The ultimate cross-section of Veirs Mill Road will be determined with the design and implementation of long-term redevelopment or infrastructure projects, such as bus rapid transit (BRT).

These cross-sections on pp. 32-33 also include either a sidepath or separated bike lanes (i.e., a cycle track) on both sides of Veirs Mill Road for its entire length. However, wherever there is a frontage street, it could double as the bikeway: as noted, these are secondary residential streets with very little traffic that travel at a low speed. They operate as one-way for autos, but they could be signed as two-way for bicycles by replacing the “Do Not Enter” signs at the end of each block with “Do Not Enter except Bicycles” signs. This would reduce the size of the planned cross-section, thus considerably reducing the ultimate cost and impact of adding a shared use path or separated bike lanes. DOT confirms it is possible to have contra-flow bike lanes on a one-way street with the appropriate signing and markings or other techniques, as appropriate, to ensure pedestrian safety; it has implemented the concept on Cedar Street, south of Wayne Avenue and along Ellsworth Drive, north of Cedar Street. **PHED Committee recommendation (3-0): Where there is a frontage street, it should serve as the bikeway on that side of Veirs Mill Road, at least in the short term.** The staffs recommend amending the first bullet under “Section 2.5.7 Bicycle Network Recommendations” as follows:

In the short term, develop an interim continuous bicycle network along the residential service roads of Veirs Mill Road and on parallel streets that provide a combination of facilities, including new sidepaths, neighborhood greenways and connections to existing trails. (Refer to Map 7.)

Gannon Road extension. The Draft Plan calls for Gannon Road, a secondary residential street north of Veirs Mill Road and east of Randolph Road, to be extended northwest to Randolph Road if the site of the Department of Recreation’s administrative office redevelops. The text on page 37 says such an extension should “provide a connection between Gannon Road and Colie Drive.” However, Map 6 on page 36 does not show Gannon Road and Colie Drive connecting with Randolph Road across from each other at a single intersection. DOT has commented that they should connect (©6). **PHED Committee recommendation (3-0): Show Gannon Road and Colie Drive connecting at Randolph Road at the same point, and adding text noting that this could be done by relocating Colie Drive.** The map on p. 36 would be revised as shown on ©19A. Furthermore, the staffs recommend amending the tenth bullet under “Section 2.5.3 Street Network Recommendations” as follows:

If the Montgomery County Department of Recreation’s administrative office site on Bushey Drive is redeveloped, extend Gannon Road northwest as a business district street, as shown in Figure 14, from its current terminus west of Bushey Drive to provide a connection between Gannon Road and Colie Drive. Montgomery County should consider funding the extension of Gannon Road to maximize the potential for development of affordable housing on the site.

Community outreach. The Draft Plan describes the various ways by which the Planning Board and staff have reached out to the community to gain input on this plan (pp. 2-6). While this is useful

information in a Draft Plan, it should not be part of the final Adopted Plan, which should be confined to goals and objectives, and recommendations on projects and policies. *Council staff recommends that the Community Outreach section not be included in the Adopted Plan, as it hasn't in other plans.*

PHED Committee recommendation (3-0): Include the Community Outreach section of the text and supplement with text describing the Council's outreach. Council President Navarro volunteered her office to draft the additional text. Based on that draft, the staffs recommend the following:

Recognizing that there are barriers such as language and geographic access to the decision-making process that prevent certain people in the immigrant community to play an active role about important issues that affect their daily lives, Council staff engaged collaboratively with key partners and the communities around the Veirs Mill Corridor to create and publicize bilingual outreach brochures, engage in informational sessions about the Master Plan before the hearing, and assist with the process of signing up to testify. The Council provided simultaneous English to Spanish translation and interpretation services available for audience members provided through headsets. These efforts are a direct result of the Latino Civic Project, launched by the Council in 2012, to strengthen the civic participation of the immigrant community in the decision-making process in a linguistic and culturally proficient manner, which resulted in the Veirs Mill Corridor Master Plan public hearing's attendance being reflective of the diversity of the corridor, as residents were able to testify in both English and Spanish and share their recommendations on the Plan.

Matthew Henson Trail crossing. Tables 1 and 2 on pp. 8-9 (©20-21) summarize the Plan's short- and long-term recommendations. The table is purposefully and appropriately silent as to the number of years associated with the short-term, given that the master plan is not a capital improvements program. Regarding the Matthew Henson Trail crossing, the short-term improvement is to enhance the design of the at-grade crossing so that it is more direct and better lit. The long-term improvement is to build a grade-separated crossing for the trail.

The concern is that while the short-term measure will provide modest improvement, a truly safe crossing for this regional trail will not occur until the trail is bridged over Veirs Mill Road, just as the Rock Creek Trail was many years ago. Frankly, the County should have budgeted the cost of a trail bridge when the trail was initially built. It is at the bottom of steep hills extending in both directions; even with a posted speed lowered to 35 mph, drivers will find it extremely difficult not to exceed that limit. Planning staff have observed that most pedestrians and bicyclists do not activate the signal, some because they don't want to wait and some perhaps because they feel uncomfortable forcing platoons of vehicles in each direction to stop just for themselves.

