3. PREFERRED PURPLE LINE ALIGNMENT

This section of the staff memo reviews the issues related to the preferred alignment of the Purple Line raised by MPAG members, in testimony at the MTA hearings, by other interested citizens and stakeholders, elected officials and staff. The staff's analysis is supplemented by other technical sources and input from the MTA Project Team, MPAG members, or other interested parties.

The staff recommends the Medium Investment LRT Alternative alignment that uses the Master Planned Georgetown Branch Right of Way and features a surface alignment on Wayne Aveune. The staff also recommends the following:

- There should be no station at Dale Drive.
- The trail through the tunnel component of the High Investment alternatives should be added and made part of the preferred alignment or alternative.
- The tunnel under Wayne Avenue to a location in the vicinity of Mansfield Road should be studied further.

Station Area Issues

The staff finds there are three key components to consider with respect to Purple Line station area issues – estimated ridership at the proposed stations, walk access (primarily distance), and urban design and economic development objectives.

Estimated Ridership

Overall ridership estimates for the Purple Line for an average weekday in 2030 for the TSM and original six build alternatives are shown in the below.

TABLE 11 – Ridership Overall

Transit Ridership (daily boardings)	TSM	Low Invest. BRT	Medium Invest. BRT	High Invest. BRT	Low Invest. LRT	Medium Invest. LRT	High Invest. LRT
Purple Line	12,700	22,200	29,300	33,800	32,500	33,900	36,100
Purple Line via Metrorail	2,100	16,700	21,100	23,700	25,300	27,200	30,500
Purple Line via MARC	--	1,100	1,400	1,400	1,500	1,500	1,500
Total	**14,800**	**40,000**	**51,800**	**58,900**	**59,300**	**62,600**	**68,100**
New Transit Trips Relative to No Build	**8,200**	**11,400**	**15,300**	**17,700**	**18,200**	**19,200**	**20,500**

The AA/DEIS also includes estimates for the average weekday boardings by station in 2030. These estimates are presented below:

TABLE 12 – Ridership By Station

Segment	TSM	Low Invest. BRT	Medium Invest. BRT	High Invest. BRT	Low Invest. LRT	Medium Invest. LRT	High Invest. LRT
Bethesda Metro, North Entrance	800	1,400	5,600	6,000	N/A	N/A	N/A
Medical Center Metro	N/A	3,900	N/A	N/A	N/A	N/A	N/A
Bethesda Metro, South Entrance	N/A	N/A	2,800	3,000	11,300	12,700	13,300
Montgomery Avenue	100	N/A	N/A	N/A	N/A	N/A	N/A
Connecticut Avenue	100	400	500	500	900	900	1000
Grubb Road	500	N/A	N/A	N/A	N/A	N/A	N/A
Lyttonsville	N/A	600	700	700	800	800	900
Woodside/16th Street	N/A	1,400	2,000	2,500	2,200	2,300	2,400
Silver Spring Transit Center	1200	5,100	8,700	10,400	11,100	12,200	13,600
Fenton Street	600	600	600	N/A	700	700	N/A
Dale Drive	500	1,200	1,300	1,400	1,300	1,400	1,500
Manchester Place	600	700	800	1,100	800	900	1,200
Arliss Street	600	800	900	1,700	1,300	1,500	2,200
Gilbert Street	300	300	900	1,300	1,200	1,200	1,400
Takoma/Langley Transit Center	1300	1,400	2,300	3,200	2,700	3,000	3,700
Riggs Road	300	400	600	800	700	800	900
Adelphi Road	400	500	600	700	600	700	700
UM Campus Center	600	1,500	2,100	2,200	2,100	2,200	2,200
US 1 – East Campus	700	4,400	4,400	4,700	4,500	4,500	4,700
College Park Metro	2400	8,000	8,600	9,100	8,600	8,600	8,900
River Road	500	1,500	1,500	1,500	1,500	1,500	1,500
Riverdale Park	600	1,400	1,500	1,600	1,600	1,500	1,600
Riverdale Road	500	500	500	700	600	500	700
Annapolis Road	500	900	1,100	1,200	1,000	1,000	1,200
New Carrollton Metro	1,700	3,100	3,800	4,500	3,800	3,700	4,500
Total Boardings	**14,800**	**40,000**	**51,800**	**58,800**	**59,300**	**62,600**	**68,100**

The first thing to note when considering station ridership and the potential alignment of the Purple Line is that some stations are excluded from some alignments (and therefore alternatives):

- The LRT alternatives do not provide a direct connection with the existing Bethesda Metrorail (north) entrance.
- The Low Investment BRT Alternative does not serve the proposed new south entrance to the Bethesda Metrorail Station.
- The Medical Center Metrorail Station would be served only by alternatives that use Jones Bridge Road or the supplemental BRT alternative (labeled Alternative 4B) developed by MTA that would operate over the Georgetown Branch right-of-way and extend north along Woodmont Avenue to the Medical Center.
- The proposed new library site in the southwest quadrant of Wayne Avenue and Fenton Street would not be served by either of the two High Investment alternatives or any other alternative that would feature a tunnel under the Silver Spring CBD east of the SSTC.

One issue raised by the MPAG during the analysis of the ridership estimates for individual stations was the estimate for the Dale Drive station. The concern expressed was that the ridership estimates seemed high given the low residential density adjacent to and near the station.

In response to this question, the staff examined available on/off data for Ride-On Route 15. Route 15 operates between the SSTC and Takoma/Langley on a 4-5 minute frequency in the peak direction during the peak period (similar to the Purple Line frequency) over an alignment also similar to the Low and Medium Investment alternatives. Route 15 is one of Ride-On's busiest routes. The data provided by the Department of Transportation indicated that only about 5 %of the 6,000 daily riders are getting on or off along the segment between Cedar Street and Sligo Creek. The likelihood is that today there are about 150 passengers boarding Route 15 along

this segment going in one direction or another – far below the 1,200 – 1,500 that is estimated in the AA/DEIS for the 2030 build alternative .

The staff finds the model used to estimate ridership is reflecting reasonable estimates for the alignments and alternatives overall but is not able to necessarily forecast ridership at a station specific level along segments of the alignment where the station spacing is close.[46]

There is also some community opposition to a station at Dale Drive under any alternative. There is concern that it will ultimately result in pressure to develop the area around the station. The Vision / Community Based Planning staff does not support a station at Dale Drive under any alternative.

The staff recommends that no further consideration be given to locating a Purple Line station on Wayne Avenue at Dale Drive, or any other location on Wayne Avenue between the proposed library site station and the proposed station at Manchester Place.

Walk Access

Walk access is a critical element of station area planning. WMATA's latest mode of arrival survey found that more than half of Metrorail passengers walk to the Montgomery County Metrorail stations that could be served by the Purple Line[47]:

- Medical Center Metrorail – 66 %of 5,174 daily boardings
- Bethesda Metrorail – 73 %of 10,511 daily boardings
- Silver Spring Metrorail – 53 %of 14,476 daily boardings
- College Park Metrorail – 33 %of 4,727 daily boardings
- New Carrollton Metro – 8 %of 10,444 daily boardings

The staff's review of walk access as it relates to the consideration of alignment will focus primarily on consideration of the area within a ½ mile radius of the station – a ten minute walk for most people.

There are two station entrances to consider in Bethesda – one is the existing entrance to the Metrorail Station (i.e., the "north entrance) and the other is a new "south" entrance that would serve the Purple Line and connect to the southern end of the existing Metrorail platform.

With respect to the alignments under consideration, the following observations can be made related to walk access in Bethesda:

[46] This concern is also applicable to the capacity issue previously discussed. The peak load point is thought to be just west of the SSTC on what is essentially a dedicated right-of-way. In practice, it could turn out to be just east of the SSTC on a part of the alignment that may not be on dedicated right-of-way – potentially making the introduction of "tripper" service during the peak hour more problematic.

[47] Percentages are from the 2008 WMATA Rail Passenger Survey. The station boardings represent average weekday boardings for the period July 2007 through June 2008.

- The walk radius of the two entrances in the Bethesda CBD provide adequate coverage for the CBD core.
- The proposed St. Elmo Avenue station included in alternatives 4A and 4B is within one-half mile of the north entrance to the Bethesda Metrorail station.

