**MCPB**
Item No. 11
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# Review of County Executive's Recommended FY22 Capital Budget and FY21-26 Capital Improvements Program Amendments – Transportation and Schools

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## Introduction

The County Executive published his Recommended FY22 Capital Budget and amendments to the FY21-26 Capital Improvements Program (CIP) on January 15, 2021. The document may be found at: https://apps.montgomerycountymd.gov/BASISCAPITAL/Common/biennialindex.aspx?FY=2022&VER=REC. A summary of the budget changes is provided in Attachment 1 to this report. Staff has analyzed the recommended budget and CIP and have noted below projects of interest that have significant changes in budget or schedule.

Staff recommendations to the Planning Board on the capital budget and CIP are included in this memo and the Planning Board is requested to endorse or revise these recommendations and transmit them to the County Council.

## Significant Changes in County Executive's Recommended FY22 Budget

The Montgomery County Capital Improvements Program (CIP) is approved biennially. The current CIP, for FY21-26, was adopted by the County Council in May 2020. Therefore, the current year is an "amendment year" for the CIP, with changes limited to amendments that meet particular criteria or that are necessary to balance the CIP. Attachment A provides a summary of changes proposed.

In total, the County Executive's recommended CIP amendments decreased transportation CIP project funding by $30.419M and school CIP project funding by $50.090M compared to the approved CIP. This represents a three percent reduction for transportation projects and a 3.1 percent reduction for schools over current CIP funding. (The Executive's recommendation for MCPS is $53.758M or 3.1 percent less than the Board of Education's request.)

## Project Additions in the County Executive's Recommended Amendments

The recommended CIP includes two new transit projects in the recommended CIP. The two proposed projects are identified below:

1. **US 29 Managed Lane Project (P502201**): A new project has been proposed to advance recommendations from the US 29 Corridor Study from Musgrove Road to Southwood Drive and from Dale Drive to Spring Street. The managed lane will be restricted to use by high occupancy vehicles (HOV) and transit to improve roadway performance and person throughput. The project will also include improvements at identified "hot spot" locations to improve overall traffic operations along the US 29 corridor. During FY22 and FY23, **$6M** has been proposed for the preliminary engineering phase.

This project is currently in the planning stage. On February 2, 2021, The T&E Committee provided comments on the first phase of facility planning[1] for the US 29 project requesting analysis modifications to the planning study on which this proposed project is based.

2. **Great Seneca Science Corridor Transit Improvements (P502202):** A new project has been proposed to advance the planning, design and implementation of new premium-transit services to support the Great Seneca Science Corridor and surrounding areas. The project includes new, upgraded transit stations, dedicated bus and bus + bike lanes, transit signal priority, new roadway connections, upgrades to transit centers, purchase of new transit vehicles, as well as pedestrian and bicycle improvements. These transit services will provide frequent and reliable connections between Kentlands, Crown Farm, King Farm, the Universities at Shady Grove, Adventist Shady Grove Hospital, Shady Grove Metro, Rockville, and other key destinations in support of the Great Seneca Science Corridor Master Plan. During FY22, **$1.5M** has been proposed for the initiation of the preliminary engineering phase.

## Major Transportation-Related Changes in the County Executive's Recommended Amendments

The recommended CIP includes several transportation projects with major funding changes due to cancellation or scope change, advancement of project out of facility planning (new project), acceleration of funding, shifting of funding to later fiscal years and advancement of funding in a few cases where needed to address emergency needs and Vision Zero priorities. Major transportation projects with proposed significant funding changes are identified below:

1. **Bethesda Metro Station South Entrance (P500929):** The County Executive has proposed to reallocate **$29.374M** in the approved CIP. This is not new budget, it is a reallocation to reflect actual progress, a new estimated billing schedule, and to account for delays associated with the Purple Line. The bulk of this will occur with construction activities during FY21-23.

2. **Parking Bethesda Facility Renovations (P508255):** The project CIP allocation would be increased by **$2.048M**. Annual expenditure increases between $709 and $750 thousand per year are expected in FY22-24. Staff inspection and condition surveys by county inspectors and consultants indicate that facilities in the Bethesda Parking Lot District (PLD) need rehabilitation and repair work. Not performing this restoration work within the time and scope specified may result in serious structural integrity problems to the subject parking facilities as well as possible public safety hazards. This includes work in the Waverly (#47), Metropolitan (#49), Woodmont/Rugby (#35), and Woodmont (#11) garage facilities.

3. **Master Leases: Transit Radio System Replacement (P502110):** The project budget was updated in FY20. The total cost for this project is estimated to be $3.5M, with an additional **$1.75M** needed in FY22. A decision will be made at that time whether to continue with a Master Lease or to fund the costs in the operating budget. This project will replace the current stand-alone Transit Radio System with radios, consoles, and networking necessary to incorporate Transit Services radio operations into the new state-of-the-art public safety radio system. This will ensure that the federally required emergency communications systems for transit operations are continued between bus operators and central communications in a reliable and consistent manner. In addition, it will maintain and integrate

[1] Tom Hucker, Chair, Montgomery County Council Transportation & Environment Committee, letter to Christopher Conklin, US 29 Mobility and Reliability Study and Amherst Avenue Bikeway Study, February 2, 2021.

Transit Services into regional operability and provide enhanced features pursuant to national standards for radio devices.

4. **Observation Drive Extended (P501507**): The project would be delayed significantly (four-year delay compared to the approved CIP), resulting in a reduction of **$36.995M** in funding in the CIP.

5. **Capital Crescent Trail (P501316):** For this project, **$25.661M** would be shifted outside the current CIP period. This would result in a two-year delay compared to the approved CIP. In FY20, the schedule was revised again based on actual progress and MTA's latest revised cash flow projection. This amendment would move the construction of the trail tunnel under Wisconsin Avenue to be delayed beyond FY26 due to fiscal constraints. To provide an alternative approach, the county has requested that the state consider single-tracking through the Purple Line tunnel, freeing up space for the trail at considerable cost savings. The project also includes a surface trail that is scheduled for construction in FY21 which will not be impacted by this recommended schedule and budget change. It should be noted that Elm Street Urban Park is being redesigned as part of the work to implement the surface trail connection and Montgomery Parks is working closely with MCDOT to ensure that the interim park is fully functional for several years until the trail tunnel can be built.

6. **Forest Glen Passageway (P50911):** The County Executive has proposed delaying this project by two years, reducing the current CIP allocation on this project by **$4.95M**. Design would begin in FY23 and construction would begin in FY25. The schedule is adjusted due to fiscal capacity. The expectation is that the cost will be much higher based on recent experience with similar projects. In the meantime, the county will reach out to the state to consider whether more immediate traffic management measures can improve safety until the county is able to fund a more permanent solution in Forest Glen.

7. **White Flint West Workaround (P501506):** The CIP allocation for this project is proposed to be reduced by **$3.463M** in the current CIP. Much of this has to do with the funding mechanisms of the White Flint Special Taxing District that largely fund this project. The county needs to supplement the funding with advance funds and management of debt issuance and repayment in a manner to ensure that the White Flint Special Taxing District tax rate not exceed ten percent.

## Project Delays in the County Executive's Recommended Amendments

There are several projects where the recommended CIP includes significant delays in project progress, however most of these projects will be completed within the CIP timeframe. These delayed projects are identified below:

1. **White Flint Metro Station Northern Entrance (P501914):** The project has been recommended with a one-year delay, pushing **$348,000** outside the current CIP. This will shift the construction phase from FY24-26 to FY25-27. The county is working with WMATA on redevelopment of the White Flint Metro Station site and will look for opportunities to leverage private sector funding for these enhancements.

2. **Bradley Boulevard (MD 191) Improvements (P501733):** The project has been recommended with a delay in the land acquisition phase. While the approved CIP shows the bulk of these activities in FY23 and 24, the recommended amendment would shift most of the land acquisition funds to FY25.

3. **Franklin Avenue Sidewalk (P501734):** The project has been recommended with a one-year delay in the construction phase and minor adjustments in the planning, design and land acquisition phases.

Construction activities (**$1.512M**) now planned for FY22 would be shifted to FY23 within the recommended CIP.

## County Executive's Recommended MCPS Amendments

For MCPS, the County Council had approved a total of $1.728 billion in the FY21-26 CIP. The approved CIP includes funding for capacity projects at 14 elementary schools, five middle schools and five high schools and for major capital projects at four elementary schools, one middle school, and four high schools. It also includes funding for many countywide projects that address systemic needs of aging facilities.

For FY22, The Board of Education requested an amendment to the approved CIP that would increase the total six-year expenditures by $3.668 million. The requested amendments seek to provide funding for three additional capital projects by reallocating funds from previously approved projects, accelerating a few previously delayed capital projects by shifting expenditures, and reinstating funding for three countywide systemic projects that were reduced in the approved CIP.

The County Executive, however, recommends a reduction of $53,758,000 from the Board of Education's CIP request due to an anticipated decrease in revenue from school impact taxes and recordation taxes. Rather than specifying plans for individual projects, his recommendation will require the Board of Education to reprioritize and reallocate funds as necessary. On February 8, the County Council's Education and Culture Committee requested that MCPS identify non-recommended reductions that would meet the County Executive's recommended cuts to school funding in the CIP. Therefore, it is unknown at this time how reconciliation efforts will affect school utilization.

**Table 1. FY21-26 Approved versus Amended CIP – MCPS ($000s)**

| | Six Year | FY21 | FY22 | FY23 | FY24 | FY25 | FY26 |
|---|---|---|---|---|---|---|---|
| **FY21-26 Approved CIP** | **1,728,123** | **316,953** | **288,528** | **312,066** | **295,049** | **271,279** | **244,248** |
| **FY21-26 BOE Requested Amendments** | **1,731,791** | **322,996** | **299,175** | **315,758** | **294,383** | **263,319** | **236,160** |
| Change from approved | 3,668 | 6,043 | 10,647 | 3,692 | (666) | (7,960) | (8,088) |
| | 0.2% | 1.8% | 3.7% | 1.2% | -0.2% | -3.0% | -3.3% |
| **FY21-26 CE Recommended Amendments** | **1,610,834** | **279,684** | **254,266** | **296,949** | **288,574** | **252,510** | **238,851** |
| Technical Adjustments* | (67,199) | (38,252) | (28,947) | - | - | - | - |
| Affordability Reconciliation, change from approved | (50,090) | 983 | (5,315) | (15,117) | (6,475) | (18,769) | (5,397) |
| | -2.9% | 0.3% | -1.8% | -4.8% | -2.2% | -6.9% | -2.2% |
| Affordability Reconciliation, change from BOE request | (53,758) | (5,060) | (15,962) | (18,809) | (5,809) | (10,809) | 2,691 |
| | -3.1% | -1.6% | -5.3% | -6.0% | -2.0% | -4.1% | 1.1% |

* Includes adjustments for acceleration of expenditures from FY21 and FY22 to FY20.

## Major Project-Related Concerns Not Addressed in CIP

1. **Transportation Fee Placeholder project:** MCDOT collects transportation in-lieu fees from development activities, and it is important that a dedicated funding source/landing be provided for these funds, to ensure that these funds will be committed appropriately.

2. **Allocation of Ashford Woods Fee In-Lieu toward extension of MD 355 – Clarksburg Shared Use Path Project (P501744):** As conditioned by the recent Preliminary Plan approval, the Ashford Woods development will provide a payment to MCDOT in lieu of constructing a master-planned shared use path along their frontage on the west side of MD 355. The amount is yet to be determined. Staff recommends that this fee be added directly into the current MD 355-Clarksburg Shared Use Path project, and that MCDOT use these funds to design and construct a shared use path on the west side

of MD 355 between Snowden Farm Parkway and the northern Ashford Woods property boundary. This MCDOT project has designed a sidepath on the east side of MD 355 between Stringtown Road and Snowden Farm Parkway. The Bicycle Master Plan facility on MD 355 to the north of Snowden Farm Parkway up toward Hyattstown continues on the west side of MD 355. The MD 355-Clarksburg project should also consider the need for a protected crossing at the intersection of MD 355 with Snowden Farm Parkway.

## Recommendations/Comments

Staff recommends that the following comments be transmitted to the County Council:

1. **Capital Crescent Trail (P501316):** The proposed delay in this project's schedule is unacceptable to the Planning Board. The single-tracking concept was previously explored and rejected by the Planning Board in 2011 and the Transportation & Environment Committee in 2012. This led to the development and approval of the Bethesda Purple Line Station Minor Master Plan Amendment in 2013, which incentivized redevelopment of 7272 Wisconsin Avenue. This redevelopment project is providing a wider platform for the Bethesda Purple Line station as well as a portion of a new Capital Crescent Trail tunnel. The Planning Board memo is attached to this document as Attachment B. The T&E Committee Staff Report is attached as Attachment C.

2. **Advancement of Forest Glen Passageway (P50911):** The Planning Board strongly supports the advancement of the Forest Glen Passageway project without the proposed delays. This project is a critical connector between the Forest Glen Metro Station, Holy Cross Hospital (the largest employer between Wheaton and Silver Spring), and the surrounding neighborhoods. This project is not only a major public transit and pedestrian element within the ongoing Forest Glen/Montgomery Hills Sector Plan; it is also a Vision Zero project that has been under consideration for many years. By fully separating pedestrians and bicyclists from motorists, this project is critical for addressing the current unsafe crossing condition. Therefore, it is imperative that this project not be delayed further.

3. **Observation Drive Extended (P501507):** The Planning Board request that funds be allocated in FY22 to conduct facility planning evaluations on how to modify the current planning feasibility for this project as the western Clarksburg bypass, including a shifting of this alignment to Gateway Center Drive, and alignment through the Miles Coppola property, connecting back to MD 355 midway between Clarksburg Road (MD121) and Snowden Farm Parkway.

4. **Recordation Tax Amendments (Expedited Bill 39-20):** The Planning Board encourages the County Council to adopt the introduced recordation tax amendment to ensure additional funding for school capital projects can be provided. The County Executive justifies his recommended reduction in school CIP funds by citing the decrease in revenue from school impact taxes (due adjustments related to the new Growth and Infrastructure Policy) and recordation taxes (due to COVID-related revenue adjustments). The Planning Board's draft policy included a recordation tax amendment to counter the fiscal effects of decreasing school impact tax rates. The Planning Board recognizes the importance of funding the approved MCPS CIP and the Board of Education's CIP amendment as requested. Therefore, it is paramount that the County Council adopt Expedited Bill 39-20 in a timely manner to complement the intent of the Growth and Infrastructure Policy and ensure that the proper funding vital to the county's school system is provided.

## Attachments

**Attachment A.** FY21-26 Biennial Recommended CIP – January Budget Amendments (https://www.montgomerycountymd.gov/OMB/Resources/Files/omb/pdfs/fy22/ciprec/BiennialPackageSummary.pdf)

**Attachment B.** MCPB Planning staff report dated November 17, 2011, Planning Board Tour: Purple Line/Capital Crescent Trail

**Attachment C.** Montgomery County Council Transportation & Environment Committee dated February 28, 2012, FY13018 Capital Improvements Program – transportation: Capital Crescent Trail project

# FY 21-26 Biennial Recommended CIP
## January Budget Amendments Summary ($000s)
## 15-Jan-21

| Project # | Project Name | Explanation of Adjustment | FY21-26 Change ($000s) | Funding Sources |
|---|---|---|---|---|
| **New Projects - F21-26 Amendments** | | | | |
| P342102 | County Radio Replacement and Related Equipment | FY21 supplemental to replace Corrections and non-Transit Transportation Department radios. This new project will also fund equipment needed to ensure consistent radio coverage throughout DOCR facilities. | 1,434 | Recordation Tax Premium (MCG) |
| P502202 | Great Seneca Science Corridor Transit Improvements | New project added to fund planning and design to provide premium transit services to support the Great Seneca Science Corridor Master Plan. Full appropriation request is pending MOU updates with the cities of Gaithersburg and Rockville. | 1,500 | Impact Tax |
| P502201 | US 29 Managed Lane Project | New project added to fund preliminary engineering for US29 improvements designed to support improved roadway performance and person throughput via a managed HOV/transit lane. | 6,000 | G.O. Bonds |
| **Existing Projects - FY21 Supplementals** | | | | |
| P010100 | Council Office Building Renovations | Cost increase to add two additional councilmember offices in response to Charter amendment | 500 | G.O. Bonds |
| P809319 | Facility Planning: Stormwater Management | Reflects previously transmitted supplemental funded with a USACE refund. Also includes a funding switch in FY22-26 replacing $200,000/year in CR: WQPF with Stormwater Management Waiver Fees. | 68 | Current Revenue: Water Quality Protection, Intergovernmental, Stormwater Management Waiver Fees |
| P800700 | Stormwater Management Facility Major Structural Repair | Reflects previously transmitted supplemental funded with developer contributions. | 600 | Contributions, Current Revenue: Water Quality Protection, Long-Term Financing |
| P808726 | Stormwater Management Retrofit: Countywide | Reflects previously transmitted supplemental funded with a USACE refund. | 94 | Current Revenue: Water Quality Protection, Intergovernmental, Long-Term Financing |
| P762101 | Affordable Housing Opportunity Fund | Reflects previously transmitted supplemental to appropriate already programmed funds. | 0 | Recordation Tax Premium (MCG) |
| **F21-26 Scope Change and/or other Increase/Decrease Existing Projects - Amendments** | | | | |
| P450700 | FS Emergency Power System Upgrade | Reduces funding since Old Fire Station 25 no longer serves as an active fire station. | (464) | G.O. Bonds |
| P502110 | Master Leases: Transit Radio System Replacement | Provides funding to complete Transit radio replacements. | 1,750 | Short-Term Lease Financing |
| P509399 | Advanced Transportation Management System | FY22 reduction due to fiscal constraints. Also funding switches between FY20-FY22 with no net change. | (300) | Current Revenue: General, Recordation Tax Premium (MCG), State Aid |
| P500704 | Traffic Signal System Modernization | Prior year $300,000 reduction due to fiscal capacity constraints. FY21 funding Switch between CR: General and GO Bond Premium ($1,038,000) | 0 | Current Revenue: General, G.O. Bonds |
| P640400 | School Based Health & Linkages to Learning Centers | Adds funding for Linkages to Learning sites at South Lakes Elementary School and Neelsville Middle School. Also funds a School Based Health Center at South Lakes Elementary School. | 1,828 | G.O. Bonds |
| P711503 | 21st Century Library Enhancements Level Of Effort | Reduced FY22 funding due to fiscal constraints. | (159) | Current Revenue: General |

# FY 21-26 Biennial Recommended CIP
## January Budget Amendments Summary ($000s)
## 15-Jan-21

| Project # | Project Name | Explanation of Adjustment | FY21-26 Change ($000s) | Funding Sources |
|---|---|---|---|---|
| P720601 | Cost Sharing: MCG | Reflects the Council-approved FY21 supplemental Resolution # 19-593 in FY21 ($250,000 increase) and FY22 (-$397,000 decrease), but maintains FY23 at previously approved $1,000,000 | (147) | Current Revenue: General |
| P721503 | Kennedy Shriver Aquatic Center Building Envelope Improvement | Corrects total costs and delays the construction start from FY22 to FY23 due to fiscal constraints. | 368 | G.O. Bonds |
| P729658 | Public Arts Trust | FY 21 funding has been updated to reflect Resolution 19-592 that added an additional $218,000 in appropriation to FY21; however, due to fiscal constraints, only half of the increase ($109,000) in assumed in FY21. | 109 | Current Revenue: General |
| P769375 | Facility Planning: HCD | FY22 reduction due to fiscal constraints. Also technical correction of Remaining FY20 figures. | (75) | Community Development Block Grant, Current Revenue: General |
| P091501 | Supplemental Funds for Deeply Subsidized HOC Owned Units Improvements | Reflects approved FY21 savings plan reduction ($125,000) and additional reductions needed due to FY22 fiscal constraints. | (250) | Current Revenue: General |