PHED Committee recommendation (3-0): Clarify that the grade separation will be a trail bridge over Veirs Mill Road, and that it be classified as a Short-Term recommendation in Table 1. The current short-term improvement could be described as "Step 1" and the overpass as "Step 2." Furthermore, the Plan should be explicit that this is to be a trail overpass rather than raising Veirs Mill Road to create a trail underpass. According to the FIS the latter would cost four times that of an overpass (\$44 million versus \$11 million), and it would require shutting off vehicular access to and from Turkey Branch Parkway. It would also effectively create a wall in front of some houses fronting on Veirs Mill Road, and the traffic noise from the raised road would carry over a wider distance. The staffs

recommend amending the fourth sub-bullet under the second bullet in “Section 2.5.5 Pedestrian Network Recommendations” (p. 40) as follows:

In the [long-term] short-term, provide a [grade-separated crossing] pedestrian and bicycle overpass of Veirs Mill Road for users of the Matthew Henson Trail. Independent of the provision of an overpass, safe at-grade crossing opportunities of Veirs Mill Road must also be provided in this vicinity.

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February 27, 2019

Ms. Jessica McVary, AICP
Planner Coordinator
Planning Area 2
Montgomery County Planning Department
8787 Georgia Avenue
Silver Spring MD 20910

Dear Ms. McVary:

In response to your January 3, 2019 request for the Maryland Department of Transportation State Highway Administration's (MDOT SHA) comments on the December 2018 Planning Board draft of the Maryland-National Capital Park and Planning Commission Veirs Mill Corridor Master Plan ("the plan"), MDOT SHA offers the following for your consideration.

Ongoing Efforts

In line with the County's Vision Zero Action Plan, MDOT SHA is approaching pedestrian accommodations and safety in urban areas differently than in suburban and rural areas. The MDOT SHA continues to evaluate solutions and implementation strategies to further this approach to pedestrian safety throughout Maryland. Noting that the plan places an emphasis on these types of pedestrian safety improvements, the MDOT SHA already is undertaking the following actions to address the plan's vision and recommendations along MD 586 (Veirs Mill Road):

- MDOT SHA District 3 currently is conducting necessary traffic studies to evaluate the appropriateness of locating protected crossings at Norris Drive and at Andrew Street. The MDOT SHA anticipates completing these studies in the Spring of 2019.
- MDOT SHA District 3 currently is conducting necessary traffic studies to evaluate the appropriateness of designating a school zone from Galt Avenue to MD 185 (Connecticut Avenue), pursuant to Maryland Transportation Code § 21-803.1 (2017) and lowering speed limits as necessary. The MDOT SHA anticipates completing these studies in the Spring of 2019.
- MDOT SHA District 3 currently is evaluating infrastructure improvement options, such as refreshing existing faded pavement markings, to better ensure motorists observe existing bus/right-turn only lanes. The MDOT SHA anticipates completing this evaluation in the Spring of 2019.

- MDOT SHA Highway Development currently is evaluating the feasibility of potential future sidewalk improvements to improve pedestrian facility connectivity and anticipates completing its full report in the Spring of 2019. To accommodate potential future programming and implementation of pedestrian improvements, MDOT SHA encourages the Planning Department, in the plan, to prioritize pedestrian infrastructure and intersection improvement recommendations.

On January 28, 2019, MDOT SHA staff met with representatives of the Planning Department and the Montgomery County Department of Transportation (MCDOT) to discuss these ongoing activities and the schedules indicated above for reporting study and evaluation results.

General Comments

- The MDOT SHA encourages the Planning Department to include accommodations and width necessary for stormwater management and utility infrastructure, especially in proposed typical sections, throughout the plan. Doing so will more accurately describe the right-of-way necessary and the cost to implement desired typical sections.
- The MDOT SHA encourages the Planning Department to consider varying land use and traffic context. In three cases, the plan recommends setting a consistent standard for roadway design and/or operations throughout the plan area and through the MD 586 corridor:
 - This plan proposes to reduce vehicular speed throughout the corridor, specifically designing future improvements to accommodate a target speed of 35 mph. The MDOT SHA considers various contextual factors such as adjacent land use, roadway design and geometrics, prevailing speeds, transition between urban and rural areas, school zones, accident history, unusual or unanticipated conditions, etc., when setting speed limits. The MDOT SHA encourages the plan to allow for varying contexts and consider target speeds appropriate to those contexts.
 - This plan recommends reducing vehicular lane width in an effort to calm traffic and improve pedestrian and bicycle accommodations. Although MDOT SHA has implemented 10-foot-wide lanes in select Montgomery County urban corridors, it has done so on a case-by-case basis. While such a treatment may be appropriate in the MD 586 corridor, MDOT SHA would request additional segment-specific studies of traffic density, traffic speed, and truck traffic volume before concurring with this plan's recommendations.