Staff finds that there would be a benefit to adding a station on Woodmont Avenue near St. Elmo Avenue if an alignment at that location is selected. However, the value of this station <u>alone</u> is not a compelling reason to either extend an alignment north from the end of the Purple Line alternatives that terminate at Woodmont Plaza or to select Jones Bridge Road as an alignment for the Purple Line.

Staff examined impacts of four stations in the vicinity of the Silver Spring CBD:

- 16th Street – this station is common to all alignments.
- SSTC – the Purple Line has two potential station locations here, depending upon the alternative. The Low Investment BRT Alternative would enter the SSTC from Wayne Avenue. All of the other build alternatives would enter the SSTC above the CSX right-of-way.
- Fenton Street – the Purple Line has two potential station locations here, depending upon the alternative. The Low Investment BRT Alternative would stop on Wayne Avenue east of Fenton Street.[48]The Low and Medium Investment LRT Alternatives and the Medium Investment BRT Alternative would stop at this location via an alignment that goes through the middle of the proposed library site. The High Investment Alternatives that utilize tunnels to get to Wayne Avenue do not have a station stop at this location.
- Dale Drive – this station is common to all alignments with the exception of the Silver Spring Avenue / Thayer Avenue Design Option. As previously noted, the staff is recommending that this station be dropped from further consideration. This station is within the walk radius of both the Fenton Street station and the Manchester Place station (although the latter would involve walking up a steep slope).[49]

The staff finds the following observations are important with respect to walk access in Silver Spring:

- There is considerable overlap in the one-half mile radius among the four station areas. This is not unusual within a CBD core.
- Densities around the 16th Street station are not expected to increase between now and 2030 but the existing household density in the immediate area is high enough to be considered "transit supportive".[50]
- The densities within the CBD core are obviously transit supportive. Significant growth in household density is forecast for the CBD core – especially in traffic zone 34 – the area defined or bordered by East West Highway, Fenton Street and Wayne Avenue. The

[48] The AA/DEIS drawing (BL-16) in the conceptual plan technical report does not reflect a platform in this area but there is a ridership estimate for this station for this alternative.
[49] As previously noted, the Fenton Street station is not included in High Investment alternatives – the alternatives that have the tunnel immediately east of the SSTC.
[50] See Table 4. The average household density for traffic zone 36 is estimated to be 11 households per acre.

household density in this traffic zone is expected to increase from an estimated 4 per acre to 39 per acre by 2030. The household densities in the other two traffic zones within the CBD core will double from 18-19 to 37-38 per acre.[51]

- There is about a 30 foot rise in elevation from the SSTC to Georgia Avenue – a fact that may affect walk access between the SSTC and the Fenton Village vicinity.
- Convenient access to high quality transit service that can compete with auto travel time slows the growth rate of trips made by auto. The extent to which forecast growth can be located as close as reasonably possible to high quality transit is a factor in increasing trips made by transit instead of autos.
- Georgia Avenue is perceived by some as a pedestrian barrier.

Staff finds the alternative alignments that include a stop at Fenton Street are preferable to the alignments that do not have a stop at Fenton Street.[52]

There are four station locations between downtown Silver Spring and the Prince George's County boundary:

- Manchester Place – this station is common to all alignments except the Silver Spring Avenue / Thayer Avenue design option. The location of the station varies depending on the alternative. The station platform is on Wayne Avenue under the Low and Medium BRT alternatives and near the tunnel portal on Plymouth Street for High Investment BRT Alternative and all of the LRT alternatives.
- Arliss Street – this station is common to all alignments.
- Gilbert Street – this station is common to all alignments. The station platform is in the median of University Boulevard under the LRT alternatives.
- Takoma/Langley Transit Center – this station is common to all alignments.

The staff observations about the walk access of these stations include:

- As previously noted, the proposed Dale Drive station is within the ½ mile radius of the Manchester Place station although there is a significant change in elevation that makes this access problematic.
- Walk access for the other station locations in this area of residents that are highly dependent upon transit overlaps somewhat but in general provides relatively uniform coverage.
- The stations locations for the most part are all largely common to a single alignment in this area.

Staff finds that walk access to these stations does not favor one alignment over another.

[51] See Table 4.

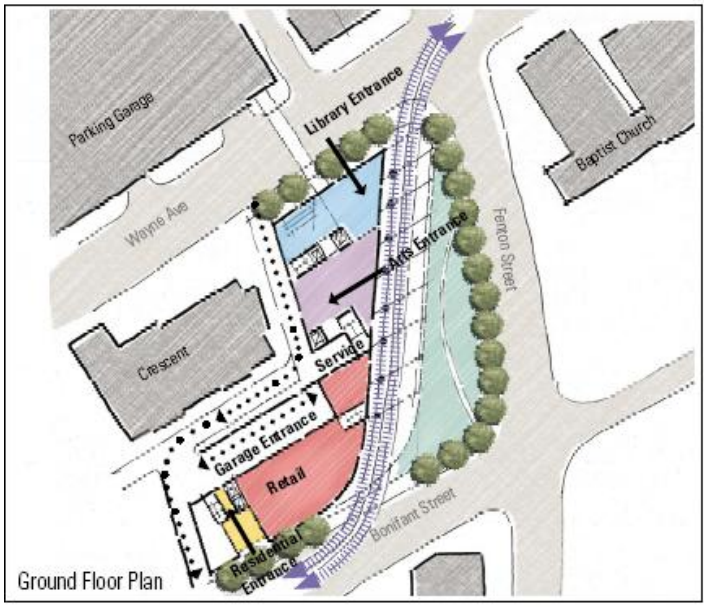
[52] The Vision staff (formerly Community Based Planning) supports only alternatives that include a station at Fenton Street as a means of supporting existing development and future revitalization activity.

Urban Design and Economic Development

The Vision staff has specifically noted in their review that the Fenton Street station is "necessary to support existing development and future revitalization activity."[53] The staff also finds that the impact of the elimination of parking along the north side of Bonifant Street needs to be examined in greater detail but does not recommend that this impact preclude consideration of a surface alignment along Bonifant Street that would serve the proposed new library site.

The common alignment with stations in the Long Branch and Takoma/Langley areas are consistent with long standing economic development and revitalization goals.

The proposed new library site offers considerable potential as a signature site east of Georgia Avenue. A preliminary concept plan (not adopted) is shown on the right. The proposed stations in Long Branch and Takoma/Langley offer similar potential for those areas.



Staff finds the County's adopted plans, design objectives, and strategies for revitalization in these areas are a deciding factor in selecting a preferred alignment for the Purple Line and that the alignments that include a stop at the proposed library are preferred over those that do not provide a stop.

Jones Bridge Road Alignment

The Town of Chevy Chase believes that the AA/DEIS does not adequately consider the advantages of an alignment on Jones Bridge Road. The Town retained a consulting firm, Sam Schwartz Engineering (SSE), to review the MTA study. SSE issued an initial report on April 23, 2008 and an update on July 31, 2008.[54]

The Low Investment BRT Alternative is the only AA/DEIS build alternative that does not use the Georgetown Branch. The MTA, in response to concerns expressed by the Town of Chevy Chase, examined additional alternatives that paired the Jones Bridge Road alignment with the Medium Investment BRT Alternative for all other segments of the alignment. For comparison, the MTA also examined a Medium Investment Alternative BRT that would operate within the Georgetown Branch right-of-way and extend north to the National Navy Medical Center

[53] See supporting staff memoranda at the end of this staff memo.

[54] A summary of the various reports – along with the staff's response to the initial SSE report – is available for review at the following link:
http://www.mcparkandplanning.org/planning/viewer.shtm#http://www.mcparkandplanning.org/Transportation/projects/documents/SummaryofSSEandMTAReports092508_000.pdf

(NNMC) – in effect a mirror image of the other new Medium Investment BRT Alternative.[55] The model run indicated that the alignment over the Georgetown Branch alignment would result in an increase of over 8,000 passengers on an average weekday in 2030.

The Planning Board reviewed the Jones Bridge alignment in June 2003 and recommended that the alternative be dropped from further consideration.[56] Supporters of the Jones Bridge alignment would note that the Planning Board action predates the decision to relocate the activities at Walter Reed Army Hospital to the National Naval Medical Center in Bethesda and was based upon an assumed typical section for Jones Bridge Road east of Connecticut Avenue that is significantly wider than that assumed in the SSE work.