### Montgomery County Public Schools

| | | | | |
|---|---|---|---|---|
| P076506 | Building Modifications and Program Improvements | Acceleration of expenditures from FY21 into FY20. | (334) | Contributions, G.O. Bonds |
| P926575 | Current Revitalizations/Expansions | Reflects MCPS acceleration of Seneca Valley HS and Tilden MS costs into FY20. | (55,979) | G.O. Bonds, Recordation Tax, Schools Impact Tax, State Aid |
| P816633 | HVAC (Mechanical Systems) Replacement: MCPS | Reflects $3 million approved FY21 supplemental and MCPS requested additional FY21 and FY22 increases. | 11,800 | Current Revenue: General, G.O. Bonds, Recordation Tax, State Aid |
| P975051 | Improved (Safe) Access to Schools | MCPS acceleration of FY21 and FY22 expenditures into FY20. | (2,372) | G.O. Bonds |
| P652101 | Major Capital Projects - Elementary | Reflects approved acceleration of South Lakes ES and MCPS requested acceleration of Stonegate ES and Woodlin ES within the six year period. | 0 | G.O. Bonds |
| P896586 | Planned Life Cycle Asset Repl: MCPS | Includes approved FY21 supplemental (Aging Schools Program $602,651) and additional FY22 request. | 3,788 | Aging Schools Program, G.O. Bonds |
| P766995 | Roof Replacement: MCPS | Requested FY22 increase | 1,000 | G.O. Bonds, State Aid |
| P036510 | Technology Modernization | Reflects approved supplementals in FY20 CR: General ($446,000) and in Federal E-Rate ($1,281,000). FY21 funding switch between Recordation Tax and Current Revenue General ($2,304,000) related to Bond Premium. FY20 actuals funding switch between CR: General and Recordation Tax. | 0 | Current Revenue: General, Federal Aid, Recordation Tax |
| P652103 | Bethesda ES Addition | MCPS request to remove project expenditures to fund classrooms build-out for Westbrook ES to address overutilization at Bethesda ES and Somerset ES. | (16,708) | G.O. Bonds |
| P651908 | Charles W. Woodward HS Reopening | MCPS request to shift expenditures between FY23 and FY24 (no impact to completion date). | 0 | G.O. Bonds |
| P651902 | Cresthaven ES Addition | MCPS request to remove project expenditures to create a new project: Grades 3-5 ES at JoAnn Leleck. | (11,627) | G.O. Bonds |
| P652201 | Grades 3-5 Elementary School for JoAnn Leleck Elementary School at Broad Acres | New project request. MCPS recommended shifting funds from Roscoe Nix ES Addn and Cresthaven ES Addn projects to fund this project. | 28,338 | G.O. Bonds |

# FY 21-26 Biennial Recommended CIP
## January Budget Amendments Summary ($000s)
## 15-Jan-21

| Project # | Project Name | Explanation of Adjustment | FY21-26 Change ($000s) | Funding Sources |
|---|---|---|---|---|
| P652001 | Highland View ES Addition | Addition of construction expenditures per MCPS' request. | 16,000 | G.O. Bonds |
| P651709 | Montgomery Knolls ES Addition | MCPS acceleration of $782,000 in expenditures from FY21 into FY20. | (782) | G.O. Bonds |
| P651907 | Northwood HS Addition/Facility Upgrades | MCPS requested shift of expenditures within the six year period. No change in completion date. | 0 | G.O. Bonds |
| P651910 | Odessa Shannon MS Addition/ Facility Upgrade | Project was formerly known as Col. E Brooke Lee MS Addition/Facility Upgrade (Name change approved by the BOE). | 0 | G.O. Bonds |
| P651903 | Roscoe Nix ES Addition | MCPS request to remove project expenditures to create a new project: Grades 3-5 ES at JoAnn Leleck. | (16,136) | G.O. Bonds |
| P651912 | Silver Spring International MS Addition | MCPS' requested reduction in cost due to a change in scope. | (16,000) | G.O. Bonds |
| P651705 | Thomas W. Pyle MS Addition | MCPS acceleration of $8,910,000 from FY21 and FY22 into FY20. | (8,910) | G.O. Bonds |
| P652107 | Westbrook ES Addition | MCPS reactivated this project to address overcapacity at Bethesda ES and Somerset ES. | 4,391 | G.O. Bonds |
| P652105 | William T. Page ES Addition | MCPS requested acceleration of construction expenditures within the six year period. | 0 | G.O. Bonds |
| P056516 | MCPS Affordability Reconciliation | Reflects the need to reduce CIP spending in the face of significant revenue reductions. A portion of these revenue reductions are related to Growth Policy changes. | (53,758) | Current Revenue: General, G.O. Bonds |
| P076510 | MCPS Funding Reconciliation | Reflects updated Schools Impact Tax and Recordation Tax revenue estimates | 0 | G.O. Bonds, School Impact Taxes, Recordation Tax |
| | | **Montgomery College** | | |
| P661401 | College Affordability Reconciliation | Reflects the need to reduce CIP spending in the face of significant revenue reductions. $1.433M in Current Revenue reductions are reflected in prior years. | (7,964) | Current Revenue: General, G.O. Bonds |
| P661901 | Collegewide Library Renovations | Increased to accelerate and expand the project scope of the Rockville Library renovations. | 16,886 | G.O. Bonds, State Aid |
| P661801 | Collegewide Road/Parking Lot Repairs and Replacements | Reflects minor acceleration | (19) | Transportation Facilities Capital Projects Fund (College) |
| P076612 | Germantown Student Services Center | College requested project deferral with most costs pushed into Beyond 6 Year Period. Scope increase due to the need for additional extensive site work. | (17,442) | G.O. Bonds, State Aid |
| P926659 | Planned Lifecycle Asset Replacement: College | Technical change reflecting a prior year $31,000 transfer from the Macklin Towers Alteration project (P036603) to the Planned Lifecycle Asset Replacement project (BOT Resol.# 20-06-065, 6/22/20). | 0 | G.O. Bonds |
| P076607 | Takoma Park/Silver Spring Math and Science Center | Increase due to State allowed escalation of furniture and equipment costs. 50% State Aid funded. | 1,590 | G.O. Bonds, State Aid |
| | | **Maryland - National Capital Park and Planning Commission** | | |
| P727007 | ALARF: M-NCPPC | Updated prior year figures as technical corrections per M-NCPPC staff. | 0 | Revolving Fund (M-NCPPC Only) |
| P872201 | Mid-County Park Benefit Payments | New project will use developer funding to purchase or develop new park amenities to serve the White Flint, Grosvenor-Strathmore, and Rock Spring areas. | 2,500 | Contributions |
| P008720 | Ballfield Initiatives | Funding switch to increase GO bonds by $300,000 in FY21 and FY22, with offsetting reductions in CR: CUPF due to COVID-related CUPF budget challenges. | 0 | Current Revenue: CUPF, Current Revenue: General, G.O. Bonds |

# FY 21-26 Biennial Recommended CIP
## January Budget Amendments Summary ($000s)
## 15-Jan-21

| Project # | Project Name | Explanation of Adjustment | FY21-26 Change ($000s) | Funding Sources |
|---|---|---|---|---|
| P998773 | Enterprise Facilities' Improvements | MNCPPS requested delay of Revenue Bond funding for the Ridge Road Ice Rink due to COVID-related revenue impacts. | (20,000) | Current Revenue: Enterprise (M-NCPPC), Revenue Bonds |
| P871747 | M-NCPPC Affordability Reconciliation | Reflects the need to reduce CIP spending in the face of significant revenue reductions. | (4,926) | Current Revenue: General, G.O. Bonds |
| P058755 | Small Grant/Donor-Assisted Capital Improvements | Corrected prior year contributions and related expenditures per M-NCPPC staff. | 0 | Contributions |
| | | **F21-26 Implementation Acceleration/Delays & Other Schedule Adjustments** | | |
| P508728 | Asbestos Abatement: MCG | Reflects minor project acceleration. | (1) | G.O. Bonds |
| P508768 | Facility Planning: MCG | Reflects modest project acceleration and technical adjustments removing projects that have been completed or moved to a stand-alone project. | (23) | Current Revenue: General |
| P150401 | Wheaton Redevelopment Program | Acceleration of long-term financing | (3,490) | Federal Aid, G.O. Bonds, Land Sale, Long-Term Financing, PAYGO |
| P361701 | White Oak Science Gateway Redevelopment Project | Reflects approved $1 million in savings from savings plan. Delays some funding in FY22 through FY24 to FY25 and FY26 due to the County's fiscal constraints and the redevelopment progress to date. | 0 | G.O. Bonds, PAYGO |
| P509651 | FiberNet | Project acceleration of $215,000 from FY21 to FY20. | (215) | Current Revenue: Cable TV, Current Revenue: General |
| P451504 | Apparatus Replacement Program | Decrease due to reduction of unused prior year funding (-$360,000). Also deferral of brush truck/rescue squad replacement. | 0 | Current Revenue: Fire, Short-Term Financing |
| P450702 | Glen Echo Fire Station Renovation | Defer funding to FY23 with LFRD concurrence. Project is not ready to proceed. | 202 | G.O. Bonds |
| P450105 | Rockville Fire Station 3 Renovation | Defer funding to FY23 with LFRD concurrence. Project is not ready to proceed. | 0 | Current Revenue: Fire |
| P451502 | White Flint Fire Station 23 | Cost increases reflect updated estimates after schematic design and one additional year of escalation. Construction is delayed one year due to fiscal capacity. | 3,194 | G.O. Bonds |
| P508182 | Sidewalk and Curb Replacement | Acceleration from FY21 to FY20. | (21) | Contributions, G.O. Bonds |
| P501603 | Purple Line | Defer $20 million in FY21 to FY22 ($10 million) and FY23 ($10 million) due to project delays. | 0 | G.O. Bonds, Impact Tax, Recordation Tax Premium (MCG) |
| P501914 | White Flint Metro Station Northern Entrance | One year delay due to fiscal capacity. As part of the County's collaboration with WMATA regarding redevelopment of the White Flint metro site, the County will pursue opportunities to leverage private funding for these enhancements. | (348) | G.O. Bonds |
| P501313 | Facility Planning Parking: Bethesda Parking Lot District | Reflects COVID-related deferrals of FY20 spending as previously transmitted to the Council. | 160 | Current Revenue: Parking - Bethesda |
| P501312 | Facility Planning Parking: Wheaton Parking Lot District | Reflects COVID-related deferrals of FY20 spending as previously transmitted to the Council. | 213 | Current Revenue: Parking - Wheaton |
| P508255 | Parking Bethesda Facility Renovations | Reflects COVID-related deferrals of FY20 spending as previously transmitted to the Council. | 2,048 | Current Revenue: Parking - Bethesda |

# FY 21-26 Biennial Recommended CIP
## January Budget Amendments Summary ($000s)
## 15-Jan-21

| Project # | Project Name | Explanation of Adjustment | FY21-26 Change ($000s) | Funding Sources |
|---|---|---|---|---|
| P509709 | Parking Wheaton Facility Renovations | Reflects COVID-related deferrals of FY20 spending as previously transmitted to the Council. | 117 | Current Revenue: Parking - Wheaton |
| P500119 | Bethesda Bikeway and Pedestrian Facilities | Acceleration from FY21 to FY20. | (36) | G.O. Bonds |
| P501733 | Bradley Boulevard (MD 191) Improvements | Delay $1,746,000 in land acquisition costs from FY23 and FY24 to FY25 due to fiscal constraints. | 0 | G.O. Bonds |
| P501316 | Capital Crescent Trail | Reflects schedule change from the approved savings plan and deferral of the tunnel to beyond six years due to affordability. The County has requested that the State consider alternative designs of the Purple Line tunnel to provide savings without sacrificing service. | (25,661) | G.O. Bonds, Impact Tax |
| P501911 | Forest Glen Passageway | Delay start of design from FY21 to FY23 due to fiscal constraints and concerns that costs will be significantly higher than the current budget. In the meantime, DOT will explore other possible safety improvements with the State. | (4,950) | G.O. Bonds |
| P501734 | Franklin Avenue Sidewalk | Delay one year based on an updated production schedule. | 0 | G.O. Bonds |
| P500500 | Burtonsville Access Road | One year delay to coordinate with State plans for MD 198. | 0 | G.O. Bonds, Intergovernmental |
| P501507 | Observation Drive Extended | Three year delay in the start of final design to FY25 due to fiscal constraints. | (36,995) | G.O. Bonds |
| P501506 | White Flint West Workaround | Reflects project acceleration. | (3,463) | Contributions, Intergovernmental, White Flint Special Tax District |
| P601502 | Avery Road Treatment Center | Reflects accelerated project schedule as well as reduced State Aid offset by increased G.O. Bonds. | (454) | G.O. Bonds, PAYGO, State Aid |
| P711704 | Noyes Library for Young Children Rehabilitation and Renovation | One year project delay to allow the Noyes Children's Library Foundation additional time to complete their fund raising. Technical adjustments of funding sources between years with no net change. $85,000 bequest reflected in the project. Reflects project acceleration. | (67) | Contributions, Current Revenue: General, G.O. Bonds, PAYGO |
| P721902 | Martin Luther King, Jr. Indoor Swim Center Renovation | Modify project schedule to reflect acceleration into FY20 and FY21. Construction completed in FY24. | (1,115) | G.O. Bonds |
| P762102 | Countywide Facade Easement Program | Delay a portion of FY22 funding ($220,000) to later years to reflect the pandemic-impacted implementation schedule. | 0 | Current Revenue: General |

### F21-26 Funding Shifts, Switches and Reallocations - Other Technical Changes

| | | | | |
|---|---|---|---|---|
| P361302 | Energy Systems Modernization | Prior years funding switch resulting in $551,000 in GO Bond acceleration. | 0 | Long-Term Financing, PAYGO |
| P361103 | EOB HVAC Renovation | Appropriation correction. | 0 | G.O. Bonds, PAYGO |
| P500727 | Red Brick Courthouse Structural Repairs | Appropriation correction | 0 | G.O. Bonds |
| P509753 | Bridge Renovation | Funding switch in FY21 from GO Bonds to Stormwater Management Waiver Fees. | 0 | G.O. Bonds, State Aid, Stormwater Management Waiver Fees |
| P501106 | Permanent Patching: Residential/Rural Roads | FY21 funding switch between G.O. bonds and G.O. Bond Premium | 0 | G.O. Bonds |
| P508527 | Resurfacing: Primary/Arterial | FY21 funding switch between G.O. Bonds and G.O. Bond Premium. | 0 | G.O. Bonds |
| P500511 | Resurfacing: Residential/Rural Roads | Funding switch from GO Bonds to Recordation Tax Premium and G.O. Bond Premium | 0 | G.O. Bonds, Recordation Tax Premium (MCG) |

# FY 21-26 Biennial Recommended CIP
## January Budget Amendments Summary ($000s)
## 15-Jan-21

| Project # | Project Name | Explanation of Adjustment | FY21-26 Change ($000s) | Funding Sources |
|---|---|---|---|---|
| P500112 | Advance Reforestation | Appropriation correction | 0 | |
| P501115 | Century Boulevard | Appropriation correction | 0 | Contributions |
| P501404 | MCG Reconciliation PDF | Reflects updated recordation tax premium and transportation impact tax revenue estimates. | 0 | |
| P500333 | Pedestrian Safety Program | FY21 funding switch between CR:General and GO Bond Premium ($650,000) . FY20 funding switch from Current Revenue to GO Bonds of $300,000 resulting in GO bond acceleration. | 0 | Current Revenue: General, G.O. Bonds, Recordation Tax Premium (MCG) |
| P711502 | Library Refurbishment Level of Effort | Funding switch to replace GO bonds with Recordation Tax Premium for Maggie Nightingale Library costs | 0 | G.O. Bonds, Recordation Tax Premium (MCG) |
| P768047 | HOC MPDU/Property Acquisition Fund | Outstanding balance as of June 30, 2020 updated | 0 | Revolving Fund: G.O. Bonds |

### Prior Approved CIP Amendments

| | | | | |
|---|---|---|---|---|
| P471200 | 2nd District Police Station | Reflects approved $900,000 in savings for the FY21 savings plan. | 0 | G.O. Bonds |
| P501420 | Elmhirst Parkway Bridge (Bridge No. M-0353) | Reflects approved prior year savings ($110,000) for the FY21 savings plan. | 0 | G.O. Bonds |
| P500929 | Bethesda Metro Station South Entrance | Reflects updated schedule in the approved savings plan. | 29,374 | G.O. Bonds |
| P500821 | Ride On Bus Fleet | Schedule reflects fleet replacement delays from the approved savings plan. | 0 | Current Revenue: Mass Transit, Federal Aid, Short-Term Financing, State Aid |
| P509975 | Silver Spring Green Trail | Reflects schedule change from the approved savings plan. | 193 | G.O. Bonds |
| P500338 | Highway Noise Abatement | Reflects approved savings plan (-$51,000). | 0 | G.O. Bonds |
| P801801 | Gude Landfill Remediation | Technical adjustment replaced Current Revenue needed for the Transfer Station Fire Suppression project with Revenue Bonds. | 0 | Current Revenue: Solid Waste Disposal, Revenue Bonds |
| P802101 | Transfer Station Fire Detection and Suppression System | Previously approved new project to address urgent safety concerns. | 6,000 | Current Revenue: Solid Waste Disposal |
| P602103 | Emergency Homeless Shelter | Prior approved FY21 supplemental. | 1,000 | G.O. Bonds |
| P361202 | Wheaton Library and Community Recreation Center | Reflects approved $1,000,000 in savings from the FY21 Savings Plan. | 0 | G.O. Bonds, PAYGO, State Aid |
| P651641 | Shady Grove Transportation Depot Replacement | Approved prior year savings ($2,425,000) used to fund the approved South Lake ES and HVAC supplementals. | 0 | Current Revenue: General, G.O. Bonds |
| P651515 | Blair G. Ewing Center Relocation | Approved prior year savings ($1,247,796) used to fund the approved South Lake ES and HVAC supplementals. | 0 | G.O. Bonds |
| P651713 | Clarksburg Cluster ES (Clarksburg Village Site #2) | Approved prior year savings ($3,183,970) used to fund the approved South Lake ES and HVAC supplementals. | 0 | G.O. Bonds, Schools Impact Tax |
| P116505 | Clarksburg HS Addition | Approved prior year savings ($1,215,562) used to fund the approved South Lake ES and HVAC supplementals. | 0 | G.O. Bonds |
| P651507 | Judith Resnik ES Addition | Approved prior year savings ($871,000) used to fund the approved South Lake ES and HVAC supplementals. | 0 | G.O. Bonds |

# FY 21-26 Biennial Recommended CIP
## January Budget Amendments Summary ($000s)
15-Jan-21

| Project # | Project Name | Explanation of Adjustment | FY21-26 Change ($000s) | Funding Sources |
|---|---|---|---|---|
| P651505 | Kensington-Parkwood ES Addition | Approved prior year savings ($98,757) used to fund the approved South Lake ES and HVAC supplementals. | 0 | G.O. Bonds |
| P651502 | S. Christa McAuliffe ES Addition | Approved prior year savings ($732,000) used to fund the approved South Lake ES and HVAC supplementals. | 0 | G.O. Bonds |
| P998711 | Energy Conservation - Non-Local Parks | FY21 reduction was part of the approved FY21 Savings Plan. | (10) | G.O. Bonds |
| P998763 | Minor New Construction - Non-Local Parks | FY21 reduction was part of the approved FY21 Savings Plan. | (80) | G.O. Bonds, State Aid |
| P871745 | Ovid Hazen Wells Recreational Park | Approved project delay was part of the FY21 Savings Plan. | 0 | G.O. Bonds |
| P968755 | Planned Lifecycle Asset Replacement: NL Parks | FY21 reduction was part of the approved FY21 Savings Plan. | (383) | Current Revenue: General, G.O. Bonds |
| P888754 | Trails: Hard Surface Renovation | FY21 reduction was part of the approved FY21 Savings Plan. | (55) | G.O. Bonds, Program Open Space |

MCPB
Item No. 3
Date: 11-17-11

# Planning Board Tour: Purple Line/Capital Crescent Trail (replacing the Georgetown Branch Trail)

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Completed: 11/09/11

## Description

The Planning Board has been asked to make recommendations to the County Council on several items related to the Capital Crescent Trail. Staff from coordinating agencies will be in attendance, including the Planning Department, Department of Parks, Department of Transportation (MCDOT), and the Maryland Transit Administration (MTA).