Ms. Jessica McVary
Page Three

- The MDOT SHA notes that applying a consistent maximum congestion/delay standard may not be appropriate throughout the corridor as the land-use context varies throughout. Congestion standards should be applied based on each intersection's land use and traffic context. The MDOT SHA encourages the plan to allow for varying contexts and consider congestion standards appropriate to those contexts.
- This plan recommends the use of both green and red paint as traffic control devices. The MDOT SHA encourages partner agencies to propose innovative treatments, such as the use of colored paint as a traffic control device. The MDOT SHA notes, though, that neither color currently is approved fully for use by the Federal Highway Administration (FHWA).
- FHWA has granted only *interim approval* of the use of green paint for traffic control purposes such as delineating bicycle facilities at intersections. The MDOT SHA and MCDOT previously executed a MOU outlining procedures for implementation and maintenance of green paint for traffic control purposes in the County; therefore, this MOU need only be amended to specify additional locations.
- FHWA has granted only *experimental approval* of the use of red paint for traffic control purposes such as delineating "Bus Only" lanes. Therefore, FHWA's approval is necessary for any application of red paint for traffic control purposes.

Thank you for providing MDOT SHA the opportunity to review and comment on the December 2018 M-NCPPC Veirs Mill Corridor Master Plan Planning Board Draft. If you have any questions or concerns, please contact Ms. Kandese Holford, MDOT SHA Regional Planner, at 410-545-5678, toll-free 1-888-204-4828, or via email at kholford@mdot.state.md.us.

Sincerely,



Eric Beckett
Deputy Director
Office of Planning and Preliminary Engineering

cc: Andrew Bossi, P.E., Senior Engineer, MCDOT
Dr. Glenn Orlin, Deputy Director, Montgomery County Council
Ms. Carrie Sanders, AICP, Chief, Area 2, Montgomery County Planning Department
Ms. Nancy Sturgeon, Master Plan Supervisor, Montgomery County Planning Department
Ms. Kandese Holford, Regional Planner, MDOT SHA



DEPARTMENT OF TRANSPORTATION


Marc Ulrich
County Executive

M.R. Roshdich
Director

MEMORANDUM

January 18, 2019

TO: Greg Ossont, Deputy Director
Department of General Services

FROM: Christopher Conklin, P.E., Deputy Director for Policy 
Department of Transportation

SUBJECT: Veirs Mill Corridor Master Plan – MCDOT Revised Planning Board Draft Comments

Thank you for the opportunity to review the December 2018 Planning Board Draft of the Veirs Mill Corridor Master Plan. We have appreciated the Planning Department’s significant engagement with MCDOT on this effort. Our detailed comments on this draft are attached to the memorandum. Our most significant comments are highlighted below:

- 1) **TPAR Analysis:** We request that the plan include 2012 TPAR or other systemwide evaluation of the corridor with regard to vehicular operations. Individual intersection evaluations provide a tool for comparison with Subdivision Staging Policy (SSP) maximum delay thresholds, but they do not provide an overall assessment of the corridor performance. Furthermore, the plan would be improved by identifying performance targets for the corridor as the SSP identifies the lowest performance that is tolerable rather than a performance objective.

Future master plans should also seek to develop and update TPAR Transit metrics for each plan area, instead of adapting 2012 data. Such information can provide a helpful snapshot of the condition and quality of transit services in a master plan area, and how / where they may need to improve.

- 2) **Congestion Threshold:** We recognize that there is too much variation in the SSP congestion standards for this corridor. However, the rationale behind the increased maximum congestion standard recommended in the plan is unclear. Furthermore, we reiterate our desire to have a performance objective stated as plans should not to seek to achieve the maximum allowable delay.

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Office of the Director

101 Monroe Street, 10th Floor • Rockville, Maryland 20850 • 240-777-7170 • 240-777-7178 Fax
www.montgomerycountymd.gov medot

- 3) **Unevaluated Intersections:** There are three major intersections which were not evaluated as part of the transportation analysis and should be analyzed:
- Veirs Mill Road and First Street in the City of Rockville; a junction formed entirely by State-maintained routes.
 - Veirs Mill Road and Aspen Hill Road; one of the intersections designated for reducing a double-left turn to a single-left turn.
 - Veirs Mill Road and Parklawn Drive / Gaynor Road; where Montrose Parkway East is designed to intersect.
- 4) **Failing Intersections:** Four intersections appear to fail the LATR evaluations under current congestion standards, and three appear to fail with the increased congestion thresholds. The three include each junction formed by the trio of Veirs Mill Road, Connecticut Avenue, and Randolph Road. The fourth (which passes with the increased congestion standard) is at Veirs Mill Road and Twinbrook Parkway.
- 5) **Single-Lane Left-Turns:** It is not made clear how limiting left-turn lanes to a single lane would improve safety for all users. Currently, all double-lefts have exclusive signal phasing such that there are no conflicting WALK phases across either crosswalk traversed by a left-turn.

Converting double-lefts to single-lefts would necessitate longer cycles given to left-turn phases, reducing the amount of WALK time available and potentially increasing instances where pedestrians cross against during a DON'T WALK phase.

More detail is necessary to support this recommendation.