The SSE reports stated that with greater existing and future population and employment along the Jones Bridge Road alignment more people and jobs would have direct access to the Purple Line and the result would be a Purple Line that was more effective and more attractive.

The staff noted after reviewing the initial SSE report that it was really a question for the model. **Staff finds the model results as presented by the MTA in the AA/DEIS are reasonable and reflect the attractiveness of the reduced travel time provided by the Georgetown Branch alignment coupled with the greater density of both housing and employment in Bethesda and Silver Spring – as opposed to the campus settings at NIH and the NNMC[57] Staff finds the travel time savings that can be attributed to the alignment along the Georgetown Branch right-of-way are a deciding factor in selecting a preferred alignment.**

Wayne Avenue

One focus of the MPAG work has been on the alignment in the Silver Spring CBD and in East Silver Spring, especially on Wayne Avenue as there was (and still is) opposition to a surface alignment on Wayne Avenue. It is also worth noting that there is also support for a surface alignment. The MTA Project Team developed a supplemental analysis of a potential tunnel under Wayne Avenue and concluded in part that:

"this (tunnel with a portal between Sligo Creek and Mansfield Road) did not provide any travel benefits and added to the project cost. For both tunnel options the addition of stations was an issue. The high cost of underground stations weighed against their inclusion, but if stations were not included in these alignments the communities would not benefit from the project and ridership would be lower. It was determined that these tunnels did not provide sufficient benefit and had such a detrimental effect (referring to the portal primarily) that further study was not justified."[58]

[55] These alternatives are identified as Alternative 4A and 4B, respectively.
[56] See the staff report at: http://www.montgomeryplanningboard.org/meetings_archive/03_meeting_archive/agenda_062603/item12_062603.pdf
[57] A summary of the forecast growth (including growth attributable to BRAC impacts for the NNMC are included in Table 4 (for housing density) and Table 5 (for job density).
[58] See pages 2-4 and 2-5 of the AA/DEIS.

As previously noted, the staff examined the boarding / alighting profile of the one Ride-On route (Route 15) that essentially duplicates the proposed Purple Line alignment between the SSTC and Takoma/Langley. The route operates on an average 4-5 minute frequency in the peak direction – very similar to the proposed Purple Line frequency. It is one of the most heavily used routes in the Ride-On system but the majority of the boardings and alightings are between points east of Sligo Creek and the Silver Spring Metrorail Station.

Given the concern in the community, we asked the MTA to couple the High Investment LRT tunnel in the Silver Spring CBD with the Medium Investment LRT Alternative for the balance of the alignment (from Bethesda to New Carrollton) with no station at Dale Drive.[59]The MTA Project Team has noted throughout the AA/DEIS process that eventually consideration could be given to matching segments of alternatives to address specific issues or conduct "what if" scenarios.[60] The results indicated the total ridership would increase by 2,100 and the cost effectiveness would remain under the current FTA threshold for a project to remain competitive for funding. It is important to note that this finding could be considered both (1) contrary to part of the reason given in the AA/DEIS for not conducting further study of the alternative, and (2) not the results of an "apples to apples" comparison – analysis that resulted in the finding in the AA/DEIS did not "match" the tunnel option with anything but was a "stand alone' or discrete type of analysis.

Once we confirmed that the tunnel was under the FTA threshold the staff examined the likelihood that an extended tunnel – to the Mansfield Road area – would also result in a cost effective rating under the FTA threshold. Our simple extrapolation of the costs (based upon an additional $65,000,000 for the tunnel extension from Cedar Street east to some point near Mansfield Road) suggests the resulting cost effectiveness rating would be right at the FTA threshold.[61] The MTA will analyze this alternative for comparison with the other alternatives that are listed in Table 6.

It should be noted that even if the longer tunnel would prove to be "cost-effective" under the FTA criteria, there are a number of other issues to be considered when attempting to reach a recommendation on the preferred alignment. Some of these include:

- Cost – a tunnel to Mansfield Road as part of a "Hybrid" Alternative would add $175,000,000 to the Medium Investment Light Rail Alternative.
- The proposed library site and surrounding area would not be served.
- There are concerns about how to make a tunnel portal work in the area just west of Sligo Creek.

[59] There is also no station at Fenton Street under this "Hybrid" Alternative. None of the tunnel options in the Silver Spring CBD have a station stop at Fenton Street at the proposed library site.
[60] The inclusion of the additional Medium Investment BRT alternatives is another example where additional alternatives were analyzed by the MTA project team.
[61] This "back of the envelope" extrapolation is a simple very preliminary step to see if there is a basis for a more detailed analysis that would involve coding the forecast model network to reflect the longer tunnel and any time savings that might be gained by not having to travel on the surface.

Some stakeholders who object to a surface alignment on Wayne Avenue cite the following[62]:

- Without a station at Dale Drive the widening of Wayne Avenue attributable to the station does not need to take place.
- The traffic study in the AA/DEIS is inadequate and does not reflect intersection delays that will occur with 180 foot trains moving slowly through the CBD.
- The size of the library is reduced to accommodate the Purple Line.
- The library station would serve an area where residents, employees, and visitors could easily walk to and from the SSTC to use the Purple Line.
- The loss of parking on Bonifant Street will harm small businesses.
- The back-ups that occur with access and egress at the Wayne Avenue garage will get worse.
- Access and egress at the entrance to Whole Foods will be compromised.
- Wayne Avenue will be widened for over a mile - the widening will be both within the right-of-way and outside of the right-of-way. The widening will impact the front yards of some residents – even widening within the right-of-way.
- The construction of left turn lanes at the signalized intersections will result in increased traffic over time.
- A Dale Drive station will result in delays for westbound traffic on Wayne turning south onto Dale Drive.
- Pedestrian safety for the residents of the Springvale Terrace Assisted Living facility could be compromised with a wider Wayne Avenue.
- A Dale Drive station would result in the closure of the access point on Wayne Avenue to the parking lot for the Silver Spring International School and Sligo Creek Elementary School.
- The Silver Spring Green Trail would be built as a combined bike / pedestrian path and that raises safety concerns.
- The AA/DEIS does not address noise that would result from having a station at Dale Drive.

Staff agrees with some of the above points, thinks other deserve additional analysis, and disagrees with some of the above points.

- We agree that the absence of a Dale Drive station would lessen the amount of area needed for the improvements and that the station would likely result in the closure of an access point to the schools.
- **We recommend that the MTA conduct further study in the next phase of project planning relating to the loss of parking on Bonifant, the access to Whole Foods, the potential for backs-ups related to access to the Wayne Avenue garage, the operation of the intersection at Wayne Avenue and Fenton Street, and the extent of the impact on residences along Wayne Avenue.**

[62] This a summary compiled by staff of written comments forwarded to the MTA by the Seven Oaks – Evanswood Association on December 11, 2008. It is a summary and therefore does not represent all of any specific comment nor does it represent all of the comments in the letter or e-mail.

- We disagree that the traffic study is inadequate for alternatives evaluation purposes and that – given County objectives – the Fenton Street station could be eliminated because it is within ½ mile of the SSTC. A station at the proposed library site is entirely consistent with the purpose and need of the Purple Line and the vision for the urban ring as identified in the General Plan. The library and Purple Line have been designed to complement each other and the Purple Line has not reduced the size of the proposed library.