## Summary

We recommend transmitting the following comments to the Montgomery County Council:

Lighting

1. Provide continuous lighting on the Capital Crescent Trail between Bethesda and Silver Spring to the Illuminating Engineering Society of North America (IESNA) standard for vertical illuminance and provide maximum protection for undesirable spillover.

Tunnel

2. It appears that more design work is needed before a recommendation can be made with confidence on whether to construct the Capital Crescent Trail in the tunnel.
   a. Should further engineering investigation reveal a much lower cost or risk differential or should a mechanism present itself to provide the funds to reduce the public outlay and/or risk to the Apex Building, constructing the trail may yet be found to be feasible.
   b. We recommend that MTA brief the County Council in six months time with updated cost estimates and risk comparisons so that this decision can be made with greater assurance.
   c. If the cost differential remains, the County Council should determine the tunnel route to be financially infeasible and concentrate more effort on building the planned surface trail to accommodate the volume and variety of user groups.
3. Create a CIP project for the Capital Crescent Trail. The CIP project should provide funds to:
   a. Evaluate MTA engineering drawings for the trail.
   b. Construct the trail in conjunction with the Purple Line.

Emergency Call Boxes

4. Emergency call boxes should be included in the design of the Capital Crescent Trail. Emergency call boxes should be located as follows:
    a. Where there is no access to other assistance, such as long stretches between access points.
    b. Where cell phone coverage is spotty, such as in tunnels.
    c. For other reasons as deemed necessary.
5. Emergency call box locations should be selected in consultation with the Montgomery County Police Department and the Maryland-National Capital Park Police, Montgomery County Division.

Rock Creek Trail

6. Continue to include the master-planned switchback connection to the Rock Creek Trail on the east side of the creek in the design of the Capital Crescent Trail.

Landscaping / Hardscaping

7. Include additional landscaping and hardscaping in the design of the Capital Crescent Trail. Landscaping and hardscaping (including benches and trash cans) should be provided along the community side of the trail, with enhanced landscaping at stations.
    a. The plant materials that are selected should establish an acceptable aesthetic character for trail users when the trail is constructed and should replace the existing tree canopy in the future.
    b. The landscaping plan should be consistent with CPTED principles so that appropriate materials are used, for instance so they do not block trail lighting or grow to interfere with trail lighting.
    c. Provide hardscaping that is consistent with a park-like experience.
    d. Provide benches with uneven, non-level seating.

A Better Surface Alignment for the Capital Crescent Trail between Elm Street Park and Woodmont Ave

If the tunnel route is not financially feasible, the surface route becomes much more important. The following steps should be taken to provide a premier surface route through Bethesda. Even if a way is found to retain the trail in the tunnel, a similar approach should be used to assure that local access to the trail is provided in the best possible way.

8. Implement a bold redesign of the area surrounding the Capital Crescent Trail surface alignment.
9. Convene an agency working group with the mandate to develop a design and circulation concept that prioritizes the trail along the surface alignment.
10. The working group will be composed of representatives from MCDOT, State Highway Administration (SHA), Department of Parks, Town of Chevy Chase and the Planning Department.
11. The priorities of the working group will include:
    a. Providing an off-road path that is wide enough to accommodate anticipated demand (12 ft is recommended).
    b. Creating a continuous trail experience from Silver Spring to downtown Bethesda that extends the lighting, landscaping, benches, and other amenities to the surface alignment.
    c. Prioritizing pedestrians and cyclists crossing Wisconsin Ave to ensure a safe and convenient crossing, even if travel time for motorists must increase.

d. Separating trail users from non-trail users in areas where a large number of non-trail users are likely to be present.
e. Minimizing the number of driveways that cross the trail.
f. Completing the surface alignment prior to completion of the Purple Line as part of the Bethesda Bikeway and Pedestrian Facilities CIP project.

12. The following treatments are the level of investment that we recommend as the starting point for the working group:
    a. Evaluate the design of the surface alignment through Elm Street Park to ensure that it will safely accommodate the anticipated heavy use, and to minimize negative impacts to park users and facilities.
    b. The working group should identify a preferred location for the path on 47th Street.
    c. At the intersection of 47th Street and Willow Lane create a four-way stop with a raised crosswalk due to the expected volumes of trail users.
    d. The working group will determine which side of the road to locate the trail on Willow Lane.
    e. Eliminate conflicts for pedestrians crossing Wisconsin Ave. This could be accomplished by:
        - Prohibiting left turns from Bethesda Ave to northbound Wisconsin Ave and prohibit right turns on red in the southbound direction to eliminate all conflicts between trail users and motor vehicles.
        - Providing a pedestrian only phase across Wisconsin Ave.
    f. Realign the crosswalk on the north leg of the Wisconsin Ave / Willow Lane intersection so that it connects directly to Willow Lane.
    g. On Bethesda Avenue:
        - Locate the trail on the north side of Bethesda Ave
        - Remove a row of parking on between Wisconsin Ave and Woodmont Ave as recommended in the sector plan.
        - Implement the following typical section on Bethesda Ave between the existing curbs: from north to south include a 12 ft trail, 2 ft buffer, two 11 ft traffic lanes, and an 8 ft row of parking.
        - Consolidate driveways to the extent possible.
13. The master-planned surface route should remain on the north side of Bethesda Avenue and any private development or public projects potentially affecting that route will be required or advised, respectively, that the Bethesda Avenue bike route needs to be accommodated until:
    a. A better surface alignment is identified.
    b. We have assurance from other parties involved – including SHA and MCDOT – that they concur with the new surface alignment and will ensure that a high-quality, safe route is feasible.
    c. The master plan is amended.

## Introduction

The Maryland Transit Administration (MTA) recently received permission from the Federal Transit Administration (FTA) to begin Preliminary Engineering for the Purple Line light rail project. During this phase, more detailed engineering of the Purple Line and the Capital Crescent Trail will be developed.

The current cost estimate for the trail is $93.9 million in 2011 dollars (not including lighting, emergency call boxes and additional landscaping/hardscaping). While the trail will be largely funded by the County, there will be negotiations with MTA to determine those costs that are the responsibility of the County and those that are the responsibility of the State. MTA may ultimately cover some portion of the $93.9 million, but those negotiations have not yet begun.

MTA is seeking guidance on whether to include five items in the design of the Capital Crescent Trail. They have prepared a white paper (Attachment A) discussing four of the items and their costs:

- Landscaping/hardscaping: $1.7 million
- Lighting: $7.3 million
- Emergency call boxes: $0.4 million
- Whether to construct the trail in the tunnel beneath Wisconsin Ave as currently planned: $40.5 million

The first three items represent a cost of approximately $9.4 million, which is in addition to the $93.9 million cost estimate. The fourth item, the portion of the trail that runs in a tunnel under the Apex Building, Wisconsin Ave, and the Air Rights Building in Bethesda and above the Purple Line, represents about 43% of the total trail cost because of the change in grade that will require complex engineering solutions.

A fifth item – the connection between the Capital Crescent Trail and the Rock Creek Trail – is not included in the white paper, but MTA has requested guidance on the type of connection to design. The $1.4 million cost of the master-planned connection is included in the cost estimate for the trail, but there are three other alternatives that could be considered in lieu of the master-planned connection.

## Background

The Capital Crescent Trail is an off-road multi-use trail that forms a crescent as it travels from Georgetown to Silver Spring via Bethesda in the Georgetown Branch right-of-way. Montgomery County purchased the right-of-way in 1988 between the DC Line and the CSX tracks just west of Silver Spring. M-NCPPC has jurisdiction over the portion between the DC Line and Bethesda and the Montgomery County Department of Transportation has jurisdiction over the portion between Bethesda and Silver Spring. In 1990, the National Park Service acquired the Georgetown Branch from Georgetown to the DC Line.

The Capital Crescent Trail is paved from Georgetown to Bethesda. The right-of-way from Bethesda to Silver Spring is currently called the Interim Georgetown Branch Trail and has a gravel surface. It will be paved in conjunction with the Purple Line project, currently estimated to start construction in 2015 and be completed in 2020, at which time this segment will take the Capital Crescent Trail name as well. This segment will be 12 ft wide with 2 ft unpaved shoulders on each side, to the extent feasible[1]. It will serve both a recreational and commuter function, as well as providing direct access to both the Purple Line and the Bethesda and Silver Spring metrorail stations.

[1] Per County Council direction

The Capital Crescent Trail is an important part of the countywide and regional trail and bikeway network and will connect to four other major trails, as shown in the map below.

- The Silver Spring Green Trail is in various stages of completion and will run between Spring Street and Sligo Creek Trail along Second Ave and Wayne Ave, connecting to the Capital Crescent Trail at the Paul Sarbanes Transit Center. Some portions will also be constructed with the Purple Line.
- The Metropolitan Branch Trail is in various stages of completion and will run from the Paul Sarbanes Transit Center to Union Station in DC.
- The Rock Creek Trail is a north-south trail that connects to the Capital Crescent Trail between Chevy Chase Lake and Lyttonsville.
- C&O Canal Towpath

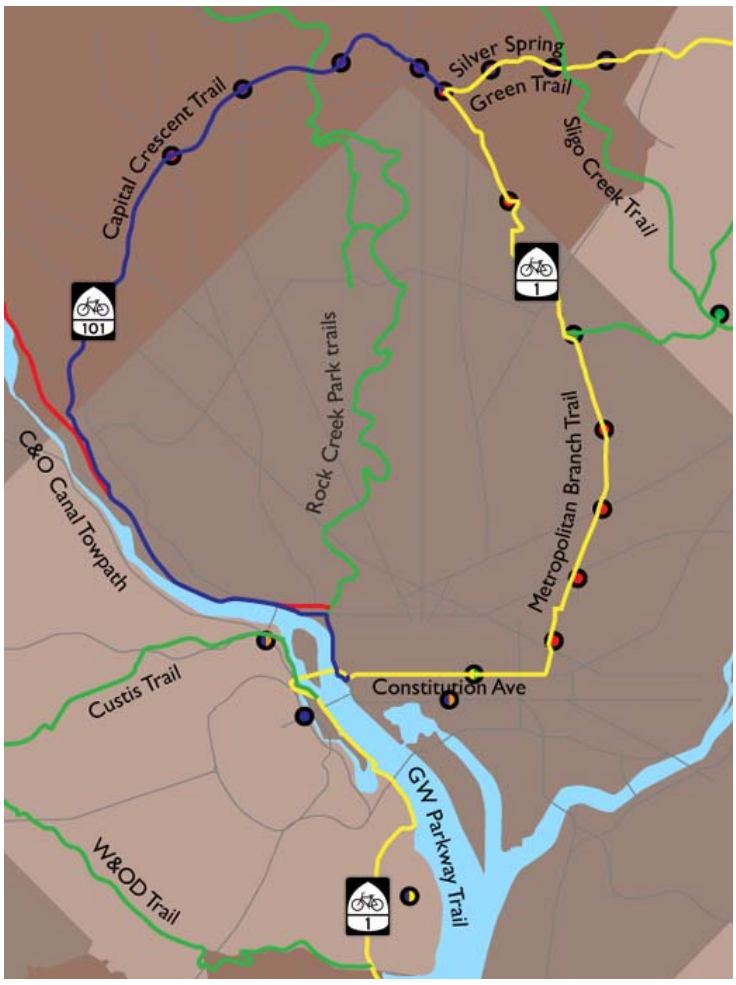



*Illustration of Regional Trails*[2]

[2] Note that the Rock Creek Trail in Montgomery County is distinct from the Rock Creek Park trails in Washington, DC. The Rock Creek Trail is an 18+ mile paved trail extending from Lake Needwood to the DC line.

Montgomery County has made several commitments to the Purple Line project:

- Georgetown Branch Right-of-Way: As noted above, the County purchased the right-of-way in 1988.
- Bethesda South Entrance: Provides a new south entrance to the Red Line metrorail station and the future Purple Line station on Elm Street west of Wisconsin Ave. The entrance would provide several elevators that connect Elm Street, the Purple Line station, and the Red Line station. This project is funded for $60 million in the CIP and constructed is expected to begin in FY 2013 (see Attachment B).
- Maintenance responsibility for bridges, structures, walls, pavement, and landscaping associated with the Capital Crescent Trail.

**Planning Board Tour of the Capital Crescent Trail**

On November 3, 2011, the Montgomery County Planning Board toured two segments of the Capital Crescent Trail. This included the surface and tunnel alignments of the trail in Bethesda and the connection to the Rock Creek Trail. A summary of the tour notes is provided in Attachment C.

**Overview**

The table below indicates the relative importance that staff has assigned to each of the five items, as well as the different aspects of the trail experience that each item affects. Lighting received the highest rank because it promotes physical safety and personal security throughout the entire 4.5 mile length of the trail, while enabling the trail to be used as a commuter/transportation route during hours of darkness. While the tunnel is an important part of the trail in Bethesda, it has less importance to trail users east of Bethesda, and so was ranked second. Emergency call boxes also provide an important role in creating a secure environment, though to a lesser extent than lighting. Both the Rock Creek Trail connection and landscaping/hardscaping are important to the trail, but should be secondary to lighting, the trail in the Bethesda tunnel, and emergency call boxes. In both instances their implementation could be delayed if necessary.

| Item | Lighting | Trail in the Bethesda Tunnel | Emergency Call Boxes | Rock Creek Trail Connection | Landscaping / Hardscaping |
|---|---|---|---|---|---|
| Staff Ranking | 1 | 2 | 3 | 4 | 5 |
| Area of Trail Impacted | Entire trail | Bethesda | Entire trail | Rock Creek Park | Entire trail |
| Physical Safety | X | X | | | |
| Personal Security | X | | X | | |
| Travel Time | | X | | X | |
| Aesthetics | X | X | | X | X |
| Transportation Use | X | X | X | X | |
| Recreation Use | | X | X | X | X |

Note: the costs for lighting, emergency call boxes, and enhanced landscaping/hardscaping have not been included in the $93.9 million cost estimate for the trail.

**Lighting**

Lighting is not included in the existing cost estimate for the Capital Crescent Trail, but is integral to creating a safe and secure environment for trail users. Since the trail will provide local access to the Purple Line, it will serve a transportation function for commuters and others. Therefore, it is important that the trail be well lit during the Purple Line's hours of operation, which are assumed to be one hour before and one hour after the Washington Metropolitan Area Transit Authority's (WMATA) hours of operation[3].

The Illuminating Engineering Society of North America's (IESNA) RP-8-00 Roadway Lighting publication is the current standard that most state departments of transportation (DOTs) and other municipalities adopt in either portion or entirety for their own lighting standards. This publication recommends that three criteria be satisfied when completing the lighting design for a shared walkway/bikeway:

- Average Horizontal Illuminance: This criterion measures how well users are able to see the path ahead of them to detect potholes, debris, puddles, etc, and therefore is an indication of physical safety. It measures the average light levels reaching all points on the surface of the trail.

- Minimum Vertical Illuminance: This criterion measures the ability to detect facial features and to see the front and backs of trail users. It is an indication of personal security.

- Uniformity Ratio: This criterion measures the consistency of the lighting and therefore applies to both physical safety and personal security. A lower uniformity ratio is preferable because it indicates a more consistent level of lighting. A higher uniformity ratio could mean that there are lighter and darker spots along the trail.

According to the white paper, MCDOTs current practice is to light all trails within the public right-of-way that expect significant use during darkness. MCDOTs practice adheres to the IESNA standard for horizontal illuminance and uniformity ratio, but does not use the vertical illuminance standard. This is consistent with the lighting practices of other DOTs. While current practice might be sufficient for other trails, the Capital Crescent Trail will be different than a typical off-road trail because it will serve a local access function to communities and to the Red Line and Purple Line stations at night. Applying the vertical illuminance standard to the Capital Crescent Trail is important part of providing security on the trail.

Providing lighting to the vertical illuminance standard requires a closer spacing of light poles. Whereas current Montgomery County practice would space the poles 65 to 70 ft apart and have a capital cost of about $3.1 million, satisfying the IESNA standard would require pole spacing from 30 ft to 50 ft and would have a capital cost of about $7.3 million. Either of these options would add that cost to the $93.9 million estimated cost for the Capital Crescent Trail. We do not have an estimate of the annual operating costs for a lighting system.

A concern of residents whose homes back up to the trail is that lighting will spill over into their homes. According to MTA's consultants, recommending closer pole spacing does not have to increase the amount of light that spills over if the lighting is designed appropriately. In fact, this spill over can be

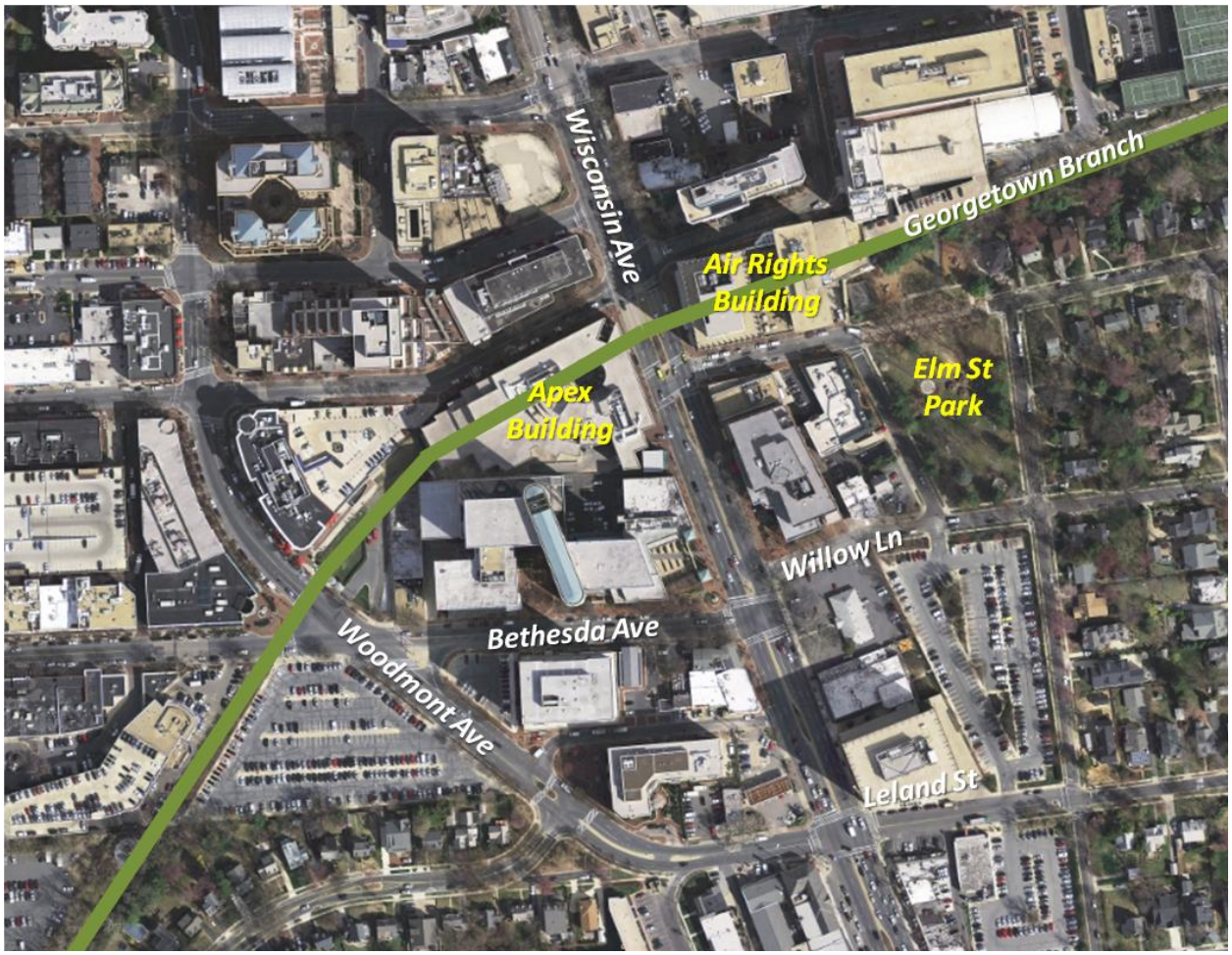
[3] The County has not made a formal decision on operating hours. WMATA opens at 5:00 am Monday to Friday and 7:00 am on Saturday and Sunday. It closes at midnight Sunday to Thursday and 3:00 am on Friday and Saturday night.

eliminated by installing fixtures that prevent the light from rising above the level of the fixture and from extending beyond the desired area.