- 6) **Interchange Evaluation:** We concur with public sentiment that an interchange at the intersection of Randolph Road and Veirs Mill Road is unlikely to be effective use of public resources. We urge the Planning staff to evaluate the interchange more fully and develop a definitive recommendation as a part of this master plan. If this plan does not do so, it is unlikely to occur through another forum. Included in this evaluation should be consideration of the potential for varying traffic flows based on whether Montrose Parkway East is or is not implemented.

- 7) **Traffic Diversion:** Information should be provided as to whether the traffic analyses found any degree of trip diversion arising from a slower-operating Veirs Mill Road, and whether any such diversions amounted to a significant enough volume as to justify evaluating the impacts to any such alternative routes.
- 8) **Right-of-Way:** The plan seeks to preserve existing right-of-way, recognizing that the limited development potential along much of the corridor makes it more realistic to assume any proposed infrastructure must fit within the right-of-way that is available today.

We largely concur with the plan's approach to right-of-way and our preliminary analysis shows that the Alternative 2.5 BRT can substantially be achieved within this right-of-way. Text has been included in the plan to note that at spot locations (particularly bus stations, queue jumps, etc.) additional right-of-way may be necessary.

It remains a preference of MCDOT, however, that the currently approved master planned right-of-way be preserved. We recognize that it may not be dedicated for a long time or even beyond the lifetime of the plan, but this additional right-of-way could be utilized toward upgrading the Alternative 2.5 BRT to Alternative 3 BRT, or it could provide additional room for the Breezeway given we expect that Breezeway design standards will rapidly change over the coming decades.

- 9) **Gannon Road Extension:** This proposed extension presents operational concerns as noted in the detailed comments. We suggest that this be realigned either to intersect with Randolph Road opposite Colie Drive, or that Colie Drive be realigned as to intersect opposite the Gannon extension.

Should you have any questions regarding our comments on the plan, please feel free to contact me or Mr. Andrew Bossi, Senior Engineer, at 240-777-7200.

CC:AB

cc: Al Roshdieh, MCDOT
Gary Erenrich, MCDOT
Andrew Bossi, MCDOT
Amy Donin, DGS
Jessica McVary, MNCPPC
Matt Baker, SHA

**County Capital and Operating Cost Estimates Assumed to be Incurred as a Result of the
Viers Mill Corridor Master Plan
1/25/2019**

Capital Improvement Projects

Project		Description	Total County Costs
Inter- changes	Veirs Mill Rd & Randolph Rd	Already master planned. As this plan proposes an intent to eliminate the proposed interchange this cost is not considered to be applicable to this FIS (and could arguably be considered a cost savings).	\$ -
Mass Transit	Mixed Traffic BRT	BRT Alternative 2.5. This accounts for the entire corridor between Rockville and Wheaton; not only the portion within the master plan area. Estimated O&M cost of \$4.8m/yr.	\$ 39,600,000
	Dedicated Lanes BRT / Veirs Mill Reconstruction	BRT Alternative 3. This is the incremental cost above the cost to implement Alternative 2.5. The total cost of Alternative 3, on its own, is estimated at \$147,900,000. This does not include the master planned bikeways, which are listed as a separate line item in this FIS. This does not include master planned grade separation of the Matthew Henson Trail. Estimated O&M cost remains the same as 2.5 at \$4.8m/yr.	\$ 34,400,000
	Improve Bus Lane Compliance	Improving compliance of motorists heading the existing bus lane along eastbound Veirs Mill approaching Wheaton. The State would fund these costs.	\$ -
	Improve Bus Stop Access & Quality	Miscellaneous small-scale projects.	\$ 100,000
	Bikeshare	Capital costs only, including station installation, bikes, and 1 set of bike replacements. Does not include Operations, which are estimated at \$700k/yr at full build-out. Likely to be built out by private contributions (\$1.4M), through grants or a public CIP may also be feasible.	\$ 400,000
New Roads	B-5 Gannon Rd	Extension to Randolph Rd. Would occur as part of redevelopment.	\$ 4,100,000
Ped / Bike Focused	M-13 Veirs Mill Rd (MD 586) Sidewalk Gaps, Near-Term and Long-Term Bikeways	Assumes the proposed Separated Bike Lane along the south side of Veirs Mill near Connecticut Ave would be initially built as a sidepath, to be replaced with a Separated Bike Lane after long-term reconstruction of Veirs Mill Road. Not accounted for in the Veirs Mill Reconstruction / BRT Alternative 3 cost. These bikeways may only be implementable after or concurrent with reconstruction of Veirs Mill. Assumes some share will be built by private development in the vicinity of the Randolph intersection.	\$ 12,200,000
	Aspen Hill Rd	Near-term reconstructing of sidewalk to provide a buffer. Long-term sidepath project (North side). There is a likelihood that a near-term sidewalk project would go straight to implementing the long-term sidepath.	\$ 1,000,000
	Barbara Rd	Sidepath (side TBD)	\$ 500,000
	Broadview Rd	Trail	\$ 300,000
	Colie Dr	Near-term reconstructing of sidewalk to provide a buffer. Long-term sidepath project (South side). Assumed that near-term implementation would precede redevelopment. If redevelopment occurs, it is anticipated that the applicant would be conditioned to provide the long-term treatment (sidepath). There is a potential that any capital project here would go straight to implementing the sidepath rather than reconstructing sidewalk.	\$ 1,000,000