In order to get a rough idea of the extent of the potential impact of a surface alignment, staff has used an MTA estimate of the width of the likely property taking along Wayne Avenue and combined it with pre-conceptual plan drawings dated December 2008 also provided by the MTA. These estimates are subject to change. The estimate is summarized in the table below:

TABLE 13 – Preliminary Estimates of Property Takings Along Wayne Avenue

Wayne Avenue Segment	Estimated Distance of Segment[63]	Existing Right-of-way	Proposed Right-of-way	Property Taking	Estimated Length of Taking[64]	Notes
Fenton St. to Cedar St.	965’	74-76’	80-94’	North: 10’- 19’	165’	For WB LT Lane @ Fenton St.
				South: 5’- 6’	385’	For EB LT Lane Inside Median Of Transitway @ Cedar St.
Cedar St. to Dartmouth Ave.	1,085’	70’+/-	70’-74’	North: 2’- 3’	825’	For WB Thru Lane
				South: 2’- 4’	93’	For Transitway Taper
Dartmouth Ave. to Mansfield Rd.	1,688’	100’- 102’	100’- 104’	North: 2’ – 4’	550’	For Dale St. Station Center Platform
				South: 0’	N/A	N/A
Mansfield Rd. to Sligo Creek Parkway	1,604’	60’ – 62’	72’ – 80’	North: 12’ – 20’	468’	For WB LT Lane In Median At Sligo Creek Parkway
				South: 0’	N/A	N/A
Total	5,342’				2,486	

The MTA also provided concept drawings dated February 2008 that depict a portal in the area in front of the football field / running track at the middle school – between Mansfield Road and the Parkway. The existing right-of-way in front of the school is estimated to be about 80 feet. The right-of-way between Sligo Creek Parkway and Manchester Road is estimated to be about 70 feet. Parkland is located between the school and Manchester Road. It appears from the drawing that an additional (estimated) 20-30 foot wide strip of right-of-way would be required on the north side of Wayne Avenue – from the school running track to Sligo Creek Parkway (a distance of about 590 feet) to accommodate two lanes of traffic in each direction and the trail to Sligo Creek Parkway. There would be some impact to the homes on the south side of Wayne Avenue –

[63] This is an estimate made by staff using GIS.

[64] This is an estimate made by staff using the December 2008 drawings – except for the Cedar Street to Dartmouth Avenue segment which is an estimate from the MTA’s original table. This is the only segment where the length of the segment of impact was identified.

the primary impact being an estimated 5-10 feet of additional right-of-way for about the same distance (590 feet) and a two foot retaining wall on each side of the transitway for a distance of about 240 feet. The retaining wall would be in front of a minimum of three homes on the south side of Wayne Avenue and would require access to those properties to be right in and right out.

Additional detail on the impacts of both the surface alignment and the tunnel portal need to be provided in the FEIS so that the community and decision makers can consider the tradeoffs.

At this point, the trade-offs with respect to the impacts (ignoring for a moment the issue of the advantages - or disadvantages depending upon one's view) of a station at the proposed library site, would seem to be:

- A surface alignment that would result in linear strip takings of about ½ mile in front of about 34 residences. A very rough estimate of the total area – about 17,000 square feet. The staff estimates that this total would be reduce by about 1,700 – 1,800 square feet if there were no station at Dale Drive.
- A tunnel alignment that would result in linear strip takings for a distance of about 590 feet in front of a school and five residences while limiting access to at least three of the five residences. A very rough estimate of the total area – about 21,000 square feet.

It should be noted that the traffic analysis conducted by the MTA as part of the AA/DEIS indicated the shared lanes with added left turn lanes on Wayne Avenue would result in fewer delays at intersections than the dedicated lanes that are paired with the High Investment alternatives with the tunnel portal located east of Cedar Street (not the longer tunnel to or near Mansfield Road). The review of the traffic analysis is presented elsewhere in the staff memo but staff does not feel the differences in traffic congestion along Wayne Avenue are a deciding factor in selecting a preferred alignment.

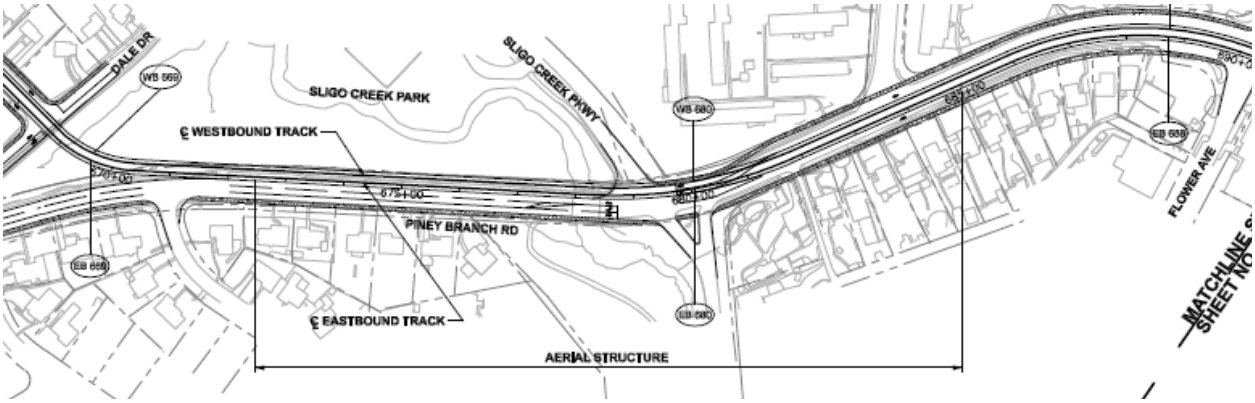
Staff recommends selection of the surface alignment along Wayne Avenue based on the value we believe the alignment and Fenton Street Station will add to the Fenton Village area of the Silver Spring CBD. We find, however, that further review of the tunnel option to Mansfield Road is needed. Our recommendation for further study of this option is based upon the fact that the tunnel:

- May prove to be a viable alternative in the event subsequent forecasts or analysis do indicate a problem with the surface alignment and intersection delays in the CBD core.
- Has the opportunity to serve a higher number of transit riders due to increased travel speeds

<u>Silver Spring / Thayer Design Option</u>

The Silver Spring/Thayer Design Option describes an optional tunnel alignment that would extend from the SSTC with either the BRT or LRT vehicles surfacing behind East Silver Spring Elementary School. The AA/DEIS includes this alternative as a "design option". The alternatives matrix in the AA/DEIS indicates that this option is included for consideration under both High

Investment Alternatives.[65] This design option would reduce the High Investment LRT and BRT costs by $50,000,000 to $53,000,000, as indicate on page 5-2 of the AA/DEIS. It should be noted that this option would require a separate aerial structure over Sligo Creek as shown below.



There is little support within the community or among staff for this design option – due in large part to a portal near East Silver Spring Elementary school, the aerial structure over the Sligo Creek and Sligo Parkway, and the need to widen Piney Branch Road.[66]

Master Plan Conformance

As previously noted, the alignment for the Purple Line between Bethesda and Silver Spring was established in the Georgetown Branch Master Plan Amendment (1990). The alignment designated along the Georgetown Branch right-of-way was reconfirmed in the following subsequent approved and adopted Master and Sector Plans:

- Bethesda-Chevy Chase
- Bethesda CBD
- North and West Silver Spring
- Silver Spring CBD
- East Silver Spring and Takoma Park

Recommendations include a largely single track fixed rail system, convenient pedestrian connections, direct access to Metrorail stations (Bethesda and Silver Spring) and pedestrian friendly amenities (e.g., wider sidewalks, signalized crossings, benches, bike racks and attractive transit stops).
The Georgetown Branch Trolley track described in the 1990 Master Plan between Bethesda and Silver Spring is a distance of 4.4 miles (22,585 feet). Of the 22,585 feet of track, only 8,320 linear feet consists of double track in the 1990 Master Plan. All of the light rail alternatives being examined in the DEIS/AA include a double track corridor. The BRT transitway east of Pearl Street in Bethesda is also a two-way transitway.

[65] See pages 2-10 and 2-12 of the AA/DEIS.
[66] See page 2-28 of the AA/DEIS for additional discussion of the design option.

Single tracking affects line capacity. The degree of the capacity effect is based on several other factors, including:

- The number of stations within the single track segment
- The length of the single track segment
- Whether there are multiple single track segments
- How much variability there is in the running time due to conflicts along the right-of-way (e.g., at grade intersections, etc.)

Any of the above factors (in combination or together) could result in an inability to achieve a frequency of service that otherwise (with double tracking) would be attainable. We often now experience the impact of single tracking on weekends on Metrorail as repairs are made (and single-tracking affects repair and maintenance flexibility as well).

The operations plan developed for the trolley in the Georgetown Branch Master Plan Amendment was able to assume a six minute frequency of service in large part because the entire segment was devoted exclusively to the trolley (i.e., there was no shared right-of-way assumed). That important fact is no longer present with the extension of the service east of Silver Spring.

The result is that from an operational standpoint any configuration of a Purple Line that extends from Bethesda to New Carrollton should be a continuous bi-directional transitway – whether LRT or BRT.