**We recommend providing continuous lighting on the Capital Crescent Trail between Bethesda and Silver Spring to the Illuminating Engineering Society of North America (IESNA) standard for vertical illuminance and provide maximum protection for undesirable spillover.** This standard of lighting is somewhat higher than the MCDOT practice for trails but is warranted because safe and secure local access is needed to the Red Line and the Purple Line and to function as a commuter trail during hours of darkness.

**Tunnel**

Under the planned scenario, the Capital Crescent Trail would run in a tunnel in the Georgetown Branch right-of-way under the Apex Building, Wisconsin Ave, and the Air Rights Building in Bethesda and above the Purple Line, as shown in the figure below. Thirty-five existing columns supporting the Apex Building would need to be reconstructed or strengthened and 3 bracing grade beams would need to be relocated/reconfigured along Elm Street. Temporary supports for the Apex Building would need to be constructed to allow the work to take place.




The cost to construct the trail in the tunnel is about $40.5 million, or 43% of the total cost of the trail, even though it represents only about 4% of its length. The cost and concerns about risk associated with construction have caused some stakeholders to question whether both the Purple Line and the trail should be built in the tunnel or whether only the Purple Line should be built in the tunnel.

Master Plan Guidance

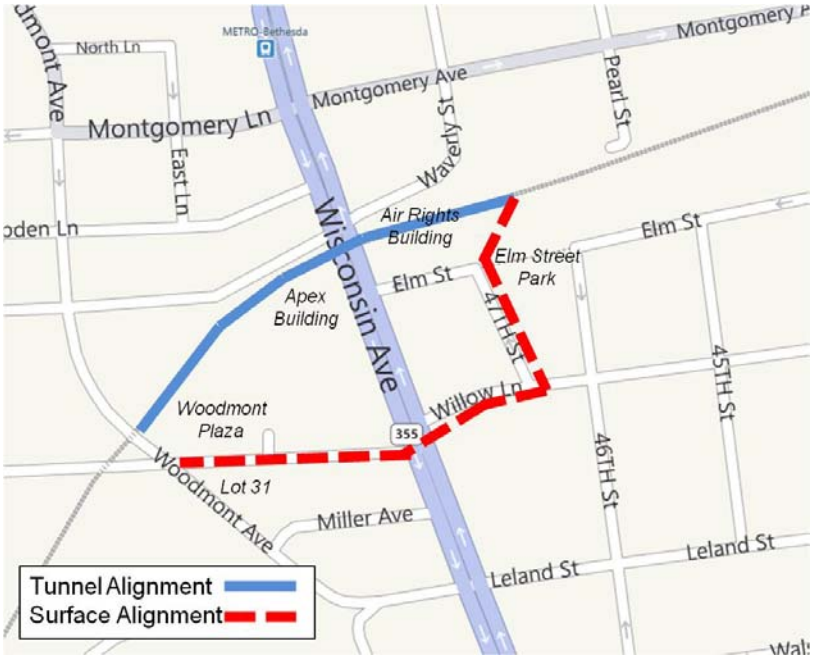
Several master plans have provided guidance on the Capital Crescent Trail:

The **Georgetown Branch Master Plan Amendment (1990)** recommended that the Georgetown Branch right-of-way include a predominately single track trolley route and a 10 ft hiker/biker path. Four segments of the right-of-way were to be double tracked, one of which was the tunnel under Wisconsin Ave.

The **1994 Bethesda CBD Sector Plan** (page 147) recommended that the Georgetown Branch consist of "a light rail transit line and a recreational trail between the Central Business Districts of Bethesda and Silver Spring." The Capital Crescent Trail was recommended to be 10 ft wide and to include two permanent alignments in downtown Bethesda, shown in the map below.

- The "tunnel alignment," shown as a solid blue line, starts at Woodmont Plaza and travels east beneath the Apex Building, Wisconsin Avenue, and the Air Rights Building before emerging at Elm Street Park. The tunnel alignment would be constructed in conjunction with the Purple Line. The tunnel alignment provides an efficient connection to downtown Bethesda and to the existing trail between Bethesda and Georgetown, as it avoids an at-grade crossing at Wisconsin Avenue.
- The "surface alignment," shown as a dashed red line, also starts at Woodmont Plaza, travels east on the north side of Bethesda Avenue, crosses Wisconsin Avenue at a signalized intersection, continues onto Willow Lane, and then heads north through Elm Street Park. Completion of the surface alignment is included in the County's Capital Improvement Program (CIP) as the Bethesda Bikeway and Pedestrian Facilities project (see Attachment D). This project is on hold for the construction of the Lot 31 joint development/mixed use project, at the southeast corner of the Woodmont Ave/Bethesda Ave intersection, and is scheduled to begin no earlier than FY 2013.

On page 156, the Sector Plan recognized that the space in the tunnel is restricted, and states that: "The tunnel area for the CCT may be greatly reduced or perhaps eliminated if double tracks for the trolley are needed there. In the event that the CCT does not run through the tunnel, the CCT will follow only a street route."




*Location of Capital Crescent Trail*
*"Tunnel Alignment" and "Surface Alignment"*

The **Purple Line Functional Master Plan (2010)** recommended extending the dual track light rail systems to the Prince George's County line. It also recommended a width on the Capital Crescent Trail of 12 ft

with 2 ft shoulders on either side, to the extent feasible. The trail would be elevated above the Purple Line in the tunnel.

Analysis

The tunnel and surface alignments are compared below in three ways: user experience, cost, and risk.

*User Experience*

The tunnel and surface alignments do not provide equivalent experiences or accommodate the same user groups equally.

- Tunnel Alignment: The tunnel alignment travels beneath Wisconsin Ave, avoiding crossing a busy intersection and providing an uninterrupted route to/from downtown Bethesda. This would permit all types of users (pedestrians, cyclists, skaters, joggers, etc) and all levels of bicycling ability to use the trail. It also reduces travel time, especially for pedestrians. This alignment largely avoids conflicts between trail users and non-trail users.
- Surface Alignment: The surface alignment traverses a park, travels along segments of two streets, and requires users to cross a busy signalized intersection at grade, as well as several driveways. The trail would be designed to accommodate pedestrians and most cyclists. Because the surface alignment provides a less direct path to downtown Bethesda and it crosses at a signal, travel time is greater, especially for pedestrians. Many users could be deterred from using the surface alignment, especially parents riding a bike with young children, though they still may use other sections. There are also likely to be conflicts between trail users and non-trail users on busy sidewalks if the trail is not designed appropriately.

The table below summarizes the differences between the surface and tunnel alignments based on user experience.

| **Measure** | **Tunnel Alignment** | **Surface Alignment** |
|---|---|---|
| Conflicts with Wisconsin Ave Traffic | None | At a signalized intersection |
| Directness of Route to Woodmont Plaza | Excellent | Good |
| Bicyclists Not Accommodated | None | Most cycling families with young children |
| Conflicts with Non-Trail Users | Low | High |

*Cost*

According to MTA's white paper, the cost of constructing the Capital Crescent Trail in the tunnel above the Purple Line is $40.5 million more than "simply placing the Purple Line within the Georgetown Branch right-of-way." While we accept the cost estimates for constructing both the Purple Line and the Capital Crescent Trail in the tunnel, we have questions about the $40.5 million cost differential because the designs for only constructing the Purple Line in the tunnel have not been developed to the same level as constructing both the Purple Line and the Capital Crescent Trail in the tunnel. We see two main areas of concern:

- First, as currently planned, the Capital Crescent Trail transitions from the north side of the tracks to above the tracks at the Air Rights Building, just before it enters the tunnel and there is a ramp connection to Elm Street Park in the tunnel.

  If the trail is not constructed in the tunnel, the trail will transition from the north side of the tracks near Pearl Street to the south side of the tracks at Elm Street Park and then follow the surface alignment. It is unclear though, whether the elevation of the Purple Line will be higher than currently planned under the Air Rights Building. While MTA has confirmed that there would be sufficient clearance under the Air Rights Building to fit the trail, it is unclear what the size and cost of the structure to carry the trail over the Purple Line would be.
- Second, if the design of only the Purple Line in the tunnel has not been fully developed, it is unclear how MTA can definitively state whether or not any of the columns or beams in the tunnel would have to be reconstructed/reconfigured. If there are impacts to the columns or beams, this would increase the cost of the Purple Line and should be subtracted from the cost of the trail in the tunnel.

In addition, to estimate the cost difference between the Purple Line and the trail in the tunnel and the Purple Line only in the tunnel it is necessary to also include the costs for a surface alignment trail. If the Purple Line and trail are both constructed in the tunnel, we assumed that the surface alignment cost would be the amount programmed in the CIP, roughly $1.0 million. If the Purple Line is in the tunnel alone, then the funds programmed for the surface alignment would likely be insufficient to accommodate the volume of users, different types of use, and differing levels of ability that could be expected. We are unable to estimate the cost to enhance the surface alignment, but it could be substantial.

In short, the following table provides a cost comparison for the two scenarios. While the Purple Line and Trail in the tunnel would cost about $95.0 million, using MTA's cost estimates and information from the CIP, the Purple Line Only in the tunnel would cost $54.5 million at a minimum. This represents a differential for the trail in the tunnel of as much as $40.5 million, but it could be reduced.

| | **Purple Line and Trail in Tunnel** | **Purple Line Only in Tunnel** |
|---|---|---|
| | | |
| **Trail from Silver Spring to Air Rights Building** | **$53.5** | **$53.5** |
| | | |
| **Trail from Air Rights Building to Woodmont Plaza via Tunnel** | | |
| -- Tunnel under Apex Building | $27.0 | ≥ $0.0 |
| -- Tunnel under MD 355 and Air Rights Building | $13.5 | ≥ $0.0 |
| **Total Tunnel Alignment** | **$40.5** | **≥ $0.0** |
| | | |
| **Total Surface Alignment** | **$1.0** | **≥ $1.0** |
| | | |
| **Total** | **$95.0** | **≥ $54.5** |
| | | |
| **Difference** | | **≤ $40.5** |

*Risk*

While there is a risk to constructing the Purple Line and Capital Crescent Trail in the tunnel, the level of risk if only the Purple Line is constructed in the tunnel is unclear.

*Conclusion*

In summary, staff finds that:

- Constructing just the Purple Line in the tunnel reduces the cost of the trail by as much as $40.5 million. The difference in cost could be less if:
    - The size of the structures that takes the trail over the tracks, from the north side to the south side of the tracks, needs to increase because the trail elevation is increased.
    - The columns and beams in the tunnel need to be reconstructed/reconfigured in a scenario with only the Purple Line in the tunnel.
    - Enhancements to the surface trail are needed beyond those funded in the CIP.
    - Other issues are identified.
- The added risk associated with constructing the trail above the Purple Line in the tunnel is undetermined.
- Whereas the tunnel alignment would accommodate all cyclists, the surface alignment would not accommodate most families cycling with young children.
- Using the surface alignment increases conflicts with motor vehicles and non-trail users, and increases travel time in comparison to the tunnel alignment.

The question is therefore whether the additional cost and risks to the Apex Building are warranted by the additional users that will be able to use the trail, reduced conflicts, and reduced travel time. Staff believes that the benefits of constructing the trail in the tunnel do not justify an additional cost of $40.5 million and the risk to the Apex Building. However, we do not believe that the level of analysis conducted for a scenario in which only the Purple Line is constructed in the tunnel has been developed to the same level as the Purple Line with the Trail in the tunnel. More design work is needed before a recommendation can be made with confidence on this issue at this time.

Comparison to Medical Center Pedestrian Tunnel

Comparisons might be made to the MD 355 Crossing project. This project will construct both deep elevators on the east side of Rockville Pike to the Medical Center Metro Station and a shallow tunnel beneath Rockville Pike that enables pedestrians to avoid an at-grade crossing. The Department of Defense agreed to fund the project on November 1, 2011 as part of the transportation response to the Base Realignment and Closure Act (BRAC) move of Walter Reed Army Medical Center to the National Naval Medical Center campus. During the alternative analysis for the project, the shallow tunnel component was estimated to cost $28.0 million. While this component of the project was estimated to remove about 5,000 pedestrian crossings of Rockville Pike during the average weekday if constructed alone, it will likely experience far fewer pedestrian crossings when constructed with the deep elevators. Staff estimated that it would experience about 1,100 uses per weekday, or roughly 7,000 per week. This equates to $4,000 per weekly use.

The Capital Crescent Trail in the tunnel is estimated to cost about $40.5 million. In 2006, the Coalition for the Capital Crescent Trail conducted a count of trail users. They estimated about 10,100 weekly uses where the trail passes by Elm Street Park and 23,000 weekly uses just south of the Bethesda Trailhead

located near the intersection of Woodmont Ave and Bethesda Ave. When the Purple Line is complete and the trail is paved, it is likely that the weekly uses where the trail passes by Elm Street Park will approach those of the Bethesda Trailhead. Conservatively, this could probably be expected to grow to 15,000 uses per week when the Purple Line and trail are complete, and perhaps 20,000 by 2030. This equates to $2,025 per weekly use.

While the Capital Crescent Trail would be less expensive per use than the Medical Center pedestrian tunnel, the Medical Center pedestrian tunnel will be 100% federally funded in support of a unique and exclusively federal mission. In addition, the trail project still carries the added risk of potential damage to the Apex Building.

Therefore, while the trail is justified by usage, the fact that it carries additional risks and that it will be largely funded by the County makes this comparison informative but difficult to apply directly.

Recommendation

**While carrying the trail through the tunnel is recommended by the Master Plan and is a high County priority, current estimates indicate that the differential in cost and uncertainty about risks to the Apex Building between the trail plus the Purple Line and the Purple Line alone in the tunnel are too great to justify the public expense. However, it appears that more design work is needed – both on the Purple Line alone in the tunnel and on a revised trail connection to Elm Street Park – before a recommendation can be made with confidence on this issue. Should further engineering investigation reveal a much lower cost or risk differential or should a mechanism present itself to provide the funds to reduce the public outlay and/or risk to the Apex Building, constructing the trail may yet be found to be feasible. We recommend that MTA brief the County Council in six months time with updated cost estimates and risk comparisons so that this decision can be made with greater assurance. If the cost differential remains, the County Council should determine the tunnel route to be financially infeasible and concentrate more effort on building the planned surface trail to accommodate the volume and variety of user groups.**

The Montgomery County Capital Improvements Program (CIP) does not have a project for the Capital Crescent Trail. **We therefore recommend creating a CIP project for the Capital Crescent Trail. The CIP project should provide funds to:**

- **Evaluate MTA engineering drawings for the trail.**
- **Construct the trail in conjunction with the Purple Line.**

**Emergency Call Boxes**

According to MTA, "emergency call boxes are a successful way to create a safe environment" on trails. However, the experience of the Maryland-National Capital Park Police, Montgomery County Division and the DC Department of Transportation (DDOT) indicates that few calls made on the system are for emergencies. Of 369 Montgomery County calls placed at call boxes in Rock Creek Park and the Matthew Henson Trail, only one appears to have been for an emergency. DDOT did not report statistics but said that in consultation with other jurisdictions, they found that call boxes are often used for non-emergency or crank calls more often than for emergencies. For this reason and because the majority of trail users carry cell phones, DDOT decided not to install call boxes on the Metropolitan Branch Trail between Union Station and Catholic University, which opened in 2010. In addition, they stated that cell phones provide a better service because they can be used at any location, whereas call boxes would be spaced at fixed intervals.

MTA estimated the cost of installing 25 call boxes on the Capital Crescent Trail at ¼ mile intervals and at key locations such as stairways and tunnels to cost about $400,000. This cost is in addition to the $93.9 million estimated cost for the Capital Crescent Trail.

**We recommend that emergency call boxes be included in the design of the Capital Crescent Trail.** Our recommendation is based on the following reasons:

- Not everyone owns a cell phone. A recent survey[4] found this to be the case for 15% of adults. While this number is likely to decrease in the future, many cell phone owners do not carry their cell phone when they run or ride a bike.
- Call boxes inform the police where a call is being made, whereas cell phone users may not be able to pinpoint their location for police until GPS technologies become ubiquitous.
- Call boxes can provide a deterrent to crime.

**Emergency call boxes should be located as follows:**

- **Where there is no access to other assistance, such as long stretches between access points.**
- **Where cell phone coverage is spotty, such as in tunnels.**
- **For other reasons as deemed necessary.**

**These locations should be selected in consultation with the Montgomery County Police Department and the Maryland-National Capital Park Police, Montgomery County Division.**

[4] A closer look at generations and cell phone ownership, Pew Research Center's Internet & American Life Project, February 3, 2011.

**Rock Creek Trail**

Since the final elevation of the Capital Crescent Trail will be about 36 to 42 ft above the Rock Creek Trail after the Purple Line and CCT are built, MTA is investigating four potential options to connect them. The type of connection is important, because it could impact the trail user experience, extend the travel time (especially for pedestrians), and have impacts on the Georgetown Branch right-of-way, the creek, the park, and the residential neighborhood. The four connections are described below and illustrated in Attachment E. MTA was not able to provide cost information on three of the potential connections.

#1 Susanna Lane & #3 Grubb Road: A connection via Susanna Lane currently exists through a residential neighborhood, but there are no existing sidewalks and all cyclists and pedestrians currently share the road with motorized traffic. The connection requires an 1868 ft (0.35 mile) deviation from the trails. If this option is selected as a preferred connection, it would require a 990 ft shared use path (8 to 10 ft wide) or sidewalk (minimum 5 ft wide) to separate pedestrians from motor vehicles.

A connection via Grubb Road currently exists, but requires a 1634 ft (0.31 mile) deviation from the trails through a residential neighborhood. Sidewalks are available, but they are not ADA compliant. Making this a permanent connection would require about 1250 ft of shared use path (8 to 10 ft wide) or at a minimum a 5 ft sidewalk along Terrace Drive and Freyman Drive.

These connections should be constructed as a pair, since doing only one or the other causes longer travel distances and inconvenience for either eastbound CCT users wanting to travel north on Rock Creek Trail or westbound CCT users wanting to travel south on Rock Creek Trail (see Attachment F).

#2 Master-Planned Switchback: Current County policy in the approved Purple Line Functional Master Plan (2010) is to construct a switchback trail within the Georgetown Branch ROW on the east side of Rock Creek between the Capital Crescent Trail and the Rock Creek Trail. The Facility Plan for Capital Crescent and Metropolitan Branch Trails (2001) also includes this switchback. Drawings for the Locally Preferred Alternative (LPA) show the switchback on the south side of the Purple Line, but MTA is considering shifting the switchback to the north side of the Purple Line.

The switchback would need to be about 797 ft (0.15 miles) long to meet grade requirements for ADA accessibility and would require extensive retaining walls. It is not clear how extensive the impacts associated with the switchback would be. If the limit of disturbance (LOD) for the Purple Line overlaps the switchback, the additional impacts associated with the trail could be limited. The estimated $1.4 million cost of the switchback is included in MTA's estimates.