College View Dr	Neighborhood Greenway	\$	400,000
Connecticut Ave (MD 185)	Near-term reconstructing of sidewalk to provide a buffer. Long-term projects to provide sidepath on both sides as well as contraflow bike lanes in the service roads. There is a potential that any project here would go straight to implementing the sidepath rather than reconstructing sidewalk.	\$	2,000,000
Ferrara Ave / Ferrara Dr	Neighborhood Greenway	\$	200,000
Gridley Rd	Sidewalk	\$	600,000
Glorus Pl	Neighborhood Greenway	\$	100,000
Havard St	Sidepath (East side)	\$	600,000
Newport Mill Rd	Near-term reconstructing of sidewalk to provide a buffer. Long-term sidepath project (East side). There is a likelihood that a near-term sidewalk project would go straight to implementing the long-term sidepath.	\$	1,700,000
Parker Ave	Near-term reconstructing of sidewalk to provide a buffer. Long-term sidepath project (side TBD). There is a likelihood that a near-term sidewalk project would go straight to implementing the long-term sidepath.	\$	1,100,000
Parkland Dr	Sidepath (side TBD)	\$	1,200,000
Randolph Rd	Near-term reconstructing of sidewalk. Long-term separated bike lanes projects including reconstruction of curb lines.	\$	23,700,000
Selfridge Rd	Neighborhood Greenway (with a short portion of trail/sidepath). Sidewalk	\$	800,000
Twinbrook Pkwy	Near-term reconstructing of sidewalk to provide a buffer. Long-term sidepath project (both sides). There is a likelihood that a near-term sidewalk project would go straight to implementing the long-term sidepath.	\$	3,300,000
Valleywood Dr	Near-term reconstructing of sidewalk to provide a buffer. Long-term sidepath project (side TBD). There is a likelihood that a near-term sidewalk project would go straight to implementing the long-term sidepath.	\$	700,000
Rebuild Ped/Bike Bridge over Joseph's Branch Creek	Existing bridge is located between Valleywood Dr and Moline Rd.	\$	800,000
Improve Matthew Henson At-Grade Crossing	Lowest unit cost assigned to address minor treatments that may remain necessary after SHA has converted the signal to a full signal.	\$	100,000
Matthew Henson Grade Separation Build Trail Bridge Over Veirs Mill Rd	Assumes a 685' length bridge at 12' width over Veirs Mill, with a 125' flat span over Veirs Mill and 280' of lead-up on each side (with 5' landings every 30'). Duplicative project with the alternative of "Reconstruct Veirs Mill Rd over Trail" below. This line item is NOT currently tallied into the total.	\$	11,200,000
Matthew Henson Grade Separation Reconstruct Veirs Mill Rd over Trail	Assumes 80' wide bridge with 15' clearance over trail; bridge beginning 200' NW of Trail and 150' SE of trail. Turkey Branch Pkwy severed from Veirs Mill. Access road remains at-grade & Edgebrook connection preserved. SW side ped/bike facilities remain along access road; no ped/bike facilities on SW side of Veirs proper. Assumes switchbacks (with 5x10' landings every 30' slope) on each side to provide ADA access between Veirs Mill and Turkey Branch as well as Edgebrook. Potential for cost savings if build as part of Veirs Mill Reconstruction / BRT Alternative 3. Duplicative project with the alternative of "Reconstruct Veirs Mill Rd over Trail" above. This line item IS currently tallied into the total.	\$	44,400,000
TOTAL ESTIMATED CAPITAL IMPROVEMENTS COST		\$	175,300,000

Operating Budget Impact

Bus Rapid Transit	Same operating budget impact/cost for Alt 2.5 as well as Alt 3.	\$	4,800,000
Bikeshare	At full build-out	\$	700,000
Total Estimated Annual Operating Budget Impact (OBI)			\$ 5,500,000

Notes

- (1) Total estimated costs are \$286.4M, \$175.3M - County, \$106.6M - State, and \$7.5M Private. Only County costs are shown in the chart above. It is typical practice, along State corridors, to assume a 50/50 split in costs unless there is strong cause to assume otherwise. In practice the actual splits in such costs may vary significantly.
- (2) Operating costs are representative of annual costs at full build-out of the plan.
- (3) Secondary and Tertiary Residential streets (even those with missing or inadequate sidewalks) are currently deemed to be adequate per Pedestrian Level of Comfort analysis and are therefore not included in this estimate.
- (4) Rounding - Individual values rounded up to nearest \$100,000, which is the cause of any apparent summation discrepancies
- (5) Inflation - All Dollars are in 2019 Dollars.