Georgetown Branch Trail

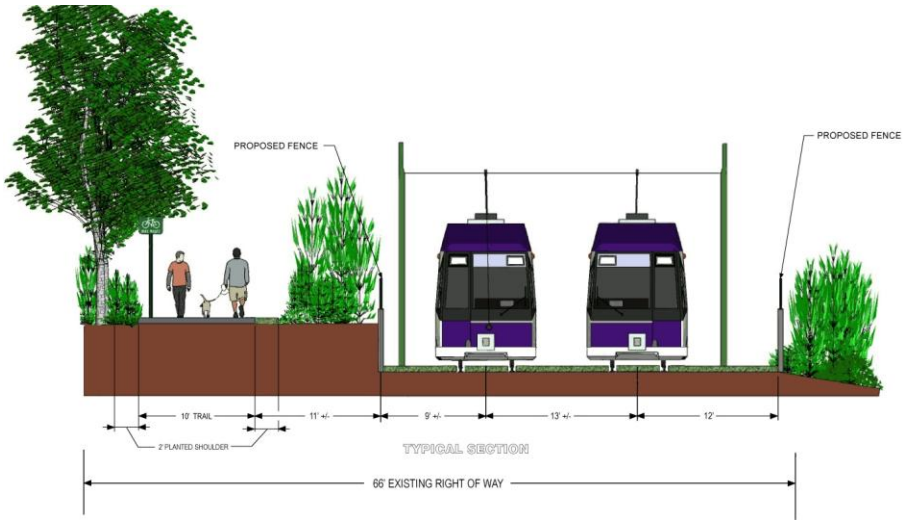
The Georgetown Branch Trail is identified as SP-6 in the 2005 Countywide Bikeways Functional Master Plan. The limits of SP-6 are Woodmont Avenue to the SSTC. It is part of a larger regional trail route and serves as a critical link between the Capital Crescent Trail in Bethesda and the Metropolitan Branch Trail in Silver Spring. It also offers a vital off-road connection to the Rock Creek Trail.

The Georgetown Branch right-of-way was purchased by the County in 1988 for the purpose of a future joint transit/trail corridor. In 1998, recognizing that the transit component would likely not be implemented until many years in the future, the County renovated and opened the tunnel under Wisconsin Avenue and constructed the Interim Georgetown Branch Trail (as crushed stone) east of the Bethesda Avenue/Woodmont Avenue intersection to connect to Rock Creek Park and to downtown Silver Spring. In part, this was done to in order to extend the Capital Crescent Trail experience east of Bethesda.

The trail is considered "interim" because it is a temporary facility until such time that the master planned transit use is implemented. It is not parkland, although some residents and trail advocates consider it as such because of its "greenway" nature particularly between Bethesda and Rock Creek, and because of its proximity to Capital Crescent Trail south of Bethesda Avenue that is operated and maintained by the Department of Parks. The Georgetown Branch is a transportation right-of-way that is envisioned in County master plans to include both a transitway and a trail.

All alignments and options include the trail between Pearl Street and the SSTC. However, only the Medium and High Investment BRT and High Investment LRT option includes the trail west of Pearl Street and passing through the Wisconsin Avenue tunnel. The other five options, therefore, are not consistent with master plan guidance which envisions the trail passing through the tunnel and connecting to the Bethesda Avenue/Woodmont Avenue intersection and thus offer a direct connection to the Capital Crescent Trail south of Bethesda Avenue.

The DEIS recommends a trail pavement width of 10'. While staff has recognized the right-of-way and community constraints, we now find a 12' trail is needed where it is feasible. The trail is a regional resource and will feature heavy user volumes as it offers grade-separated connections for bicyclists and pedestrians to reach the Bethesda and Silver Spring transportation management districts, which have 37 %and 50 %non-auto driver mode share goals respectively. It will also be a popular recreational route as the trail offers connections to major trails and parks.



During the January 8th public hearing, the Board will hear considerable testimony about two issues: 1) tree loss and tree canopy; and 2) the impact of double tracks on the trail. The DEIS proposes to remove all trees in the ROW. This is a highly emotional issue for many constituents, and staff finds it a valid concern, particularly between Bethesda and Rock Creek. Many large trees will be removed. MTA should investigate minimization techniques during the preliminary engineering phase to preserve/protect as many trees as possible.

Preserving/protecting trees not only retains environmental benefits, but also offers shade to trail users and serves as a buffer between the trail/transitway and adjoining properties, providing privacy and noise abatement benefits.

Some trail advocates are concerned about the loss of green space and "parkland." We remind the Board that the interim trail is a transportation facility in a transportation right-of-way. It is not parkland. The trail certainly offers recreational value, but the trail and right-of-way are owned and operated by Montgomery County Department of Transportation. And our master plans are unambiguously clear that the Georgetown Branch Trail is a transportation facility (bikeway). We ask the Board to focus on how to mitigate the tree loss and on providing the MTA with clear guidance on the Board's expectations for high quality design and landscaping to ensure a visually appealing trail experience in the future.

As for the double tracks, this is a valid concern where right-of-way is constrained. The 1990 Georgetown Branch Master Plan Amendment envisioned single track. Because of the double track, the trail will not be off-set from private property as much as it would be under a single track scenario. Single track is not among the options being considered for the reasons noted above so we ask the Board to again provide clear guidance to the MTA regarding high quality design and landscaping.

The staff finds the Georgetown Branch trail is not a deciding factor in the selection of a preferred mode. A trail can be accommodated within the Georgetown Branch right-of-way regardless of mode. However, staff recommends including the trail west of Pearl Street and passing through the Wisconsin Avenue tunnel to connect to the Bethesda Avenue/Woodmont Avenue intersection and the Capital Crescent Trail, to provide continuity for this regional transportation and recreational facility. As previously noted, a trail on an alignment within the Georgetown Branch right-of-way is consistent with previously adopted Master Plans.

The following issues should be addressed in the FEIS:

- Corridor design that can accommodate a trail pavement width of 12' with 2' shoulders on both sides
- Plan for tree replantings of a sufficient size to provide shade to trail users
- Adequate buffer between trail and private property to reduce "cattle chute" effect. This is particularly important in locations where the right-of-way is constrained and the trail may be located next to a retaining wall between the tracks and the trail
- Protection of trees and tree root zones outside the right-of-way (to protect and maintain any remaining shade after the trees within the right-of-way are removed during construction)
- If lighting is provided for the tracks, lighting should also be provided for the trail, or designed in a matter that can accommodating lighting fixtures in the future
- A signing and marking plan (directional and interpretive)
- Adequate bicycle racks and lockers at stations, sufficient to meet demand in the short term but ensuring the station is designed in a manner not to preclude more bicycle parking facilities in the future
- Plans for all trail access points, including the connection to the Rock Creek Trail
- Aesthetic design of the bridge crossings of Rock Creek (including coordination with the National Park Service.

<u>Silver Spring Green Trail (Wayne Avenue)</u>

The Silver Spring Green Trail is SP-10 in the 2005 Countywide Bikeways Functional Master Plan as well as Bikeway Route 2 (Regional Connector) in the 2000 Silver Spring CBD Sector Plan. Its limits are Fenwick Lane to the Sligo Creek Trail. It functions as a critical off-road bikeway link between the Sligo Creek Trail and the SSTC/Metro Station as well as to the Metropolitan Branch/Georgetown Branch trails and westward to Rock Creek. The trail exists between Cameron Street to the west and Cedar Street to the east. The section between Cedar Street and Sligo Creek Parkway is the subject of a Montgomery County Department of Transportation Phase I Facility Planning Study. It is among the County's highest priority bicycle

and pedestrian facilities, but is on hold until the mode and alignment for the Purple Line is selected. The Plan showed the trail as 10' next to a 5' sidewalk and a 6' landscape panel. The trail project is independent of the Purple Line project, but the transitway impacts the future design and implementation of the trail.

Under any of the Purple Line options involving a surface alignment on Wayne Avenue, achieving this cross-section will be very difficult. The AA/DEIS highlights past conversations between MTA and M-NCPPC (page 3-17, Alternatives Analysis) to reduce the width of the trail to 8' and to reduce the landscape panel to 5'. The 8' trail would be a shared use path – functioning both as a recreational trail and a sidewalk. These minor changes are not critical flaws, but as part of the selected alternative FEIS we would like to see cross-sections and/or profiles to better visualize the resulting design and travel space for pedestrians and bicyclists. The station platform at Dale Drive under all alternatives causes some impacts to private property. To accommodate the trail through this area, additional right-of-way will be needed, or the trail will need to be placed in a public use easement (PUE).