#4 Jones Mill Road Switchback Extension: MTA recently developed a fourth alternative that starts at the Jones Mill Road switchback and extends east along the Georgetown Branch, about 950 ft (0.18 miles) in length. It includes a new bridge across Rock Creek and a 740 ft shared use path. The cost of the connection would be high, due to retaining walls and the new bridge.

Analysis

Attachment G is a matrix for evaluating the Purple Line/Capital Crescent Trail Connector Options to Rock Creek Trail that was developed by the Parks Department using information provided by MTA and their own analysis. The Master-Planned Switchback connection and the Jones Mill Road Switchback Extension provide the most direct connection between trails, are the most suitable for bicyclists, and provide the highest convenience for pedestrians and persons with disabilities, but are also likely to have the highest cost.

The impacts to Rock Creek Park and the Georgetown Branch right-of-way are likely to be limited with the Susanna Lane and Grubb Road connections, but we are unable to determine the impacts due to the Switchback connection and the Jones Mill Road Switchback Extension, since this depends on the limit of disturbance (LOD) of the Purple Line, which has not yet been determined. If the LOD is significant, it could extend beyond the Switchback connection and the Jones Mill Road Switchback Extension, limiting the impact of these two options. However, the new bridge over Rock Creek in the Jones Mill Road Extension option would have significant impacts to the creek. Overall, the matrix gives the highest ranking to the Master-Planned Switchback connection.

**We recommend continuing to include the master-planned switchback connection to the Rock Creek Trail on the east side of the creek in the design of the Capital Crescent Trail** This connection is existing County policy and provides the most direct link between the two trails. There is no basis at this time to change County policy. If it is determined that the cost of the trail needs to be reduced, this connection could be constructed at a later time, although delay would likely increase the impacts to the stream and the park and the costs would be greater. Under this scenario, the two existing connections would serve as an interim connection – without improvements – much as they are today. While we are not asking the Planning Board to make a recommendation on the preferred connection, the Department of Parks believes that it is better to impact the stream valley and parkland (and disrupt trail users) only once, not twice.

**Landscaping / Hardscaping**

The existing Capital Crescent Trail cost estimate includes landscaping and hardscaping (benches) in the area between the Purple Line and the Capital Crescent Trail. It does not include landscaping or benches between the trail and the adjacent community or enhanced landscaping at stations.

MTA estimates that it would cost about $1.7 million to provide additional landscaping and hardscaping:

- $1.2 million for landscaping along the outside edge of the Capital Crescent Trail adjacent to the community.
- $0.4 million for landscaping at key locations such as trail connections and in the vicinity of stations.
- $0.1 million for 40 six-foot benches.

These costs are in addition to the $93.9 million estimated for the Capital Crescent Trail.

According to MTA, plants would be native or adapted to the trail and be implemented to minimize maintenance. The cost estimate includes 2.5" cal. shade trees, 8 ft ornamental trees, and 6 ft evergreen trees and shrubs.

**We recommend that additional landscaping and hardscaping be included in the design of the Capital Crescent Trail. Landscaping and hardscaping (including benches and trash cans) should be provided along the community side of the trail, with enhanced landscaping at stations. The plant materials that are selected should establish an acceptable aesthetic character for trail users when the trail is constructed and should replace the existing tree canopy in the future. The landscaping plan should be reviewed for compliance to CPTED principles so that appropriate materials are used, for instance so they do not block trail lighting or grow to interfere with trail lighting. We also recommend providing hardscaping that is consistent with a park-like experience and benches with uneven, non-level seating. Benches should be sensitively located to avoid disturbance of nearby residents.**

If it is determined that the cost of the trail needs to be reduced, landscaping and hardscaping could be implemented at a later time.

**A Better Surface Alignment for the Capital Crescent Trail between Elm Street Park and Woodmont Ave**

If the Planning Board recommends only constructing the Purple Line in the tunnel, the surface alignment will become the only connection to downtown Bethesda. It therefore becomes critical that the surface alignment be designed to prioritize trail users, even if travel time for motorists must increase. **We recommend that the County implement a bold redesign of the area surrounding Capital Crescent Trail surface alignment, especially if the tunnel alignment is found infeasible. In either case, an agency working group should be convened with the mandate to develop a design and circulation concept that prioritizes the trail along the surface alignment. Some elements of the trail design may vary depending on whether the tunnel alignment is available. We recommend the working group be composed of representatives from MCDOT, State Highway Administration, Department of Parks, Department of Planning, and Town of Chevy Chase and report back to the Council within three months. The priorities should be to:**

- **Provide an off-road path that is wide enough to accommodate anticipated demand (12 ft is recommended).**
- **Create a continuous trail experience from Silver Spring to downtown Bethesda that extends the lighting, landscaping, benches, and other amenities to the surface alignment.**
- **Prioritize pedestrians and cyclists crossing Wisconsin Ave to ensure a safe and convenient crossing, even if travel time for motorists must increase.**
- **Separate trail users from non-trail users in areas where a large number of non-trail users are likely to be present.**
- **Minimize the number of driveways that cross the trail.**
- **Complete the surface alignment prior to completion of the Purple Line as part of the Bethesda Bikeway and Pedestrian Facilities CIP project.**

**The following treatments are the level of investment that we recommend to be the starting point for the working group:**

Elm Street Park: The surface alignment exits the Georgetown Branch right-of-way roughly in the middle of the park. A 10 ft trail is included in the planned redesign of Elm Street Park. However, if the trail in the tunnel is not constructed, more users can be expected on the surface alignment than is currently being planned for. **We recommend evaluating the design of the surface alignment through Elm Street Park to ensure that the trail is designed to safely accommodate the anticipated use, and to minimize negative impacts to park users and facilities.**

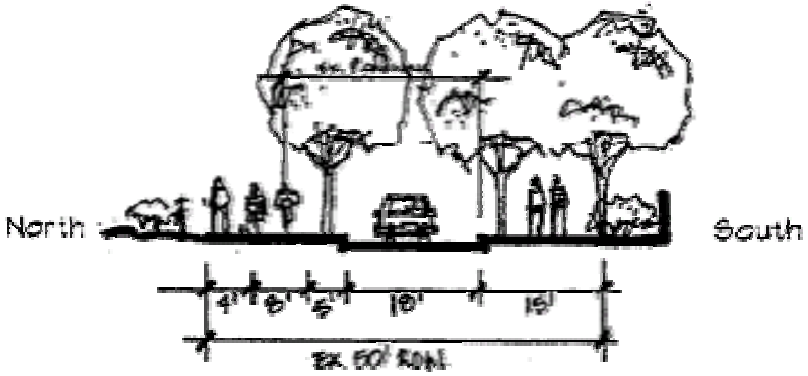
47th Street: This road is owned by the Town of Chevy Chase. There are several options for including a trail along 47th Street.

- Replace the sidewalk with a trail in the Town of Chevy Chase right-of-way parallel to Elm Street Park.
- Remove a row of parking along the east side of 47th Street and replace it with a trail.
- Route the trail through Elm Street Park.
- As proposed by MCDOT, bicycles travel along 47th Street in the northbound direction and on a contra flow bike lane in the southbound direction, and pedestrians travel along the existing sidewalk.

**We recommend the working group identify a preferred location for the path on 47th Street.**

Intersection of 47th Street and Willow Lane: This is currently an uncontrolled intersection within the Town of Chevy Chase. **We recommend that the intersection of 47th Street and Willow Lane become a four-way stop with a raised crosswalk due to the expected volumes of trail users.**

Willow Lane: The Bethesda CBD Sector Plan recommends an 8 ft surface alignment on the north side of Willow Lane adjacent to a 4 ft sidewalk and a 5 ft tree panel (see figure below). DOT is recommending a trail on the north side of Willow Lane because there would be fewer impacts to the Farm Women's Cooperative, utilities would not have to be relocated, and to accommodate trucks turning left onto northbound 47th Street. This would require the elimination of the row of parking on the south side of Willow Lane.




*Willow Avenue just east of Wisconsin Ave*
*Source: Bethesda CBD Sector Plan (1994)*

We believe that trail users would be better accommodated by locating the trail on the south side of Willow Lane. This would enable trail users to proceed directly across Wisconsin Ave. However, it would require expensive relocation of utilities and would impact the ability of trucks to turn onto northbound 47th Street as discussed above.

A third option could be to create a dedicated space for the trail separate from non-trail users by routing the trail through the Montgomery Farm Women's Cooperative's parking lot. This would require permission from the Cooperative, result in a loss of parking onsite, and need to be approved by the Historic Preservation Commission, however, the result would be a trail segment that is less subject to conflicts, with non-trail users and would provide a better alignment with the crosswalk on Wisconsin Ave.

**We recommend that an off-road trail be located on Willow Lane and that the working group determine which side of the road to locate the trail.**

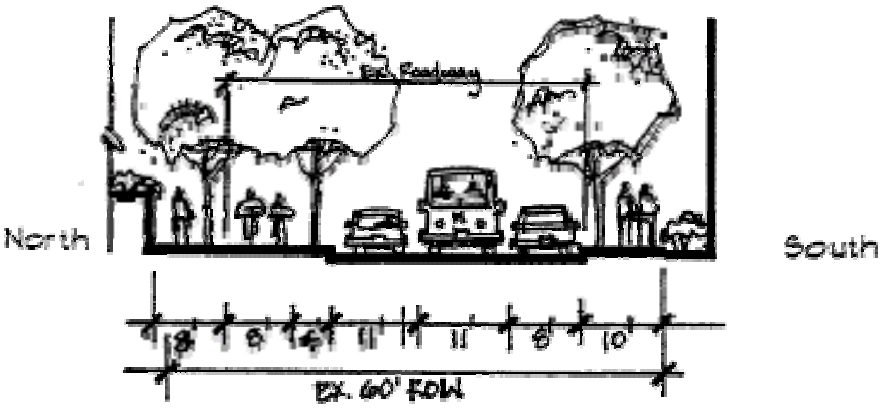
Intersection of Wisconsin Ave and Bethesda Ave: Crossing Wisconsin Ave is the greatest impediment to creating a viable surface alignment. Therefore, it is critical to prioritize pedestrians crossing Wisconsin Ave. **We recommend eliminating the conflicts for pedestrians crossing Wisconsin Ave by either:**

- Prohibiting left turns from Bethesda Ave to northbound Wisconsin Ave and prohibiting right turns on red in the southbound direction to eliminate all conflicts between trail users and motor vehicles
- Providing a pedestrian only phase.

Both of these modifications would likely require signal retiming along Wisconsin Ave.

**We also recommend realigning the crosswalk on the north leg of the Wisconsin Ave / Willow Lane intersection so that it connections directly to Willow Lane.** This will eliminate the need to provide a trail for a short segment along the east side of Wisconsin Ave in front of the Montgomery Farm Women's Cooperative.

Bethesda Ave: The Bethesda CBD Sector Plan recommends removing a row of parking and locating the trail on the north side of Bethesda Ave (see figure below). The plan recommends an 8 ft sidewalk adjacent to an 8 ft trail and separated from traffic by a 4 ft tree panel.



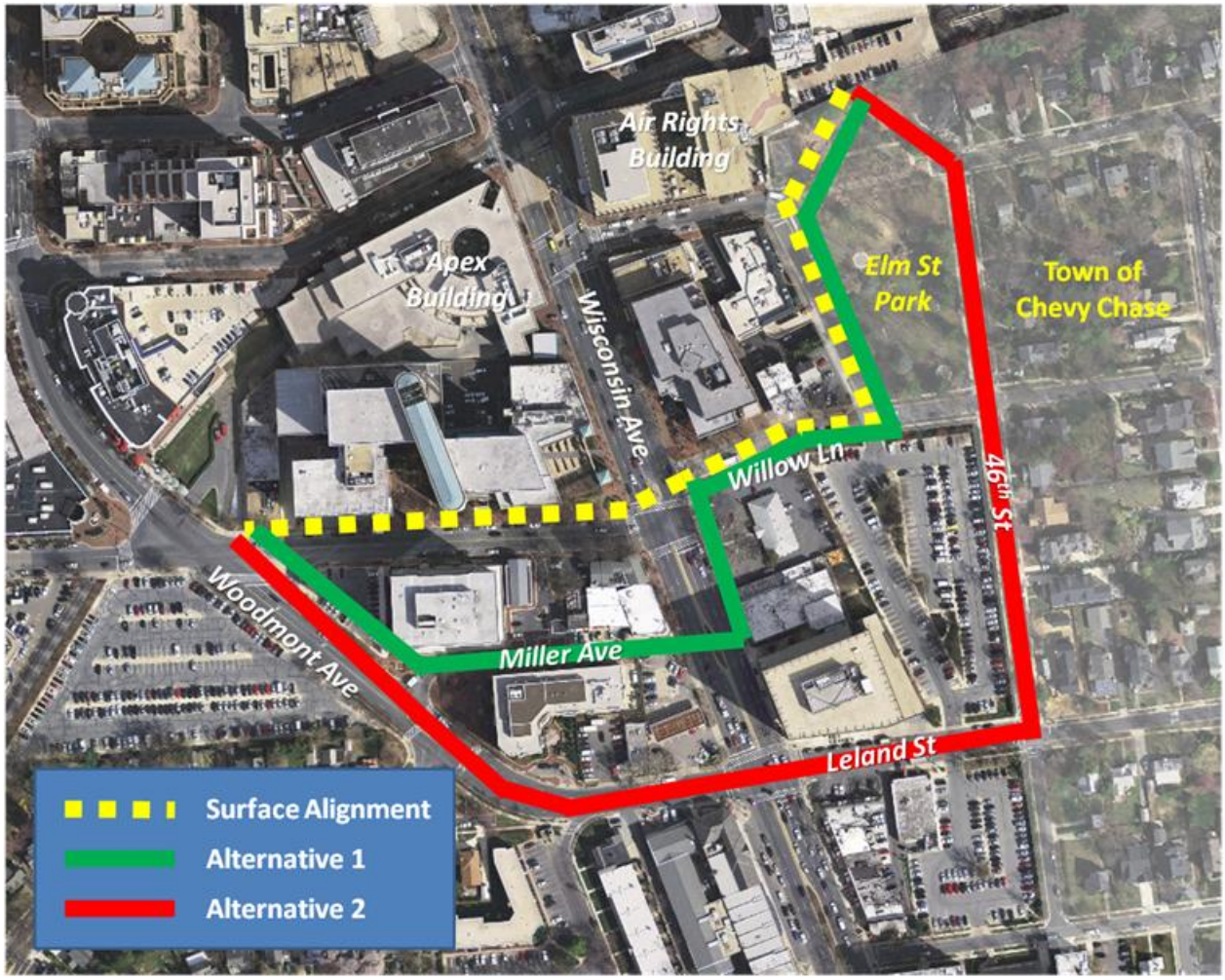

*Bethesda Avenue just east of Woodmont Ave*
*Source: Bethesda CBD Sector Plan (1994)*

The Planning Board has already received a development application for a significant mixed-use project on the north side of Bethesda Ave between Wisconsin Ave and Woodmont Avenue, and the applicant has indicated concerns about compatibility with the trail.

**We recommend locating the trail on the north side of Bethesda Ave because it connects directly to Woodmont Plaza and the entrance to the Red Line and future Purple Line stations. We also recommend removing a row of parking on Bethesda Ave between Wisconsin Ave and Woodmont Ave as recommended in the sector plan.** Due to the high number of pedestrians using this sidewalk, a different typical section should be used. **We recommend a typical section on Bethesda Ave between the existing curbs starting on the north side of the road that includes a 12 ft trail, 2 ft buffer, two 11 ft traffic lanes, and an 8 ft row of parking.** This will physically separate non-trail pedestrians and motor vehicles from trail users. **In addition, we recommend consolidating driveways to the extent possible.**

**Comparison of the Master-Planned Surface Alignment with Other Surface Alignments**

There have been several proposals to move the master-planned surface alignment from the north side of Bethesda Ave to another location. The following is an evaluation of three alternatives to the master-planned surface alignment via Bethesda Ave. They are illustrated in the figure below and compared in the table below. The master-planned surface alignment and the modified surface alignment travel along the same roads, but vary on the side of the road along Bethesda Ave.




Master Planned Surface Alignment

- 47th Street: Master planned shared use path. The path would either be constructed in the park or the Town of Chevy Chase right-of-way.
- Intersection of 47th St / Willow Lane: Currently this is an uncontrolled intersection.
- Willow Lane: Master planned shared use path on the north side of the road. There are two driveways.
- Intersection of Wisconsin Ave / Willow Lane: crosswalk does not align properly with Willow Lane.
- Bethesda Ave: Master planned shared use path on the north side. Requires removing one lane of parking. There is one driveway.

Surface Alignment (modified)

- 47th Street: Master planned shared use path. The path would either be constructed in the park or the Town of Chevy Chase right-of-way.
- Intersection of 47th St / Willow Lane: Currently this is an uncontrolled intersection.
- Willow Lane: Master planned shared use path on the north side of the road. There are two driveways.
- Intersection of Wisconsin Ave / Willow Lane: crosswalk does not align properly with Willow Lane.
- Bethesda Ave: Shared use path on the south side would conflicts with plans for the Lot 31 mixed use/redevelopment project. There are two driveways.

Alternative 1: 47th St to Willow Ln to MD 355 to Miller Ln to Woodmont Ave

- 47th Street: Master planned shared use path. The path would either be constructed in the park or the Town of Chevy Chase right-of-way.
- Intersection of 47th St / Willow Lane: Currently this is an uncontrolled intersection.
- Willow Lane: Master planned shared use path on the north side of the road. There are two driveways.
- Intersection of Wisconsin Ave / Willow Lane: crosswalk does not align properly with Willow Ln.
- Wisconsin Ave: can only accommodate an off-road trail if a lane of traffic is removed.
- Intersection of Wisconsin Ave / Miller Ave: This unsignalized intersection has a divided median that permits only right-in, right-out movements.
- Miller Ave: road and sidewalks are narrow and would not accommodate an off-road trail. There are numerous driveways.
- Woodmont Ave: could potentially accommodate an off-road trail with the removal of a lane of traffic; however it is master planned for bike lanes.

Alternative 2: 46th St to Leland St to Woodmont Ave

- 46th St: within the Town of Chevy Chase. It is master planned as a signed shared roadway. The off-road trail would need to be constructed on the west side of the road in the Town's right-of-way or remove a row of parking from county-owned parking lot.
- Leland St: Not a master-planned bikeway. This road has multiple driveways on either side of the road.
- Intersection of Wisconsin Ave/ Leland St: This is a signalized intersection.
- Woodmont Ave: could potentially accommodate an off-road trail with the removal of a lane of traffic, however it is master planned for bike lanes.