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**Cost Estimates for the
Veirs Mill Corridor Plan**

Assumptions
Plan Year = 2019
Plan Lifetime (yrs) = 2045
All costs are Capital only; Maint+Operations costs not included.
Individual values are rounded up to the nearest \$100,000. "Approx Total Cost" column is a summation of the County, State/Fed, Private Devel, etc columns, compounding this rounding.

Project		Near-Term	Long-Term	Approx Total Cost	County	State / Federal	Private Devel	Notes
Inter-changes	Veirs Mill Rd & Randolph Rd		X	\$ -	\$ -	\$ -	\$ -	Already master planned. As this plan proposes an intent to eliminate the proposed interchange this cost is not considered to be applicable to this FIS (and could arguably be considered a cost savings).
	SUBTOTAL			\$ -	\$ -	\$ -	\$ -	
Transit	Mixed Traffic BRT	X		\$ 79,200,000	\$ 39,600,000	\$ 39,600,000	\$ -	BRT Alternative 2.5. This accounts for the entire corridor between Rockville and Wheaton; not only the portion within the master plan area. Estimated O&M cost of \$4.8m/yr.
	Dedicated Lanes BRT / Veirs Mill Reconstruction		X	\$ 68,800,000	\$ 34,400,000	\$ 34,400,000	\$ -	BRT Alternative 3. This is the incremental cost above the cost to implement Alternative 2.5. The total cost of Alternative 3, on its own, is estimated at \$147,900,000. This does not include the master planned bikeways, which are listed as a separate line item in this FIS. This does not include master planned grade separation of the Matthew Henson Trail. Estimated O&M cost remains the same as 2.5 at \$4.8m/yr.
	Improve Bus Lane Compliance	X		\$ 100,000	\$ -	\$ 100,000	\$ -	Improving compliance of motorists heeding the existing bus lane along eastbound Veirs Mill approaching Wheaton.
	Improve Bus Stop Access & Quality	X		\$ 200,000	\$ 100,000	\$ 100,000	\$ -	Miscellaneous small-scale projects.
	Bikeshare	X		\$ 1,800,000	\$ 400,000	\$ -	\$ 1,400,000	Capital costs only, including station installation, bikes, and 1 set of bike replacements. Does not include Operations, which are estimated at \$700k/yr at full build-out. Likely to be built out by private contributions, though grants or a public CIP may also be feasible.
	SUBTOTAL			\$ 150,100,000	\$ 74,500,000	\$ 74,200,000	\$ 1,400,000	
Intersections	Veirs Mill Rd / Randolph Rd		X	\$ -	\$ -	\$ -	\$ -	Intersection fails LATR. No mitigation is identified.
	Connecticut Ave / Randolph Rd		X	\$ -	\$ -	\$ -	\$ -	Intersection fails LATR. No mitigation is identified.
	Veirs Mill Rd / Connecticut Ave		X	\$ -	\$ -	\$ -	\$ -	Intersection fails LATR. No mitigation is identified.
	Veirs Mill Rd / Connecticut Ave Remove Channelized Rights		X	\$ 1,200,000	\$ -	\$ 1,200,000	\$ -	Cursony review indicates likely impacts to four utility poles, all pedestrian poles, and one inlet, in addition to geometric work involved with closing slip-lanes and reducing curve radii at the intersection proper.
	Eliminate Unsignalized Left-Turns		X	\$ 2,000,000	\$ -	\$ 2,000,000	\$ -	Unit price \$250,000 each, across an estimated 8 intersections: - Veirs Mill at Robindale, Parkland, Gridley, Clairidge, Newport Mill - Randolph at Colie, Connecticut - Connecticut at Randolph Costs assume signal modifications and potential geometrics treatments to accommodate longer left-turn queues. There may be some duplicative costs, as these intersection projects might be implemented concurrent with or supercede other projects along the Veirs Mill Corridor.

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**Cost Estimates for the
Veirs Mill Corridor Plan**