Staff finds the potential impacts to the Silver Spring Green Trail are not a determining factor in the selection of a preferred alignment or mode for the Purple Line.

<u>Parks Impacts and Mitigation</u>

The Meadowbrook Maintenance Annex is a park property which is designated as the site for the yard and shop. This site was not identified as public parkland in the AA/DEIS – possibly because it is not signed as parkland and is titled to Montgomery County (as is much of the M-NCPPC parkland in the County). An aerial view of the area in question is shown to the right.

Another park that will be impacted is New Hampshire Estates Neighborhood Park. The AA/DEIS notes that the construction of the transitway will require the removal of brick columns, walkways, and benches in front of the park. Staff expects that the parking lot will also likely be removed. All of these facilities should be studied and replaced, with Department of Park's oversight.

Staff recommends that the FEIS identify park minimization and mitigation strategies. Staff finds that the location of both park facilities are on segments of the Purple Line alignment that is common to all alternatives. Additional detail on the Park Department's review of the AA/DEIS is included in the following section of the staff memo and in a supporting staff memo in the Appendix.

Historic Preservation

Staff finds that in general, impacts are minimal to historic resources listed in the Montgomery Locational Atlas, the Montgomery County Master Plan for Historic Preservation, or potentially eligible for listing in the Master Plan for Historic Preservation or the National Register of Historic Places.

Of note is that the Purple Line alignment would result in removal of one structure on the north parcel of the Falkland's complex.[67] This demolition would diminish the historic property's integrity of setting, feeling, and association and would be an adverse impact. The Maryland Historical Trust, the State Historic Preservation Office, determined in 1999 that the Falkland Apartments are eligible for listing in the National Register of Historic Places.

According to the MTA assessment, the alignment on the south side of the CSX right-of-way will result in a small reduction in the amount of land in the northeastern parcel, the removal of approximately ten %of the building on North Falkland Lane, and the removal of approximately 25 %of the north building on East Falkland Lane.

The Planning Board has recently considered redevelopment of the entire north parcel of the Falklands apartment complex. The Board decided in September 2008 that full redevelopment of the parcel was preferable to preserving the existing buildings. The location, 800 feet from the Silver Spring Metro station along with the advantages of mixed use opportunities and investment on other parcels of the complex, outweighed the advantages of retaining the existing structures on that parcel.

The Planning Board specifically recommended that only the two parcels on the south side of East-West Highway should be listed on the Locational Atlas and sent that recommendation on to County Council who will be taking the matter up in early 2009. Considering that the Planning Board specifically decided on the issue of the north parcel, including being informed of the potential impact of the Purple Line, staff find that these impacts are not a factor that enters into the alignment decision. We understand that the property owner intends to proceed with the detailed site planning for the north parcel and the subsequent demolition of the buildings.

The MTA project team and the owner (and potential developer) of the north parcel have worked to minimize the extent of the impacts while at the same time providing space for the Purple Line on the south side of the CSX right-of-way. Mitigation of the impact should be identified in the FEIS.

[67] The Low Investment BRT Alternative and the Design Options for the CSX right-of-way that result in the transitway being located on the north side of the CSX right-of-way are the only build alternative that would avoid the impact to the Falkland Apartments.

Staff finds the impact on the Falkland Apartments can be mitigated in light of the fact that the north parcel is expected to be replaced with a new development that would provide for the Purple Line alignment.

Natural Environment

The impacts to protected natural resources in the Purple Line study area are generally comparable for each of the alternatives analyzed. Subsequent study efforts should incorporate more detailed information on the following sensitive resources:

- In section 2, page 20 of the Natural Resources Technical Report, it is noted that effects to groundwater could potentially occur with the High Investment BRT Alternative and the LRT alternatives due to the tunnel components. The FEIS should evaluate the effect this will have on the adjacent streams, wetlands, and groundwater table.
- In section 2, page 22 of the Technical Report, it is noted that Coquelin Run originates south of Bethesda and flows east paralleling the south side of the Georgetown Branch Trail. The FEIS should examine the potential impacts to Coquelin Run from the construction of the light rail.
- In section 2, page 75-76 of the Technical Report, potential wetland mitigation sites are selected for the project as compensation for the wetland loss. Most of the proposed sites are located within existing parkland and must be approved for selection with M-NCPPC Park Department staff. Any adverse effects must be mitigated. Additional comment on these potential sites is provided in the staff memorandum in the Appendix.
- In section 2, page 69 of the Technical Report, the wetland impacts by alternative does not specify which wetlands will be impacted or the watershed in which they are located.
- In section 2, page 78-79 of the Technical Report, the terrestrial habitat includes the existing forests within the 18 mile corridor along the proposed alignments but does not provide a breakdown by stream valley.
- There is no summary of the direct impacts and associated acreage by watershed or road segment.
- Staff estimates that the tree loss along the Georgetown Branch right-of-way as a result of the Purple Line would be approximately six acres. Because trees do not count as a forest, and because the trail is not technically parkland, the MTA does not propose mitigation or reforestation for the loss of trees. The FEIS should recognize the importance of the trail as a community resource and determine if mitigation is possible to reduce impacts and restore some of the green edge over time. Mitigation of the tree loss should include the planting of larger canopy tress of varying species ranging in size from 4”-6” dbh. Larger understory and shrub species should also be planted throughout the trail network.

Staff finds the issues related to environmental impacts are not a deciding factor in selecting a preferred alignment for the Purple Line.

Traffic and Parking Impacts

The AA/DEIS notes the following with respect to traffic and level of service at major intersections along the corridor in 2030 including six in Montgomery County:

"The Build alternatives are generally expected to maintain traffic conditions. The addition of left turn lanes is expected to improve traffic congestion in some locations, while the use of shared lanes by the Purple Line would degrade conditions in other locations."

Level of service or LOS is a measure of the efficiency of traffic flow through an intersection. LOS A represents uncongested flow with an average delay of less than ten seconds for each vehicle that passed through the intersection. LOS F represents congested conditions with demand that exceeds the intersection capacity resulting in average delays exceeding 80 seconds per vehicle. More information is available in the AA/DEIS Traffic Analysis Technical Report (page 4-10).

The intersections shown in Tables 14 and 15 are only those where it is estimated that the LOS will change (either positive or negative) for one or more Purple Line build alternatives when compared to the "2030 No Build" state. The Purple Line is only expected to materially change LOS at six intersections in the morning peak hour and six intersections in the evening peak hour. The dedicated transit lanes under the High Investment Alternatives result in more roadway congestion along Wayne Avenue due to the "take-a-lane" strategy. Additional widening of the roadway (beyond that envisioned in the Medium Investment Alternatives) would be required to achieve improvements estimated under the Medium Investment Alternatives.

Table 14 – Impacts On Intersection Level of Service – AM Peak Hour

Intersection	2030 No Build	Low BRT	Med BRT	High BRT	Low LRT	Med LRT	High LRT
Jones Bridge Rd. @ Wisconsin Ave.	**E**	**F**	**E**	**E**	**E**	**E**	**E**
Wayne Ave. @ Fenton Street	**C**	**D**	**C**	**C**	**C**	**C**	**C**
Wayne Ave. @ Cedar St.	**C**	**C**	**A**	**C**	**B**	**B**	**C**
Wayne Ave. @ Dale Drive	**C**	**D**	**B**	**F**	**B**	**B**	**F**
Wayne Ave. @ Mansfield Rd.	**A**	**A**	**A**	**D**	**A**	**A**	**D**
Wayne Avenue @ Sligo Creek Pkwy	**E**	**E**	**C**	**F**	**C**	**C**	**F**

Table 15 – Impacts On Intersection Level of Service – PM Peak Hour

Intersection	2030 No Build	Low BRT	Med BRT	High BRT	Low LRT	Med LRT	High LRT
Jones Bridge Rd. @ Jones Mill Rd.	**E**	**F**	**E**	**E**	**E**	**E**	**E**
Wayne Ave. @ Fenton Street	**C**	**C**	**D**	**C**	**D**	**D**	**C**
Wayne Ave. @ Cedar St.	**D**	**D**	**C**	**C**	**D**	**D**	**C**
Wayne Ave. @ Dale Drive	**E**	**F**	**D**	**F**	**D**	**D**	**F**
Wayne Ave. @ Mansfield Rd.	**A**	**A**	**A**	**C**	**A**	**A**	**C**
Wayne Avenue @ Sligo Creek Pkwy	**E**	**F**	**E**	**F**	**E**	**E**	**F**

The tables above reflect the improvements attained with the addition of the left turns at selected intersections along Wayne Avenue under the Medium Investment alternatives. The traffic volumes are expected to be similar for each Purple Line alternative. Like any major investment study, the forecasting process reflects the fact that traveler behavior adjusts in response to changes in provided transportation service. Therefore, the value in constructing the Purple Line is not in reducing traffic congestion but rather in improving travel choices and increasing accessibility for all modes of travel.