A comparison of the surface alignment and alternatives is shown in the table below:

| Measures | Master Planned Surface Alignment | Surface Alignment (modified) | Alternative 1 | Alternative 2 |
|---|---|---|---|---|
| Route | • 47th St<br>• Willow Lane<br>• north side of Bethesda Ave | • 47th St<br>• Willow Lane<br>• south side of Bethesda Ave | • 47th St<br>• Willow Lane<br>• MD 355<br>• Miller Ave<br>• Woodmont Ave | • 46th St<br>• Leland St<br>• Woodmont Ave |
| Master Plan Guidance | • Shared Use Path on all roads | • Shared Use Path on 47th St<br>• Shared Use Path on Willow Ln<br>• No guidance on south side of Bethesda Ave | • Shared Use Path on 47th St<br>• Shared Use Path on Willow Ln<br>• No guidance on MD 355 or Miller Ave<br>• Bike Lanes on Woodmont Ave | • Signed Shared Roadway on 46th St;<br>• No guidance on Leland St<br>• Bike Lanes on Woodmont Ave |
| Travel Distance to Woodmont Plaza | 1700 ft | 1800 ft | 2050 ft | 2500 ft |
| Travel Distance to Existing Capital Crescent Trail | 2200 ft | 2200 ft | 2350 ft | 2650 ft |
| # of Driveways | 3 | 5 | 3+ | 5 |
| # of Crossings at Intersections | 2 | 2 | 3 / 3 | 5 |
| Impacts to other Public Projects | None | Lot 31 does not incorporate a regional bike trail on Bethesda Ave or Woodmont Ave | None | None |

We believe that the north side of Bethesda Ave is the best location for several reasons:

- It has been in the Sector Plan since 1994.
- Compared with other alternatives the master planned connection has:
    - A shorter travel distance.
    - Fewer crossings at intersections.
    - Fewer conflicting driveways.
- Without a plan amendment the Planning Board could not require developers to accommodate the trail if additional right-of-way is required.
- The Capital Crescent Trail east of Woodmont Plaza will serve a commuter function. The surface alignment should therefore connect directly to Woodmont Plaza, where the entrance to the Purple Line station and the Red Line station will be located. If the trail is on the south side of Bethesda Ave, trail users would have to cross additional intersections to get to the stations. If the trail was shifted to a parallel road to the south, such as Leland Street or Miller Avenue, many trail users would continue to use the more direct path along the north side of Bethesda Avenue anyway. Some potential trail users may be deterred from using the trail at all.

**We recommend that the master-planned surface route remain on the north side of Bethesda Avenue and any private development or public projects potentially affecting that route will be required or advised, respectively, that the Bethesda Avenue bike route needs to be accommodated until the following criteria are met:**

- **A better surface alignment is identified.**
- **There is assurance from other parties involved – including SHA and MCDOT – that they concur with the new surface alignment and will ensure that a high-quality, safe route is feasible. Part of that feasibility determination would be based on what the impact will be on the properties along that new route.**
- **The master plan is amended.**

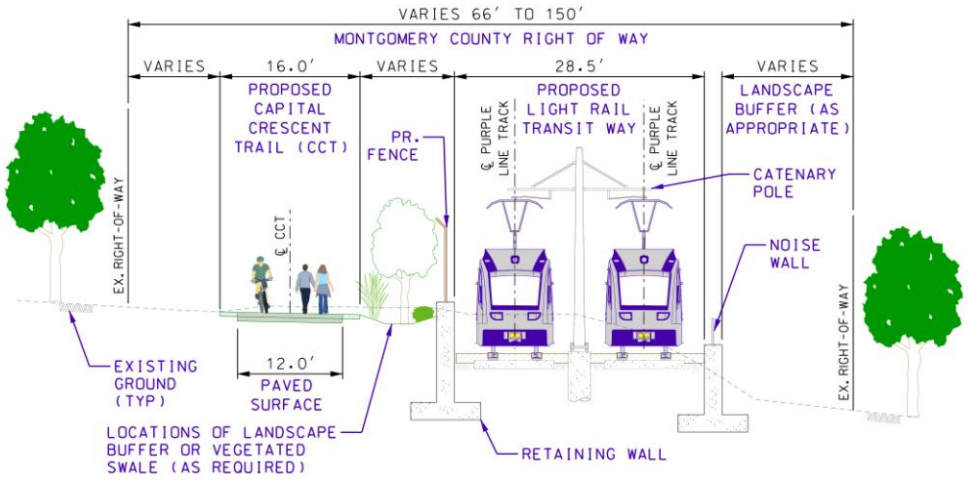
**Attachment A**

# Capital Crescent Trail
# Considerations for Montgomery County

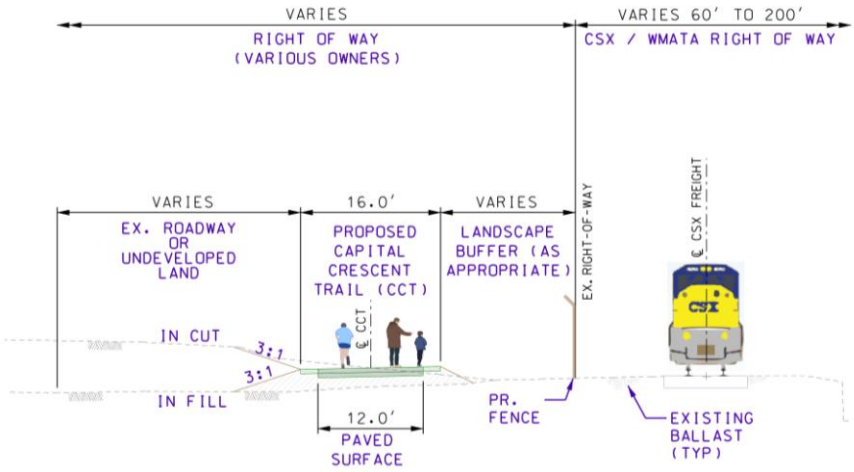
**October 2011**

## I. Introduction

The Capital Crescent Trail (CCT) is a mixed use trail that will be constructed from the Bethesda Station to the Silver Spring Transit Center where it will connect to the Metropolitan Branch Trail and the Silver Spring Green Trail (a Montgomery County Project that will likely be constructed at the same time as the CCT, but is not part of the project). The CCT is envisioned to be both a recreational trail and a commuter trail. As a commuter trail it will connect residential communities to proposed Purple Line stations at Bethesda, Connecticut Avenue/Chevy Chase Lakes, Lyttonsville, Woodside and Silver Spring Transit Center. The CCT is proposed to be adjacent to the Purple Line transitway along the north side from Bethesda to Lyttonsville. East of Lyttonsville the CCT and the Purple Line split and run on opposite sides of the CSX/WMATA corridor until it reaches the Silver Spring Transit Center. The trail will run along the north side of this corridor with the Purple Line running on the south side of the corridor. The trail will be paved, and will typically be 12' wide with 2-foot unpaved shoulders on each side. Refer to the typical sections below.




**Typical Section Bethesda to Lyttonsville**




**Typical Section Lyttonsville to Silver Spring Transit Center**

The current estimated total construction cost of the CCT is $68.25 M (2011 dollars). The total trail cost of $93.94 M (2011 dollars) includes engineering services (engineering through construction) and unallocated contingencies. Refer to Appendix 1 for the May 2011 trail cost breakdown that was presented in 2010 dollars and does not include updated costs covered in this paper. Appendix 1 also includes mapping that defines the components of the trail cost that are either costs assigned to the trail, costs shared between the trail and the Purple Line Transitway, or costs that are assigned fully to the Purple Line Transitway. This cost does not include provisions for trail lighting, emergency communications, and supplemental landscape and hardscape features. County decisions required on these topics are covered later in this white paper.

A significant component of the trail cost is related to both the CCT and the Purple Line occupying the space beneath the existing Apex Building, Wisconsin Avenue and the Air Rights Building. Refer to the table below that summarizes the costs related to the various components of the trail. This white paper outlines updated costs, some of the risks associated with constructing both the CCT and the Purple Line in this space and new issues that have come to light upon further investigation and design of the Bethesda Station.

| Location | Neat Construction (Millions) | Engineering Services (Millions) | Unallocated Contingency (Millions) | Total (Millions) | % Total |
|---|---|---|---|---|---|
| Apex Building | $19.60 | $6.27 | $1.11 | $26.98 | 28.7% |
| Wisconsin and Air Rights Building | $9.80 | $3.14 | $0.55 | $13.49 | 14.4% |
| Other Segments of Trail | $38.85 | $12.43 | $2.19 | $53.47 | 56.9% |
| Total | $68.25 | $21.84 | $3.85 | $93.94 | 100.0% |

The Capital Crescent Trail will be planned and built as part of the Purple Line, but construction will be funded by sources to be identified by Montgomery County and MTA. This white paper is being prepared to assist Montgomery County in defining their ultimate vision for the permanent Capital Crescent Trail. The decisions made by the County will be coordinated with the Maryland Transit Administration (MTA) to ensure that the Purple Line is designed to accommodate this ultimate vision. They are meant to help define a long-term vision for the trail and some elements may be implemented over time.

## II. Trail at Bethesda Station

a. LPA Alignment Description

Several alternatives have been investigated for the Bethesda Terminal Station for the Maryland Transit Administration's (MTA) Purple Line in Montgomery County, Maryland. The Locally Preferred Alternative (LPA) layout includes a station with two (2) curved platforms beneath the Apex Building with tail or run out tracks and bumping posts extending into the Woodmont East development parcel, located to the west of the Apex Building. Side platforms would be provided under the Apex Building, with access from the street level via elevators and stairs at the corner of Elm Street and Wisconsin Avenue, as well as pedestrian access from Woodmont East. The station will be constructed around the existing columns and caisson foundations, which would protrude through the platforms. These columns will impede pedestrian flow and boardings and alightings. In order to provide adequate platform length and to meet the required vehicle clearances, the platform requires a slight horizontal curve. Patrons would have access to the proposed Washington Metropolitan Area Transit Authority (WMATA) Bethesda South Access entrance at the corner of Elm Street and Wisconsin Avenue from the station.

The Interim Capital Crescent Trail (CCT) currently runs along the former Georgetown Branch of the Baltimore & Ohio (B&O) Railroad corridor through Bethesda. As part of the LPA layout, the CCT would be on an aerial structure above the tracks that gained elevation through a switchback ramp in the Woodmont East plaza. The alignments then continue east, beneath the Maryland State Highway Administration bridge that carries MD 355 (Wisconsin Avenue) over the former Georgetown Branch corridor, on a proposed rigid box structure. Beneath the Air Rights Building, a bridge structure is included to carry the CCT out of the buildings and back down to grade. A connection between the CCT and Elm Street Park will be provided. Refer to the LPA roll map and typical sections that show the arrangement of the Purple Line at several key points of interest along the alignment.

b. Goals & Challenges

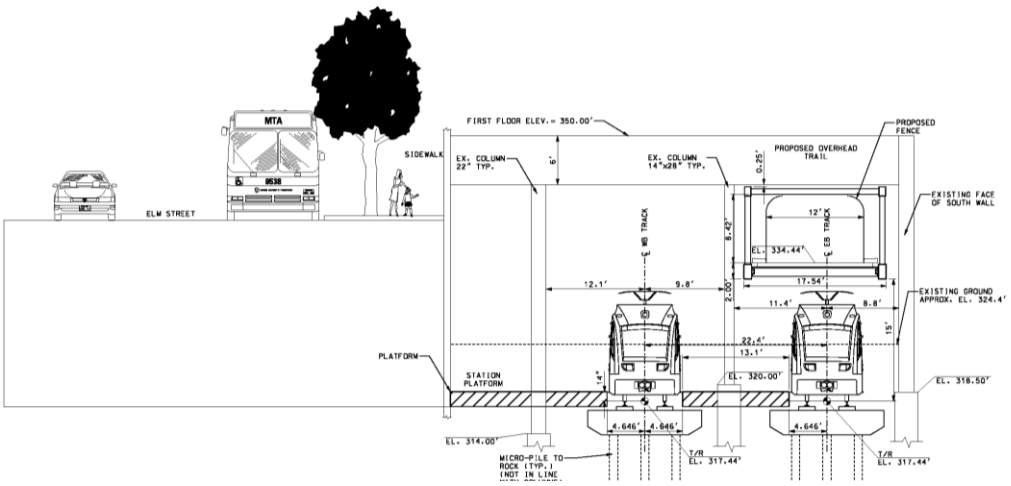
The goals of the Bethesda Station are to present a welcoming station experience; to provide platforms of sufficient width for the expected ridership of 11,500 weekday boardings; to maximize the available space; to minimize the impacts to the existing structures, the risks associated with construction and re-development of properties surrounding the station/alignment, and the

cost of the project; to include tail tracks or over run tracks beyond the platform for two (2) tracks to facilitate operational viability of the terminal station without sacrificing the efficiency of the station; and to accommodate the CCT. Accommodating the trail, while still meeting the other area project goals, is an extremely difficult task. Although technically feasible, the risks and costs associated with the proposed stacking of the CCT above the Purple Line are substantial, as demonstrated below.

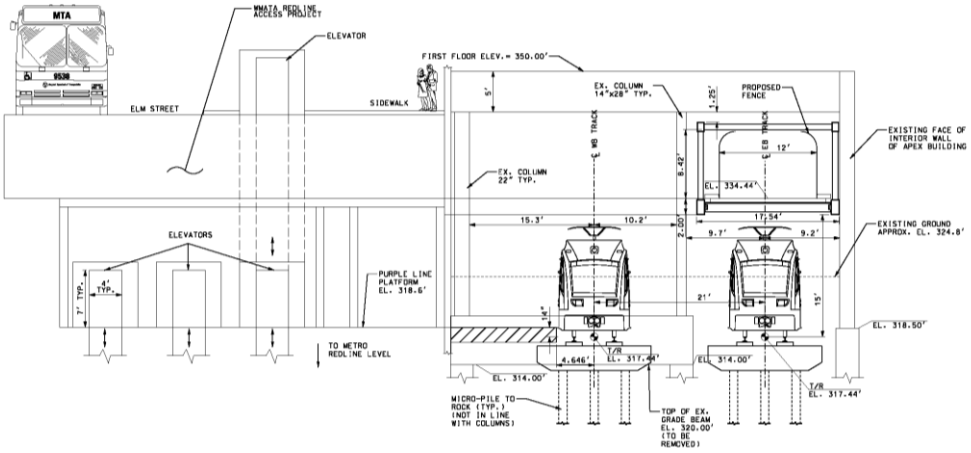
c. Investigation

i. Apex Building

A recent study was conducted to determine the viability of placing the station and the trail in the same footprint of the former Georgetown Branch right-of-way. In order to accommodate the construction of the trail above the Purple Line, but beneath the existing Apex Building, the reconstruction or strengthening of at least 35 existing columns would be required, as well as the relocation/reconfiguration of the 3 bracing grade beams along Elm Street to provide enough room for station platforms. The column foundations for the existing building are made up of unreinforced caissons that are founded on bedrock. The first floor of the Apex Building is a transfer slab to these columns, which means that the columns cannot be relocated in order to minimize impacts to the foundations/columns. In order to accommodate the CCT and the Purple Line, the ground surrounding the unreinforced caissons




**Typical Section through Apex Building and Station Platforms**



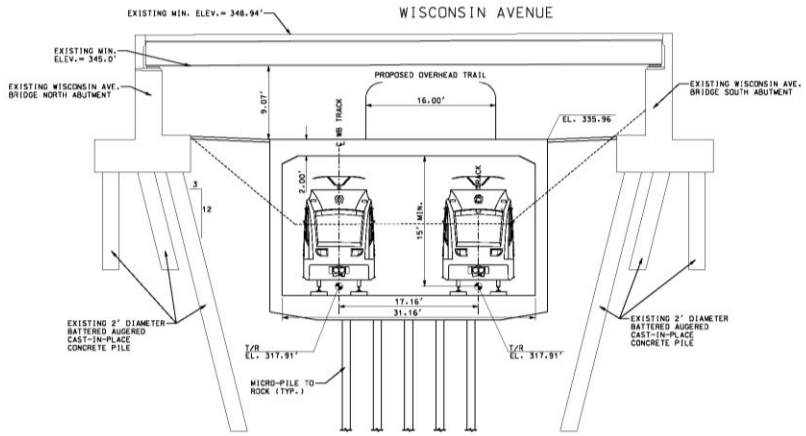

**Typical Section through Apex Building at WMATA Access Point**

would need to be lowered by approximately 8 to 10 feet, resulting in the need to modify and strengthen or replace the columns/caissons. The elevations of the tops of these caissons in the Apex Building are high enough such that the trail and the tracks cannot both be constructed without exposing the unreinforced caissons. These columns and caissons are near their intended structural capacities, which further complicates the process of lowering the grade while safely and effectively supporting the structure above it. Because the caissons are unreinforced, the surrounding ground is acting as the confining element that interacts with the structural element to provide the capacity. Removing this surrounding soil would compromise the caisson's structural integrity and require the construction of temporary foundations and support frames to transfer the loads off the columns and caissons while the grade is lowered and the columns/caissons are modified, strengthened, or reconstructed. Due to the type of construction, the caisson as constructed may be irregular in shape, orientation, and size, which may result in substantial structures/obstructions in the middle of the station platforms in order to make the necessary structural modifications. Rather than retrofitting the existing columns, another option is to replace the columns at the Apex Building and extend them to the existing caisson at a lower elevation than the track subgrade; this allows for smaller column sections coming through the platform compared to the retrofitting option, but larger columns than those that currently exist. Due to low overhead clearances, however, this is likely to be a very time-consuming, tedious, and expensive procedure that carries great risks. While all buildings within the vicinity will require some level of monitoring, the Apex building will need additional and more comprehensive monitoring for settlement and rotation throughout construction while daily building activities/operation takes place. Should settlement or rotation of the building occur, construction would be halted and the building evacuated. The

building would need to be inspected/stabilized/recertified for occupancy before construction could proceed. The costs of the modifications and the risks (structurally and due to the lost productivity/occupancy of the tenants) associated with the construction may exceed the appraisal of the existing building. Regardless of whether the columns and caissons are retrofitted or replaced, the exterior wall of the Apex Building along Elm Street needs to be underpinned for up to 20'+ vertically due to the fact that the bottom of wall elevation is as high as 339.25' at some locations at the east end. This elevation is significantly higher than the proposed platform elevation of 318.5'required in order to accommodate the CCT. There are existing grade beams that are above the proposed platform location that require removal and reconstruction. Additionally, the wall on the south side of the railroad corridor along the parking garage is not structurally adequate to act as a crash wall as required by current MTA LRT design criteria. Therefore, a wall would need to be constructed to protect the existing structure, or guardrails would need to be provided. Due to the risks and costs associated with constructing the trail within the existing constraints of the Apex Building, the idea of waiting until the Apex Building redevelops and then constructing the trail at that time has been considered. The developer would be given an envelope to redevelop around the Purple Line station and incorporate the trail at that time. However, even under redevelopment of the Apex Building, the constraints for installing the CCT above the Purple Line are driven by the Wisconsin Avenue Bridge, thereby setting the profile under the Apex Building. Refer to the roll map for the relationship between the LPA station platforms and the modified building columns.

ii. Wisconsin Avenue

As the Purple Line and CCT moves east, the tracks run inside of a concrete box structure that carries the trail above the tracks under the Wisconsin Avenue Bridge.

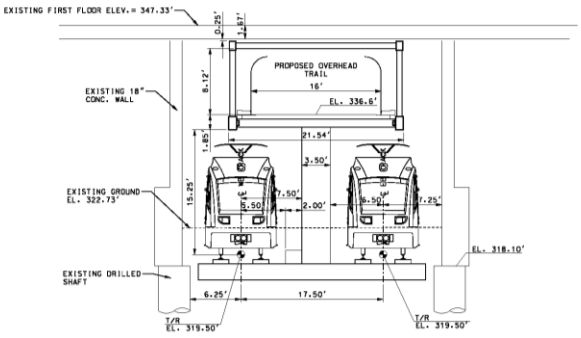



**Typical Section through Wisconsin Avenue Bridge**

The box structure would be supported on micropiles and would not compromise the structural integrity of the existing bridge. However, the existing Wisconsin Avenue Bridge was built around an older structure. The piers of the original bridge structure were to be cut off below grade during the construction of the existing structure, and they are likely in the vicinity of the proposed concrete box structure and its pile foundation. The presence of the previous foundations needs to be considered during design and construction. In addition, the clearances for installing the Purple Line and CCT in the same space beneath the bridge are very tight. The task of avoiding impact to the existing foundations while at the same time providing the absolute minimum operating clearances for the Purple Line and the catenary system, as well as the vertical clearance for the trail is extremely tedious. The construction will need to take place with low overhead equipment and will require significant structural reinforcement of the box due to span and foundation geometry to prevent loading effects from the proposed structure on to the existing foundations. Micropiles would be used to support the box to prevent these load effects by carrying the proposed loads directly to bedrock through a below ground pile cap.

iii. Air Rights Building

Inside the Air Rights Building, the track elevation is such that the top of rail is above the top of the existing caissons and the existing crash walls are acceptable for the proposed tracks, resulting in no modifications to the existing building.