Project		Near-Term	Long-Term	Approx Total Cost	County	State / Federal	Private Devel	Notes
Intersections	Convert Dbl-L to Single-L		X	\$ 3,000,000	\$ -	\$ 3,000,000	\$ -	Unit price \$500,000 each, across an estimated 6 locations: - Veirs Mill at Twinbrook, Aspen Hill, Randolph (x2) - Connecticut at Veirs Mill (x2) Costs assume traffic analyses, signal modifications, and geometrics treatments to remove the 2nd lane as well as potentially lengthen the remaining lane to accommodate longer left-turn queues. There may be some duplicative costs, as these intersection projects might be implemented concurrent with or supercede other projects along the Veirs Mill Corridor.
	Protected Crossings	X		\$ 5,000,000	\$ -	\$ 5,000,000	\$ -	Unit price \$500,000 each, across an estimated 10 intersections: - Veirs Mill at Arbutus, Matthew Henson, Havard, Bushey, Andrew, Pendelton, Norris, Galt - Twinbrook at Halpine/Alderbrook, Vandegrift Costs assume new signals &/or geometrics as necessary. There may be some duplicative costs, as these intersection projects might be implemented concurrent with or supercede other projects along the Veirs Mill Corridor.
	Protected Intersections		X	\$ 4,000,000	\$ -	\$ 4,000,000	\$ -	Unit price \$500,000 each, across an estimated 8 intersections where separated bike lanes intersect with other separated bike lanes or shared use paths: - Veirs Mill at Twinbrook, Aspen Hill, Parkland, Havard, Randolph, Connecticut, Valleywood, Newport Mill There may be some duplicative costs, as these intersection projects might be implemented concurrent with or supercede other projects along the Veirs Mill Corridor.
	SUBTOTAL			\$ 15,200,000	\$ -	\$ 15,200,000	\$ -	
New Roads	B-1 Rock Creek Mill Rd		X	\$ 5,100,000	\$ -	\$ -	\$ 5,100,000	Extension to Twinbrook Pkwy.
	B-5 Gannon Rd		X	\$ 4,100,000	\$ 4,100,000	\$ -	\$ -	Extension to Randolph Rd. Would occur as part of redevelopment, but as the redevelopment is likely to be that of a County property costs are assumed to be public costs.
	B-x Gridley Rd		X	\$ 1,000,000	\$ -	\$ -	\$ 1,000,000	Extension to Colle Dr. Is included in text but is not shown in maps.
	SUBTOTAL			\$ 10,200,000	\$ 4,100,000	\$ -	\$ 6,100,000	
Ped / Bike Focused	M-13 Veirs Mill Rd (MD 586) Sidewalk Gaps	X		\$ 7,800,000	\$ 3,900,000	\$ 3,900,000	\$ -	
	M-13 Veirs Mill Rd (MD 586) Near-Term Bikeways	X		\$ 4,800,000	\$ 2,400,000	\$ 2,400,000	\$ -	Assumes the proposed Separated Bike Lane along the south side of Veirs Mill near Connecticut Ave would be initially built as a sidepath, to be replaced with a Separated Bike Lane after long-term reconstruction of Veirs Mill Road.
	M-13 Veirs Mill Rd (MD 586) Long-Term Bikeways		X	\$ 12,200,000	\$ 5,900,000	\$ 5,900,000	\$ 400,000	Not accounted for in the Veirs Mill Reconstruction / BRT Alternative 3 cost. These bikeways may only be implementable after or concurrent with reconstruction of Veirs Mill. Assumes some share will be built by private development in the vicinity of the Randolph intersection.
	Aspen Hill Rd	X		\$ 100,000	\$ 100,000	\$ -	\$ -	Reconstructing sidewalk to provide a buffer. There is a potential that any project here would go straight to implementing the sidepath rather than reconstructing sidewalk; effectively negating this cost estimate.
	Aspen Hill Rd		X	\$ 900,000	\$ 900,000	\$ -	\$ -	Sidepath (North side)
	Barbara Rd		X	\$ 500,000	\$ 500,000	\$ -	\$ -	Sidepath (side TBD)
	Broadview Rd		X	\$ 300,000	\$ 300,000	\$ -	\$ -	Trail

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**Cost Estimates for the
Veirs Mill Corridor Plan**

Project	Near-Term	Long-Term	Approx Total Cost	County	State / Federal	Private Devel	Notes
Colie Dr	X		\$ 700,000	\$ 700,000	\$ -	\$ -	Reconstructing sidewalk to provide a buffer. Assumed that implementation would precede redevelopment. If redevelopment occurs, it is anticipated that the applicant would be conditioned to provide the long-term treatment (sidepath). There is a potential that any project here would go straight to implementing the sidepath rather than reconstructing sidewalk; effectively negating this cost estimate.
Colie Dr		X	\$ 1,300,000	\$ 300,000	\$ -	\$ 1,000,000	Sidepath (South side). Approximately 75% of the segment is along commercial property frontage; likely to redevelop over the lifetime of the plan.
College View Dr		X	\$ 400,000	\$ 400,000	\$ -	\$ -	Neighborhood Greenway
Connecticut Ave (MD 185)	X		\$ 1,600,000	\$ 800,000	\$ 800,000	\$ -	Reconstructing sidewalk to provide a buffer. There is a potential that any project here would go straight to implementing the sidepath rather than reconstructing sidewalk; effectively reducing or negating this cost estimate.
Connecticut Ave (MD 185)		X	\$ 200,000	\$ 100,000	\$ 100,000	\$ -	Contraflow Bike Lane (West side service road)
Connecticut Ave (MD 185)		X	\$ 1,400,000	\$ 700,000	\$ 700,000	\$ -	Sidepath (West side)
Connecticut Ave (MD 185)		X	\$ 400,000	\$ 200,000	\$ 200,000	\$ -	Contraflow Bike Lane (East side service road)
Connecticut Ave (MD 185)		X	\$ 400,000	\$ 200,000	\$ 200,000	\$ -	Sidepath (East side)
Ferrara Ave / Ferrara Dr		X	\$ 200,000	\$ 200,000	\$ -	\$ -	Neighborhood Greenway
Gridley Rd	X		\$ 600,000	\$ 600,000	\$ -	\$ -	Sidewalk
Glorus Pl		X	\$ 100,000	\$ 100,000	\$ -	\$ -	Neighborhood Greenway
Havard St		X	\$ 600,000	\$ 600,000	\$ -	\$ -	Sidepath (East side)
Newport Mill Rd	X		\$ 500,000	\$ 500,000	\$ -	\$ -	Reconstructing sidewalk to provide a buffer. There is a potential that any project here would go straight to implementing the sidepath rather than reconstructing sidewalk; effectively reducing or negating this cost estimate.
Newport Mill Rd		X	\$ 1,200,000	\$ 1,200,000	\$ -	\$ -	Sidepath (East side)
Parker Ave	X		\$ 600,000	\$ 600,000	\$ -	\$ -	Reconstructing sidewalk to provide a buffer. There is a potential that any project here would go straight to implementing the sidepath rather than reconstructing sidewalk; effectively reducing or negating this cost estimate.
Parker Ave		X	\$ 500,000	\$ 500,000	\$ -	\$ -	Sidepath (side TBD)
Parkland Dr		X	\$ 1,200,000	\$ 1,200,000	\$ -	\$ -	Sidepath (side TBD)
Randolph Rd	X		\$ 2,300,000	\$ 2,300,000	\$ -	\$ -	Sidewalk
Randolph Rd		X	\$ 21,400,000	\$ 21,400,000	\$ -	\$ -	Assumes reconstruction of the curb lines will be required to accommodate separated bike lanes.
Selfridge Rd	X		\$ 400,000	\$ 400,000	\$ -	\$ -	Sidewalk
Selfridge Rd		X	\$ 400,000	\$ 400,000	\$ -	\$ -	Neighborhood Greenway (with a short portion of trail/sidepath)