The comparison of traffic congestion is not useful as a deciding factor between modes or alignments. For example, the AA/DEIS confirms that congestion will increase over 20 years with growth. The differences between mode choice and investment alternatives on traffic impacts are considerably less than the growth in vehicular volume alone. For example – the Wayne Avenue and Fenton Street intersection under the Medium Investment alternative of either BRT or LRT would add approximately 10 vehicles in each direction in the peak hour. So from the County's congestion standard perspective, while the CLV of the intersection may increase from 1060 in 2006 to 1493 by 2030, the Purple Line would only account for less than one percent of the difference. Many of the at-grade crossings, the DEIS states, "are proposed to occur at existing signalized intersections; by utilizing opportunities to cross a roadway at a location when traffic on the cross street is already stopped, the impacts to automobile traffic can be reduced." The clear exception is where an impact is avoided altogether, as by a grade separation or tunneling. Fewer at grade crossings are better for traffic network operation as well as safety, but the difference is not significant enough in general to warrant selecting one alternative over another.

Staff finds that the traffic analysis and congestion considerations in general are not a primary factor in selection between modes or investment alternatives.

The AA/DEIS includes the following analysis of the impact the respective alternatives would have on on-street parking:

TABLE 16 – Impact On-Street Parking

Alternative	Street & Segment	Impact
Low Investment BRT	Woodmont Avenue From Old Georgetown Road To Wisconsin Avenue	Extend Peak Period Restrictions In Both Directions For Entire Segment
	Jones Bridge Road Near Jones Mill Road	Introduce Peak Period Restriction To Accommodate East Bound Bus By-Pass Lane
	Wayne Avenue From Cedar Street To Mansfield Road	Extend Peak Period Restrictions In Both Directions For Entire Segment
Medium Investment BRT	Bonifant Street From SSTC To Fenton Street	Eliminate On-Street Parking On North Side of Street. Parking On South Side Remains If Bonifant Is Converted To One Way Eastbound
	Wayne Avenue From Cedar Street To Mansfield Road	Extend Peak Period Restrictions In Both Directions For Entire Segment
High Investment BRT	Wayne Avenue From Cedar Street To Mansfield Road	Extend Peak Period Restrictions In Both Directions For Entire Segment
Low Investment LRT	Bonifant Street From SSTC To Fenton Street	Eliminate On-Street Parking On North Side of Street. Parking On South Side Remains If Bonifant Is Converted To One Way Eastbound
	Wayne Avenue From Cedar Street To Mansfield Road	Extend Peak Period Restrictions In Both Directions For Entire Segment
Medium Investment LRT	Bonifant Street From SSTC To Fenton Street	Eliminate On-Street Parking On North Side of Street. Parking On South Side Remains If Bonifant Is Converted To One Way Eastbound
High Investment LRT	Wayne Avenue From Cedar Street To Mansfield Road	Extend Peak Period Restrictions In Both Directions For Entire Segment

Staff finds that while the loss of parking on the north side of Bonifant Street and additional peak hour restrictions on Woodmont Avenue and Wayne Avenue are of concern, these impacts should not be considered as a deciding factor in selecting an alignment for the Purple Line.

Community Impacts

A summary of the community impacts as identified in the AA/DEIS is presented below[68]:

In Bethesda …

- Low Investment BRT would result in strip acquisitions of property on the NIH and the NNMC campuses.
- Under each of the Build Alternatives, access (now unlimited) to the permanent Capital Crescent Trail would be limited to specific locations.[69]
- Under each of the Build Alternatives, loss of trees and other vegetation along the Georgetown Branch right-of-way.[70] The loss in Bethesda and Chevy Chase (i.e., the trail west of Jones Mill Road) does not occur under the Low BRT Alternative that would operate on Jones Bridge Road.
- Four locations in Bethesda were monitored for noise and no impacts are anticipated from any of the alternatives.

In Chevy Chase …

- Low Investment BRT could result in the displacement of one residential property at Jones Bridge and Jones Mill Roads.[71] The Low Investment BRT would also require temporary construction easements at nine residential properties on Jones Bridge Road as well as North Chevy Chase Elementary School. All of the other Build Alternatives would require temporary construction easements within the Columbia Country Club in order to relocate a golf cart path.
- As noted above, the Build Alternatives (excluding the Low Investment BRT) result in the loss of trees and other vegetation along the Georgetown Branch right-of-way.
- Under the High Investment BRT and the Medium and High Investment LRT alternatives, there would be an aerial structure over Connecticut Avenue.
- Eleven locations in Chevy Chase were monitored for noise impacts and no noise impacts are anticipated from any of the Build Alternatives.

In Rock Creek Forest/Lyttonsville/Rosemary Hills …

- The Build Alternatives require a strip acquisition from the Roundhill Apartments on Freyman Drive.[72]
- All of the LRT alternatives would require a temporary construction easement from five properties on Talbot Avenue.

[68] In order to group all of the documented impacts in the AA/DEIS by community, the findings related to noise impacts are repeated in this section of the staff memo. Property acquisitions are noted in bold type.
[69] While this is noted in Chapter 4, this statement may not apply to the trail west of Jones Mill Road as that segment of the trail would not be constructed as part of one Build Alternative – the Low Investment BRT Alternative.
[70] M-NCPPC Environmental Planning staff estimate the trail area (including the trail and adjoining tree and vegetation cover) from Bethesda to just east of Rock Creek to total about six acres)
[71] A "displacement" is the complete taking of property.
[72] A "strip acquisition" is the taking of a smaller (usually linear or longer than it is wide) piece of property and does not involve the displacement of a residence. The staff has been unable to locate a quantitative summary of the total area that could be impacted by "strip acquisitions."

- All of the Build Alternatives would require a strip acquisition from Rosemary Hills Elementary School for the construction of the Capital Crescent Trail.
- All of the Build Alternatives would also limit access to the trail to specific locations.
- All of the Build Alternatives would result in the loss of trees and other vegetation along the Georgetown Branch right-of-way.
- Under any build alternative, the existing County operations and maintenance facility in Lyttonsville would be expanded to accommodate the Purple Line fleet. The existing viewshed is not expected to change significantly.[73]
- Introduction of the transitway between the CSX right-of-way and the residential property and school along Porter Road would change the existing viewshed in that area.
- Three locations in the community were monitored for noise and no impacts are anticipated from any of the Build Alternatives.

In Woodside …

- Under any build alternative, the construction of the Capital Crescent Trail along the north side of the CSX right-of-way would require temporary construction easements from two residential properties.
- Two locations in the community were monitored for noise and no impacts are anticipated.

In Silver Spring…

- Each of the Build Alternatives requires strip acquisitions along the CSX right-of-way.
- Each of the Build Alternatives would require property acquisition from one residence and the displacement of two other residences on Leonard Drive.
- Each of the Build Alternatives except Low Investment BRT would result in displacements from one building of the Barrington Apartments and two buildings of the Falklands Apartments.
- Medium and High Investment BRT and LRT would require strip acquisitions on Wayne Avenue where widening is required for left turn lanes. These alternatives would also require temporary construction easements from some residences along Wayne Avenue to re-grade and reconstruct driveway connections.
- High Investment BRT would require temporary construction easements along Wayne Avenue.
- The Silver Spring Avenue / Thayer Avenue design option for the High Investment BRT and LRT Alternatives would require both property acquisition and temporary construction easements at some residences along Thayer Avenue, Hartford Avenue, and Dale Drive.
- All Build Alternatives except for the Low Investment BRT would require temporary construction easements from the Silver Spring International Middle School.