**Typical Section through Air Rights Building**

iv. CCT Structure

The truss/bridge structures required to support the trail within the Apex and Air Rights buildings are significant structures. In order to support the CCT and minimize impacts on the Purple Line, the structures would need to span lengths of up to 240’ in order to help minimize support locations on an already constrained platform and would require tighter engineering and construction controls to reduce deflections and camber due to tight construction clearances. The span lengths may possibly be reduced for the structures not over the platforms to optimize the costs of construction and the tighter tolerances required. Due to access requirements for construction, the CCT structures and their infrastructure beneath the Wisconsin Avenue Bridge and the Air Rights Building would need to be in place before the Purple Line could be built. The Apex and Air Rights Buildings and the Wisconsin Avenue Bridge surround the Purple Line, which make it impractical to construct these CCT structures once the Purple Line is in operation without taking the Bethesda Station out of service for an extended period of time. The structures would be expensive and inefficient because of the tight site constraints and limited clearances for deflection of the truss under load. The deflection limits are necessary in order to minimize the effect of the truss on the operations of the light rail vehicles as the pantograph travels along the catenary/trolley wire. The clearance between the truss and the top of rail is less than preferred by the MTA, making the deflection requirements even more pertinent. The box structure beneath the

Wisconsin Avenue Bridge will be heavily reinforced and require significant support of excavation and bracing during construction. All of these factors drive up the cost of the trail and Montgomery County's portion of the infrastructure costs to support the Purple Line beneath these buildings. The aforementioned items are unchangeable, whether the Apex Building is redeveloped or not.

d. Summary and Cost Analysis

In summary, below are the significant facts and costs for your consideration:

i. The tight horizontal and vertical clearances within the Air Rights Building and underneath the Wisconsin Avenue Bridge, along with, more specifically, the control of the Wisconsin Avenue Bridge, drive the profile of the Purple Line for incorporating the CCT above.

ii. The profile and existing building constraints require the use of inefficient, constrained and expensive temporary works in order to construct the project beneath the Apex Building and Wisconsin Avenue Bridge. This does not include the substantial and costly modifications required to the Apex Building columns/foundations, not to mention the associated risks.

iii. In order to control the camber and deflections to maintain less-than-preferred minimum clearances for the catenary/trolley wires for the Purple Line, the truss structures will need to be built outside the Air Rights Building on temporary supports, the deck placed to control the camber, and then adjusted prior to moving the structures into position within the Air Rights Building and jacking them into place. This is specialized construction that results in additional costs. Once the structures are in place, the catenary/trolley wire can be installed and the remainder of the Purple Line built.

iv. Moving a structure of this size and weight into place within the tight constraints of the Air Rights Building will require specialized construction techniques and skilled labor, resulting in additional costs.

v. The cost impacts associated with accommodating the trail with respect to the Apex Building and making the necessary modifications to the Apex Building are approximately $19.6 million (Neat Construction Costs in 2011 Dollars with allocated construction contingencies). This amount is in addition to the costs associated with simply placing the Purple Line within the Georgetown Branch right-of-way.

vi. The costs of accommodating the trail with respect to the Wisconsin Avenue Bridge and Air Rights Building are approximately $9.8 million (Neat Construction Costs in 2011 Dollars with allocated construction contingencies). This amount is in addition to the costs associated with simply placing the Purple Line within the Georgetown Branch right-of-way.

vii. The total costs of accommodating the trail along its current alignment and above the Purple Line are approximately $29.4 million (Neat Construction Costs in 2011 Dollars with allocated construction contingencies). Escalating this cost out to Year 2020 (approximate average rate of 3% per year) and including Engineering Services (32% of neat construction cost) and unallocated contingencies (5% neat construction costs and 2% engineering services) the total cost is $53.16 million.

| Location | 2011 Neat Construction Cost (with allocated Contingencies) | Neat Construction Cost, Year 2020 Escalated Rate | Engineering Services (32% of Neat Construction Cost, Escalated) | Unallocated Contingency (5% of Neat Construction Cost, Escalated) | Unallocated Contingency (2% of Engineering Services, Escalated) | Total (Millions) |
|---|---|---|---|---|---|---|
| Apex Building | $19.6 | $25.75 | $8.24 | $1.29 | $0.16 | $35.44 |
| Wisconsin and Air Rights Building | $9.8 | $12.88 | $4.12 | $0.64 | $0.08 | $17.72 |
| Total | $29.4 | $38.63 | $12.36 | $1.93 | $0.24 | $53.16 |

viii. The costs associated with constructing the CCT beneath the Wisconsin Avenue Bridge or the Air Rights Building do not change whether the Apex Building is redeveloped or not. If the Air Rights Building is redeveloped, other opportunities may become available.

e. Questions for Consideration

i. Does the trail have to be under the Wisconsin Avenue Bridge and over the Purple Line, or can the trail be planned for and integrated as a parallel alignment adjacent to the Purple Line with a separate

underpass beneath Wisconsin Avenue as part of future redevelopment of the Air Rights and Apex Buildings?

ii. Can any other redevelopment opportunities, other than the Apex Building, be considered?

iii. In light of the above constraints, risks and costs, does it make sense to consider a surface alignment as the permanent alignment?

## III. Trail Lighting

a. Background

It is anticipated that the Purple Line will operate 1 hour before and after the hours of operation of the WMATA Metro due to the connections between the two systems. It is also anticipated that the Capital Crescent Trail will connect residential communities to the proposed Purple Line stations. Given the commuter use of the Capital Crescent Trail it is expected that pedestrians may be using it during hours of darkness. Current Montgomery County practice for a trail within public right of way that expects significant use during darkness would require that all portions of the trail be lit for safety concerns. Other options for consideration could include providing no lighting or only lighting select portions of the trail, such as in the vicinity of stations, at entrances to the trail or portions where use is expected to be highest.

The Montgomery County Department of Transportation, Division of Traffic Engineering and Operations (DTEO) document *Streetlight Installation Guidelines Underground Distribution (Policy LTG-2)* indicates that the preferred light fixture for pathways in public maintained land is a post top fixture mounted from twelve to sixteen feet above ground. Three styles of post top fixtures are listed; colonial, contemporary and decorative Washington globe. The preferred lamp for use in each style of luminaire is a 70 watt high pressure sodium vapor lamp. All luminaires use an Illuminating Engineering Society of North America (IESNA) Type III distribution.

The IESNA publication *RP-8-00 Roadway Lighting* is the current standard that most state departments of transportation and other municipalities adopt in its entirety or portions for establishing their own lighting standards. The publication recommends that three criteria be satisfied when completing the lighting design for a shared walkway/bikeway. These criteria are:

- Average Horizontal Illuminance – An average of the light levels reaching all the points on the horizontal surface of the shared walkway/bikeway. Average horizontal illuminance criteria should be met or exceeded.
- Uniformity Ratio (Average Horizontal Illuminance to Minimum Horizontal Illuminance) – A ratio between the average horizontal illuminance and the light level of the point with the minimum

horizontal illuminance level. This ratio indicates how even or uniform the lighting is. Lower uniformity ratios indicate more uniform light which is preferable.

- Minimum Vertical Illuminance – The lowest light level of the set of points on a vertical plan set 4.9 feet above the surface of the shared walkway/bikeway. Minimum vertical illuminance criteria should be met or exceeded.

Horizontal illuminance is what enables a user of a shared walkway/bikeway to see the path itself and any objects that may be within it. The uniformity ratio is an indication of the variance of lighting levels in the area of concern and is used to minimize the occurrence of very bright spots and very dark spots. Vertical illuminance helps light vertical surfaces which contribute to the brightness of the environment and aides in facial recognition for security considerations.

Montgomery County's current practice is to light pathways to an average horizontal illuminance of 1.0 foot-candles. Criteria for the uniformity ratio and minimum vertical illuminance are not specified by Montgomery County standards. When providing an average horizontal illuminance of 1.0 foot-candles per Montgomery County standards, additional guidance from *RP-8-00* for shared walkway/bikeway lighting suggests that a minimum vertical illuminance of 0.5 foot-candles at a height of 4.9 feet above the surface of the walkway/bikeway also be provided. Finally, a horizontal uniformity ratio (average illuminance: minimum illuminance) of 4.0:1 is recommended by *RP-8-00*.

In order to estimate a typical pole spacing that would be needed for continuous lighting along the trail, photometric calculations were completed for a twelve foot wide segment of the proposed trail representative of the typical section for several different options (light poles assumed on one side only).

- Using the luminaires described above from TEO *Policy LTG-2* with 70 watt high pressure sodium vapor luminaires a pole spacing of approximately 65-70 (all luminaire styles) feet provides an average illuminance of 1.0 foot-candles.

- In order to satisfy the minimum vertical illuminance criteria as recommended by *RP-8-00* a pole spacing ranging from 30 feet (colonial/contemporary style) to 50 feet (decorative Washington

globe style) is required and the horizontal illuminance is typically increased by 1.5-2.0 times the required 1.0 foot-candles.

- Under both scenarios the uniformity ratio is satisfied.

Rendering 1 below illustrates the amount of light reaching a person when only horizontal illuminance levels are considered using a light pole spacing of 70 feet. Rendering 2 illustrates the amount of light reaching a person when horizontal and vertical illuminance levels are considered using a light pole spacing of 50 feet, which results in higher average horizontal illuminance compared to Rendering 1. A graphical interpretation of the differences is shown in Figures 1 and 2 below. In these figures, cooler colors (blue to green - Figure 1) represent a lower light intensity shown on the vertical plane, warmer colors (yellow to red – Figure 2) represent higher light intensity.

Rendering 1 – Depiction of Average Horizontal Illuminance Only
(70 foot light pole spacing)

Rendering 2 – Depiction of Minimum Vertical Illuminance (50 foot light pole spacing)

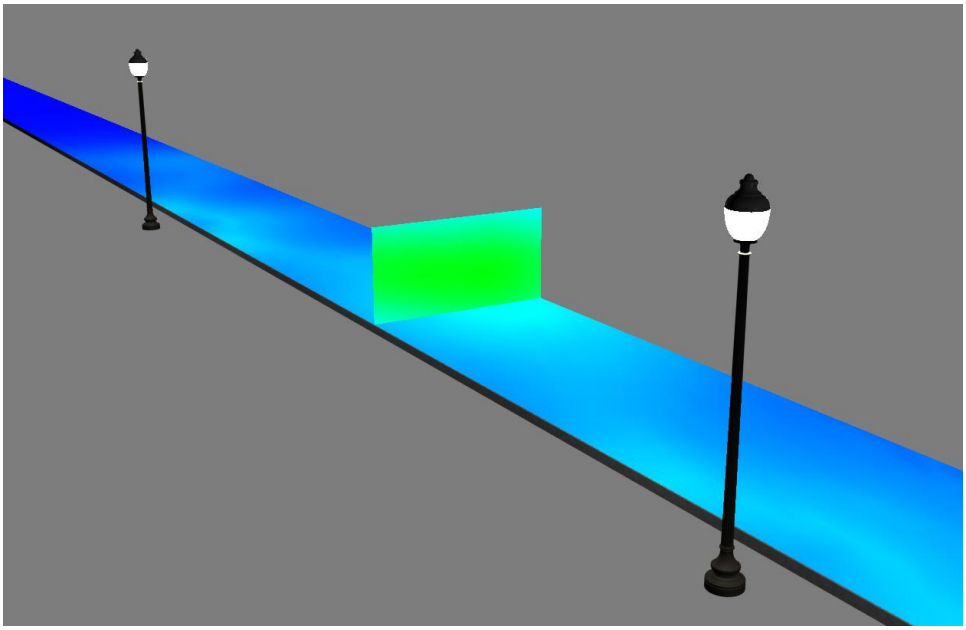


Figure 1 – Depiction of Average Horizontal Illuminance Only (70 foot light pole spacing)

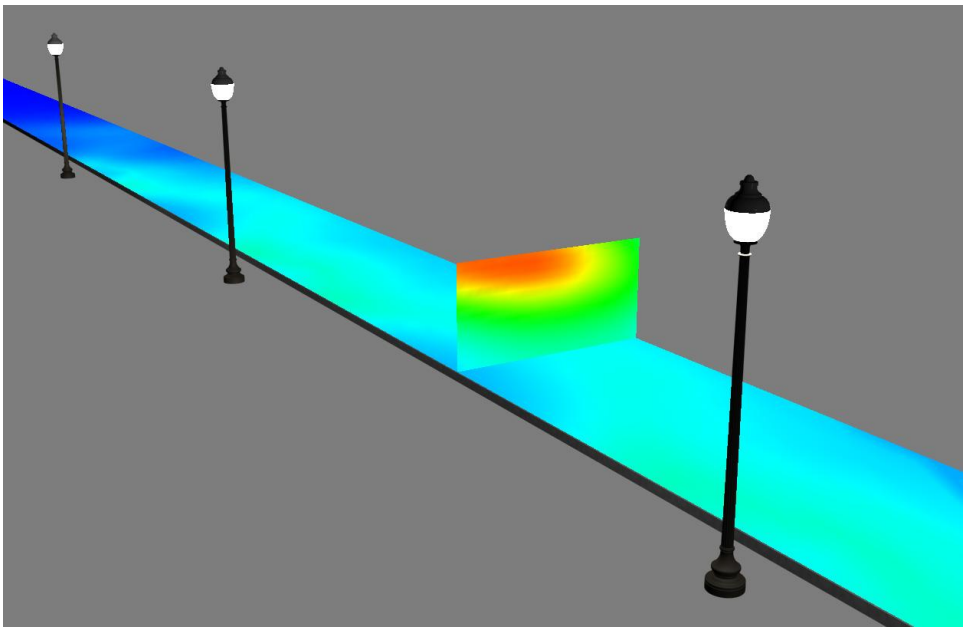


Figure 2 – Depiction of Minimum Vertical Illuminance (50 foot light pole spacing)

The proposed trail is approximately 4.5 miles long (23,760 feet). Additionally, there is approximately 4,500 feet of pathways that will be constructed to provide access/connections to the trail and Purple Line. In total, approximately 28,260 feet of trail is proposed. Using the pole spacings determined from the photometric calculation options above the following total number of poles would be required:

- For 70 watt high pressure sodium vapor lamps approximately 450 light poles (all luminaire styles) would be required to provide a horizontal illuminance of 1.0 foot-candles on all portions of the trail in accordance with current Montgomery County practice. This would add approximately $3.1 million (2011 dollars) to the total cost of the trail including engineering services and unallocated contingencies.

- If the vertical illuminance criteria recommended by RP-8-00 is considered, approximately 600 light poles would be required along the trail, dependent on the luminaire style chosen for use. This would add approximately $4.2 million (2011 dollars) to the total cost of the trail lighting noted above including engineering services and unallocated contingencies.

If only key areas were selected for lighting the total number of poles would be reduced significantly; however, this would leave segments of the trail unlit.

b. Considerations

   i. Should the Capital Crescent Trail and the connections be designed with continuous lighting? If so, should the lighting be designed to Montgomery County's current practice or the higher IESNA standard?

   ii. If not, should the Capital Crescent Trail and the connections be designed with lighting only select portions of the trail, such as in the vicinity of stations, at entrances to the trail or portions where use is expected to be highest? If so, should the lighting be designed to Montgomery County's current practice or the higher IESNA standard?

   iii. If not, should the Capital Crescent Trail be designed without lighting?

## IV. Emergency Communications

a. Background

Emergency communication is vital to creating a safe environment along trails, and emergency call boxes are a successful way to create a safe environment. It is Montgomery County's current practice to install emergency call boxes along trails. It is likely that at the time of construction, the type of call box that could be used will have solar power, wireless, two-way audio and strobe lights on the call boxes. A two-way audio box will allow for a person to have a conversation with security. The strobe light will flash to support quick location of the emergency. Generally the spacing for emergency call boxes on a trail of this type would be every ¼ mile with additional boxes placed at key points like stairwells and tunnels. A call box system consisting of 25 emergency call boxes would add approximately $400,000 (2011 dollars) to the total trail cost including engineering services and unallocated contingencies.

b. Considerations

Should the Capital Crescent Trail be designed with emergency call boxes?

## V. Landscape and Hardscape Requirements

a. Background

The current trail cost estimate does not include extensive or specific landscaping along the outside of the trail adjacent to the community, but rather an allowance for general seeding and turf establishment. The landscaping between Purple Line and the CCT is accounted for in the trail cost.

The following additional landscape and hardscape features could be considered for the Capital Crescent Trail:

1. Longitudinal landscape treatments for the Capital Crescent Trail could help knit the new Purple Line Transitway and trail improvements into the existing landscape. Trail plantings could be focused along the outside edges of the trail adjacent to the community. Plants would be selected that are native or adapted to the region and could be implemented in a manner to minimize maintenance. Including 2.5" cal. shade trees, 8' Ht. ornamental trees, 6' Ht. evergreen trees and shrubs as appropriate would add approximately $1.2M (2011dollars) to the total trail cost including engineering services and unallocated contingencies.

2. At key points along the alignment such as trail connections to the community and in the vicinity of stations, enhanced landscaping may be desired. In these areas a higher level of finish and detail may be utilized to highlight important connections and to provide for a variety of experiences along the length of the alignment. Including enhanced landscaping at 12 locations/connections would add approximately $400,000 (2011dollars) to the total trail cost including engineering services and unallocated contingencies.

3. Site furnishings such as benches could be installed at regular intervals along the outside edge of trail for users to rest and for general enjoyment. Including forty (40) 6-foot long benches would add approximately $100,000 (2011 dollars) to the total trail cost including engineering services and unallocated contingencies.

b. Considerations

   i. Should the Capital Crescent Trail be designed to include longitudinal landscape treatments along the outside edge of the trail adjacent to the community?

   ii. Should the Capital Crescent Trail be designed to include enhanced landscaping at key points such as connections and stations?

   iii. Should the Capital Crescent Trail be designed to include site furnishings adjacent to the trail?

**Attachment B**

# Bethesda Metro Station South Entrance -- No. 500929

| | | | |
|---|---|---|---|
| Category | **Transportation** | Date Last Modified | **January 09, 2010** |
| Subcategory | **Mass Transit** | Required Adequate Public Facility | **No** |
| Administering Agency | **General Services** | Relocation Impact | **None.** |
| Planning Area | **Bethesda-Chevy Chase** | Status | **Preliminary Design Stage** |

## EXPENDITURE SCHEDULE ($000)

| Cost Element | Total | Thru FY09 | Est. FY10 | Total 6 Years | FY11 | FY12 | FY13 | FY14 | FY15 | FY16 | Beyond 6 Years |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Planning, Design, and Supervision | 5,894 | 0 | 5,194 | 700 | 250 | 250 | 50 | 50 | 50 | 50 | 0 |
| Land | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site Improvements and Utilities | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Construction | 53,700 | 0 | 0 | 53,700 | 0 | 0 | 3,050 | 1,550 | 22,050 | 27,050 | 0 |
| Other | 406 | 406 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **60,000** | **406** | **5,194** | **54,400** | **250** | **250** | **3,100** | **1,600** | **22,100** | **27,100** | **0** |

## FUNDING SCHEDULE ($000)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| G.O. Bonds | 54,594 | 0 | 194 | 54,400 | 250 | 250 | 3,100 | 1,600 | 22,100 | 27,100 | 0 |
| PAYGO | 406 | 406 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Revenue Bonds: Liquor Fund | 5,000 | 0 | 5,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **60,000** | **406** | **5,194** | **54,400** | **250** | **250** | **3,100** | **1,600** | **22,100** | **27,100** | **0** |

**DESCRIPTION**

This project provides access from Elm Street west of Wisconsin Avenue to the southern end of the Bethesda Metrorail Station. The Metrorail Red Line runs below Wisconsin Avenue through Bethesda more than 120 feet below the surface, considerably deeper than the Purple Line right-of -way. The Bethesda Metrorail station has one entrance, near East West Highway. The Metrorail station was built with accommodations for a future southern entrance.