Ped / Bike Focused

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**Cost Estimates for the
Veirs Mill Corridor Plan**

Project		Near-Term	Long-Term	Approx Total Cost	County	State / Federal	Private Devel	Notes
Ped / Bike Focused	Twinbrook Pkwy	X		\$ 300,000	\$ 300,000	\$ -	\$ -	Reconstructing sidewalk to provide a buffer. There is a potential that any project here would go straight to implementing the sidepath rather than reconstructing sidewalk; effectively reducing or negating this cost estimate.
	Twinbrook Pkwy		X	\$ 3,000,000	\$ 3,000,000	\$ -	\$ -	Sidepath (both sides)
	Valleywood Dr	X		\$ 300,000	\$ 300,000	\$ -	\$ -	Reconstructing sidewalk to provide a buffer. There is a potential that any project here would go straight to implementing the sidepath rather than reconstructing sidewalk; effectively reducing or negating this cost estimate.
	Valleywood Dr		X	\$ 400,000	\$ 400,000	\$ -	\$ -	Sidepath (side TBD)
	Rebuild Ped/Bike Bridge over Joseph's Branch Creek	X		\$ 800,000	\$ 800,000	\$ -	\$ -	Existing bridge is located between Valleywood Dr and Moline Rd.
	Improve Matthew Henson At-Grade Crossing	X		\$ 100,000	\$ 100,000	\$ -	\$ -	Lowest unit cost assigned to address minor treatments that may remain necessary after SHA has converted the signal to a full signal.
	Matthew Henson Grade Separation Build Trail Bridge Over Veirs Mill Rd		X	\$ 11,200,000	\$ 11,200,000	\$ -	\$ -	Assumes a 685' length bridge at 12' width over Veirs Mill, with a 125' flat span over Veirs Mill and 280' of lead-up on each side (with 5' landings every 30'). Duplicative project with the alternative of "Reconstruct Veirs Mill Rd over Trail". This line item is NOT currently tallied into the total.
	Matthew Henson Grade Separation Reconstruct Veirs Mill Rd over Trail		X	\$ 44,400,000	\$ 44,400,000	\$ -	\$ -	Assumes 80' wide bridge with 15' clearance over trail; bridge beginning 200' NW of Trail and 150' SE of trail. Turkey Branch Pkwy severed from Veirs Mill. Access road remains at-grade & Edgebrook connection preserved. SW side ped/bike facilities remain along access road; no ped/bike facilities on SW side of Veirs proper. Assumes switchbacks (with 5x10' landings every 30' slope) on each side to provide ADA access between Veirs Mill and Turkey Branch as well as Edgebrook. Potential for cost savings if build as part of Veirs Mill Reconstruction / BRT Alternative 3. Duplicative project with the alternative of "Build Trail Bridge Over Veirs Mill Rd". This line item IS currently tallied into the total.
SUBTOTAL			\$ 112,300,000	\$ 96,700,000	\$ 14,200,000	\$ 1,400,000	Secondary and Tertiary Residential streets (even those with missing or inadequate sidewalks) are currently deemed to be adequate per Pedestrian Level of Comfort analysis and are therefore not included in this estimate.	
TOTAL ESTIMATED COST	\$53m (county near)	\$120m (county long)	\$ 286,400,000	\$ 175,300,000	\$ 103,600,000	\$ 7,500,000	Roadway TPAR status is unknown.	

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