[73] There are two Purple Line Operations and Maintenance locations. One is on Brookville Road in Lyttonsville and the other is the M-NCPPC's Glenridge maintenance facility in Prince George's County. The use of the Glenridge facility will require the relocation of the Park Department vehicle maintenance activity. The use of the Lyttonsville site will require the acquisition of additional (commercial) property in the area . The Lyttonsville site will also require use of the existing M-NCPPC Meadowbrook Maintenance Annex which is technically public parkland and is subject to Section 4(f) of the Department of Transportation Act of 1966.

- The Silver Spring Avenue / Thayer Avenue design option for the High Investment BRT and LRT Alternatives includes a portal behind East Silver Spring Elementary School and as a result, would require property acquisition from the school.
- Introduction of the transitway between the CSX right-of-way and the commercial and residential apartment areas along 16th Street would introduce a new visual element under all of the Build Alternatives.
- The introduction of any LRT alternative along Wayne Avenue and along Thayer Avenue (in the case of the design option) would result in a substantial visual effect.
- The High Investment BRT and LRT Alternatives include a portal on Wayne Avenue east of Cedar Street and that would introduce a new visual element.
- Eight locations in Silver Spring were monitored for noise impacts with the following results:

    - One location along the CSX right-of-way at Leonard Drive would experience moderate noise impacts under all of the BRT alternatives.
    - The area on 16th Street between East West Highway and Spring Street would experience noise impacts under the Medium and High BRT Alternatives.
    - Two locations along Wayne (one near Cedar Street and another near Mansfield Road) would experience moderate noise impacts under each of the BRT Alternatives.
    - A location along Wayne Avenue near Dale Drive would experience moderate noise impacts under the Medium and High Investment BRT Alternatives.

In East Silver Spring …

- Each of the Build Alternatives would require strip acquisitions of residential property along Wayne Avenue and Piney Branch Road.
- On Wayne Avenue, the LRT and (under the High Investment Alternatives) the tunnel portal would introduce new visual elements.
- Two locations were monitored for noise and neither location is expected to experience any impact.

In Long Branch …

- The High Investment BRT Alternative and all of the LRT Alternatives would result in the displacement of one apartment building on Plymouth Street and one residence at the corner of Arliss Street and Flower Avenue. In addition, there would be the need for six right-of-way acquisitions from residential property along Plymouth and Reading Streets for the Plymouth Street tunnel. [74]
- Under the Silver Spring Avenue / Thayer Avenue design option, there would be strip acquisitions from 13 residential properties on Piney Branch Road.

- The two tunnel portals, one off of Wayne Avenue and one on Arliss Street would introduce new visual elements.
- Two locations were monitored for noise and one of those (along Arliss Street) is expected to experience moderate impacts under the Medium and High Investment BRT alternatives.

[74] These impacts are avoided by the Silver Spring Avenue / Thayer Avenue design option.

In Takoma Park …

- Under each of the Build Alternatives, some strip property acquisition and temporary construction easements would be required under each of the Build Alternatives.
- Five locations in Takoma Park were monitored for noise and none are anticipated to experience noise impacts.

In Langley Park …

- Each of the Build Alternatives except Low Investment BRT would require strip acquisitions from four apartment complexes along University Boulevard.
- Parking impacts in Langley Park are not included in the table above and there would be impacts along University Boulevard where the service road, now used for parking, would be removed.[75]

Staff finds community impacts are one of the determining factors used in selecting a preferred alignment.[76] The communities with the most significant potential impacts are the residential areas along Jones Bridge Road west of Connecticut Avenue, the residential area adjacent to the Georgetown Branch Trail, some residences along the CSX right-of-way, and the residential areas along Wayne Avenue – from the SSTC to Flower Avenue, and the residential area near Arliss Street and Flower Avenue. On Jones Bridge Road and on the Capital Crescent Trail, we find the impacts are of a similar level and therefore do not lead us to favor one alignment over another based solely upon community impact. We find the Wayne Avenue issue (tunnel vs. surface) needs additional analysis with respect to the potential impact.

Preinkert/Chapel Drive Design Option

The AA/DEIS identifies one design option for the Medium Investment LRT Alternative in Prince George's County, the Preinkert/Chapel Drive Design Option. This Design Option would increase the construction cost by approximately $10,000,000 and staff finds the impacts on Montgomery County constituents to be minimal. **Staff recommends that the findings related to this Design Option be deferred to Prince George's County government**.

Summary of Analysis of Factors In Recommending a Preferred Alignment

The following table summarizes the factors examined in selecting the Medium Investment LRT Alternative along the Georgetown Branch right-of-way and its surface alignment on Wayne Avenue as the preferred alignment for the Purple Line. Staff also recommends the addition of Capital Crescent Trail connection under Wisconsin Avenue, the elimination of the Dale Drive

[75] As previously noted, it also appears that the LRT alternatives could result in some loss of sidewalk connectivity along University Boulevard.

[76] It should be noted that impacts on commercial properties are not identified in the AA/DEIS. Staff is aware of two properties – one on Bonifant Street adjacent to the SSTC and another in Lyttonsville that would be required for the Purple Line Yard and Shop area.

station, and further analysis of the potential for a Wayne Avenue tunnel - extending under Wayne Avenue to the vicinity of Mansfield Road.

Issue	Key Findings	Consideration Given In Arriving At Eventual Recommendation On Alignment
Station Area - Ridership	• Silver Spring – Thayer Design Option Station and Alignment Impact Unacceptable • Dale Drive Station Ridership Questionable • Community Opposition To Dale Drive Station	Drop Silver Spring – Thayer Design Option and Dale Drive Station from Further Consideration
Station Area – Walk Access	• St Elmo Avenue Station Just Outside of Purple Line Master Plan Alignment Walk Radius • Fenton Street Station In Area of Greatest Absolute and Percentage of Growth In HH Density	Favors Georgetown Branch Alignment and Surface Alignment On Wayne Avenue
Station Area – Urban Design and Economic Development	• Fenton Street Station Necessary To Support Existing and Future Revitalization	Favors Surface Alignment On Wayne Avenue
Jones Bridge Road Alignment	• Georgetown Branch Master Plan Alignment Provides Faster Travel Time Between Activity Centers of Greater Existing & Future HH and Job Density	Favors Georgetown Branch Alignment
Wayne Avenue	• Tunnel Option Needs Further Analysis • Tunnel May Result In Net Ridership Gain • Surface and Tunnel Alignment Impacts Need More Analysis	Favors Studying Tunnel Alignment On Wayne Avenue To Mansfield Road Area
Master Plan Conformance	• Confirms Georgetown Branch Alignment • Confirms Trail Through Wisconsin Tunnel	Favors Georgetown Branch Alignment & Trail Through Tunnel
Georgetown Branch Trail	• Purchased For Transit Use • Twelve Foot Width For Hard Surface Recommended • Focus Should Be On Mitigation Of Tree Loss	Favors Georgetown Branch Alignment
Silver Spring Green Trail	• Need Additional Information On Typical Section • Recent Change To 8 Foot Width Not Critical But Could Be Partially Avoided With Tunnel	Favors Studying Wayne Avenue Tunnel

Issue	Key Findings	Consideration Given In Arriving At Eventual Recommendation On Alignment
Parks	• Meadowbrook Maintenance Annex May Be 4(f) Impact • New Hampshire Estates Neighborhood Park Will Be Impacted	No Result – All Alignments Adjacent To These Facilities
Historic Preservation	• Falkland Apartments Impacted – Will Require Mitigation • Development Plan To Be Considered	Favors Retention of Design Option On North Side Of CSX Right-of-Way
Natural Environment	• Tree Loss On Trail Totals Estimated Six Acres • Focus Should Be On Mitigation	Favors Jones Bridge Road Alignment
Traffic	• Purple Line Impact Not Significant	No Result – Impact Deemed Not Significant Enough To Favor Any Alignment
Parking	• Purple Line Impact Not Significant	No Result – Impact Deemed Not Significant Enough To Favor Any Alignment
Community Impacts	• See Narrative For Summary	Favors Studying Wayne Avenue Tunnel Option