The Bethesda light rail transit (LRT) station would have side platforms located just west of Wisconsin Avenue on the Georgetown Branch right-of-way. This platform allows a direct connection between LRT and Metrorail, making transfers as convenient as possible. Four or five station elevators would be located in the Elm Street right-of-way, which would require narrowing the street and extending the sidewalk.

The station would include a new south entrance to the Metrorail station, including a new mezzanine above the Metrorail platform, similar to the existing mezzanine at the present station's north end. The mezzanine would use the existing knock-out panel in the arch of the station and the passageway that was partially excavated when the station was built in anticipation of the future construction of a south entrance.

**ESTIMATED SCHEDULE**

Design: Fall 2009 through Spring 2012.
Construction: To take 24 months but must be coordinated with State Purple Line project and is dependent upon State and Federal funding.

**OTHER**

Part of Elm Street west of Wisconsin Avenue will be closed for a period during construction. Every effort will be taken so that this temporary road clousre does not coincide with the temporary closure of Woodmont Avenue during the construction of the Bethesda Lot 31 Parking Garage project.

**FISCAL NOTE**

The funds for this project were initially programmed in the State Transportation Participation project. Appropriation of $5 million for design was transferred from the State Transportation Participation project in FY09.
Project schedule has been delayed as implementation plan is subject to the construction of the Purple Line.

## APPROPRIATION AND EXPENDITURE DATA

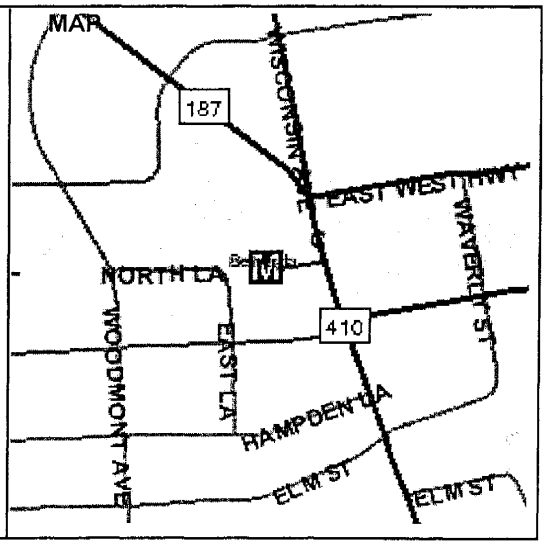
| | | |
|---|---|---|
| Date First Appropriation | FY09 | ($000) |
| First Cost Estimate Current Scope | FY09 | 60,000 |
| Last FY's Cost Estimate | | 60,000 |
| Appropriation Request | FY11 | 0 |
| Appropriation Request Est. | FY12 | 0 |
| Supplemental Appropriation Request | | 0 |
| Transfer | | 0 |
| Cumulative Appropriation | | 6,100 |
| Expenditures / Encumbrances | | 406 |
| Unencumbered Balance | | 5,694 |
| Partial Closeout Thru | FY08 | 0 |
| New Partial Closeout | FY09 | 0 |
| Total Partial Closeout | | 0 |

## COORDINATION

Maryland Transit Administration
WMATA
M-NCPPC
Bethesda Lot 31 Parking Garage project
Department of Transportation
Department of General Services

Special Capital Projects Legislation [Bill No. 19-08] was adopted by Council June 10, 2008.

## MAP



Attachment C: Summary of Major Points from Capital Crescent Trail Tour on November 3, 2011

**Discussions at Bethesda:**

- Tunnel:
  - The vertical clearance for the trail is between 8-9 ft in the tunnel.
  - The paved slopes under Wisconsin Ave are not part of the structure of the building.
  - The costs and risks in the tunnel without the trail would be much less, but MTA does not know how much less.
  - CSX provided a 32 ft high easement under the Apex.
  - The trail has to be "boxed" because of the transitway.
  - The trail would be about 10 ft above existing grade.
  - The access points to the trail in the tunnel are at Woodmont Plaza, the Purple Line Station just west of Wisconsin Ave, and Elm Street Park.
  - Security will be addressed by lighting and call boxes.
- Lighting
  - Capital Costs
    - If lights are spaced every 70 ft, the cost is $3.1 million.
    - If lights are spaced every 50 ft, the cost is $7.3 million.
  - Operational/maintenance costs
    - MTA does not have any cost estimates on these costs
- Emergency call boxes
  - The cost of call boxes was developed based on an assumed spacing of every ¼ mile and at key locations.
  - The cost for the entire trail between Bethesda and Silver Spring is estimated to be $400,000.
- Landscaping
  - MCDOT will have the responsibility to maintain landscaping and trail.
  - Landscaping along the trail between the trail and the county will cost about $1.2 million.
  - Landscaping at 12 trail connections will cost about $400,000.
- Benches will cost about $100,000
- Security
  - Security will be County responsibility
  - The County has not yet estimated the cost
- Who will build the trail?
  - MTA will design/build and will turn it over to the County
- Surface Trail
  - County CIP project @Elm Street Park provided by Aruna
    - 47th Street is owned by the Town of Chevy Chase
    - DOT proposed a shared-use path along Willow Ave to 47th Street, but this was rejected.
    - DOT proposed contra-flow bike lane on 47th St, but this was also rejected.
  - County is looking at a "premium" surface trail along the north side of Bethesda Ave; want to maintain existing trees and brick sidewalks. Under the above proposal, on-street parking

along the north side will be eliminated as there will be no need to provide on-street parking with the Lot 31/31A development and its garage.

- JBG submitted a development application for Woodmont East. JBG is looking at alternative options to accommodate the trail.

**Discussions at Rock Creek Park**

- Discussion points:
  - The Facility Plan for the Capital Crescent and Metropolitan Branch Trails (M-NCPPC, 2001) identifies both the Susanna Lane Connector and the Freyman Drive/Grubb Road Connector as interim until the switchback is built. The street connectors are not intended to be permanent.
  - If the connectors are recommended to become permanent in lieu of building the switchback, many improvements would be needed to roadways along both routes. Additionally, the connectors should be considered a pair.
  - The trestle bridge would be replaced by a bridge for the Purple Line and a separate bridge for the Capital Crescent Trail
  - The new bridge for the Purple Line would be about 10 ft lower than the existing trail bridge elevation and the new trail bridge will be about 10' lower than the new transit bridge
  - The switchback on the east side of the creek and south side of the transit line is recommended by both the 2001 Facility Plan for the Metropolitan and Capital Crescent Trails and the 2010 Purple Line Functional Master Plan
  - Moving the switchback to the west side would result in an additional structure crossing the creek and be difficult to tie in to the Rock Creek trail without realigning the current Rock Creek Trail
  - Because the parkland for this section of the Rock Creek Stream Valley Park was purchased with federal funds under the Capper-Cramton Act, NCPC has review authority
  - Shifting the switchback on the east side of Rock Creek to the north may result in parkland and wetland impacts, depending on its alignment. Any impacts to parkland, whether the switchback is on the north or south side, would trigger a federal 4f review (transportation impacts to parkland)
  - There is a smaller switchback at Jones Mill Road to provide trail access for local residents. The trail and the train travel under Jones Mill Road and the switchback brings trail users back to street level.

**Attachment D**

# Bethesda Bikeway and Pedestrian Facilities -- No. 500119

| | | | |
|---|---|---|---|
| Category | **Transportation** | Date Last Modified | **January 08, 2010** |
| Subcategory | **Pedestrian Facilities/Bikeways** | Required Adequate Public Facility | **Yes** |
| Administering Agency | **Transportation** | Relocation Impact | **None.** |
| Planning Area | **Bethesda-Chevy Chase** | Status | **On-going** |

## EXPENDITURE SCHEDULE ($000)

| Cost Element | Total | Thru FY09 | Est. FY10 | Total 6 Years | FY11 | FY12 | FY13 | FY14 | FY15 | FY16 | Beyond 6 Years |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Planning, Design, and Supervision | 1,413 | 1,071 | 0 | 342 | 0 | 0 | 342 | 0 | 0 | 0 | 0 |
| Land | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site Improvements and Utilities | 200 | 80 | 0 | 120 | 0 | 0 | 120 | 0 | 0 | 0 | 0 |
| Construction | 1,806 | 1,256 | 0 | 550 | 0 | 0 | 550 | 0 | 0 | 0 | 0 |
| Other | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **3,420** | **2,408** | **0** | **1,012** | **0** | **0** | **1,012** | **0** | **0** | **0** | **0** |

## FUNDING SCHEDULE ($000)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| G.O. Bonds | 3,420 | 2,408 | 0 | 1,012 | 0 | 0 | 1,012 | 0 | 0 | 0 | 0 |
| **Total** | **3,420** | **2,408** | **0** | **1,012** | **0** | **0** | **1,012** | **0** | **0** | **0** | **0** |

**DESCRIPTION**

This project provides bikeway network improvements and pedestrian intersection improvements as specified in the Bethesda Central Business District (CBD) Sector Plan to complete the requirements of Stage I development.

**ESTIMATED SCHEDULE**

This project is on hold for the construction of the Bethesda Lot 31 Parking Garage (No. 500932). The construction costs and estimated schedule for the remaining projects (Bethesda Avenue bike facilities, 47th Street bike facilities, and Willow Lane bike facilities) will be updated upon completion of the parking garage.

**JUSTIFICATION**

The Bethesda CBD has little net remaining capacity for employment under the current Stage I development restrictions. It is desirable to get the Bethesda CBD into Stage II development to increase employment capacity. The Bethesda CBD Sector Plan of 1994 recommends that certain bikeway and pedestrian improvements be implemented (see Table 5.2 of the Sector Plan) to allow the area to go to Stage II development.

Bethesda Central Business District Sector Plan, July 1994.

**OTHER**

The scope of work was planned and coordinated with local communities, property owners, and the Bethesda Urban Partnership before cost estimates for final design and construction were developed. Costs could be further refined and amended once feasibility is determined during the design process.

**OTHER DISCLOSURES**

- A pedestrian impact analysis has been completed for this project.

**APPROPRIATION AND EXPENDITURE DATA**

| | | |
|---|---|---|
| Date First Appropriation | FY04 | ($000) |
| First Cost Estimate Current Scope | FY01 | 3,366 |
| Last FY's Cost Estimate | | 3,420 |

| | | |
|---|---|---|
| Appropriation Request | FY11 | 0 |
| Appropriation Request Est. | FY12 | 0 |
| Supplemental Appropriation Request | | 0 |
| Transfer | | 0 |

| | |
|---|---|
| Cumulative Appropriation | 3,420 |
| Expenditures / Encumbrances | 2,465 |
| Unencumbered Balance | 955 |

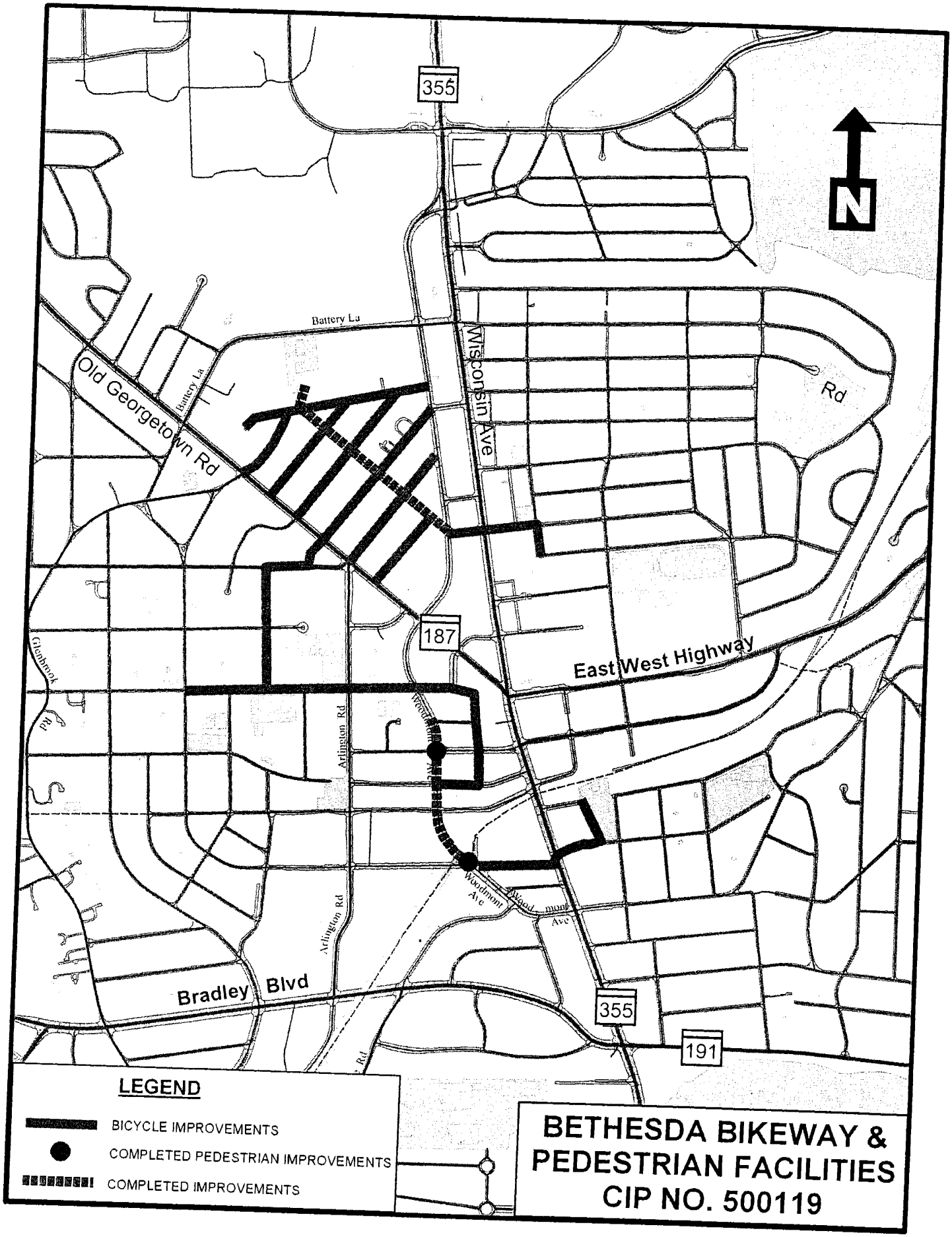
| | | |
|---|---|---|
| Partial Closeout Thru | FY08 | 0 |
| New Partial Closeout | FY09 | 0 |
| Total Partial Closeout | | 0 |

**COORDINATION**

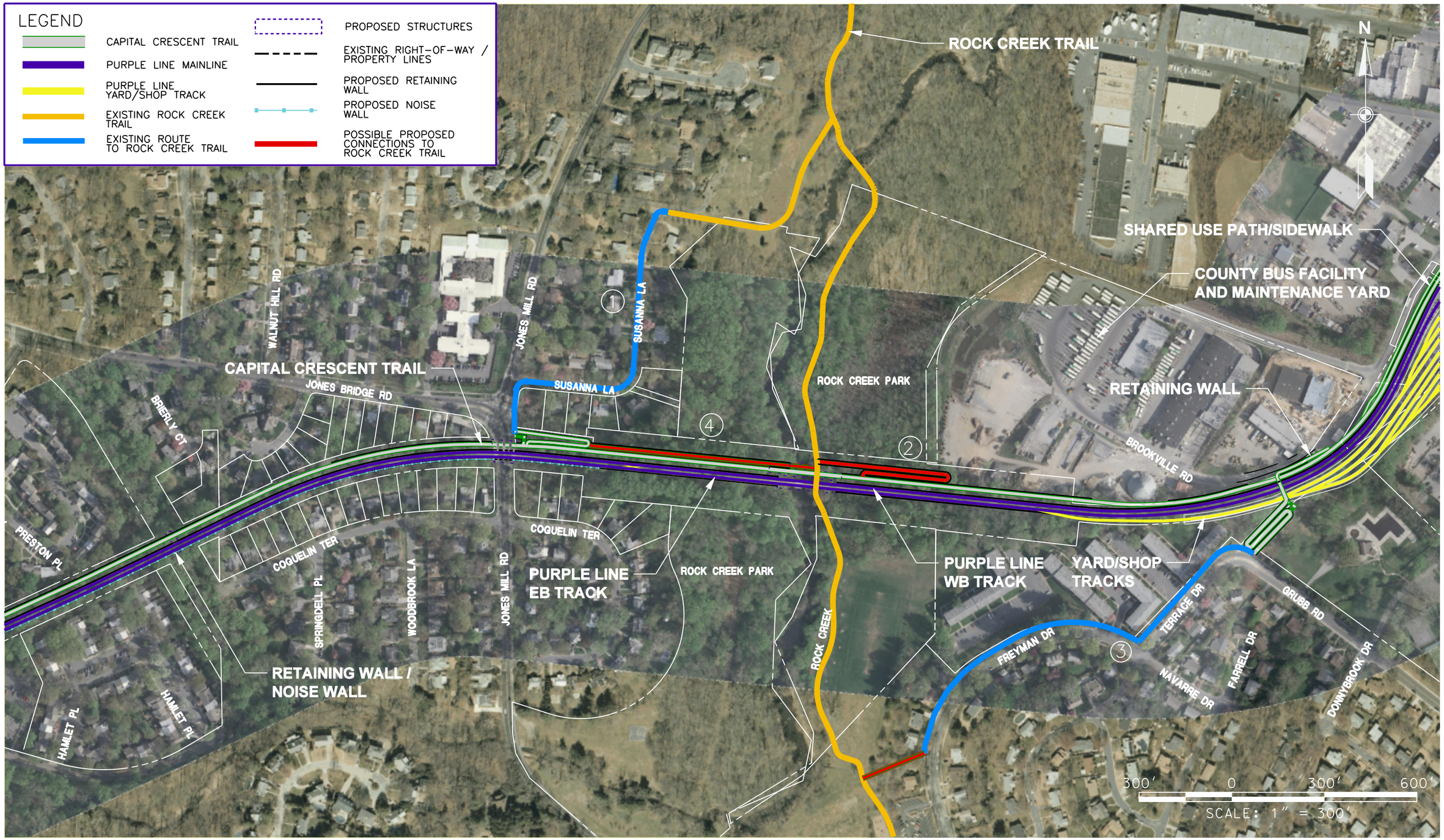
Bethesda Chevy Chase Regional Services Center (BCC)
Bethesda Urban Partnership
Montgomery Bicycle Action Group
Maryland-National Capital Park and Planning Commission
Maryland State Highway Administration
Bethesda CBD Streetscaping
Hard Surface Trail Design and Construction
Resurfacing Park Roads - Bridges
Maryland Mass Transit Administration
Washington Metropolitan Area Transit Authority

**MAP**

See Map on Next Page


355
N
Battery La
Old Georgetown Rd
Wisconsin Ave
Rd
187
East West Highway
Arlington Rd
Woodmont Ave
Bradley Blvd
355
191
LEGEND
BICYCLE IMPROVEMENTS
COMPLETED PEDESTRIAN IMPROVEMENTS
COMPLETED IMPROVEMENTS
BETHESDA BIKEWAY &
PEDESTRIAN FACILITIES
CIP NO. 500119

**Attachment E**




MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND TRANSIT ADMINISTRATION
MTA Maryland

Purple Line

Gannett Fleming
WR&A

DRAFT WORK-IN-PROGRESS

STUDY INFORMATION SHOWN SHALL BE USED FOR GENERAL PLANNING /INFORMATION ONLY AND IS SUBJECT TO CHANGE DURING PRELIMINARY ENGINEERING

PURPLE LINE
LIGHT RAIL

ROCK CREEK TRAIL CONNECTION OPTIONS

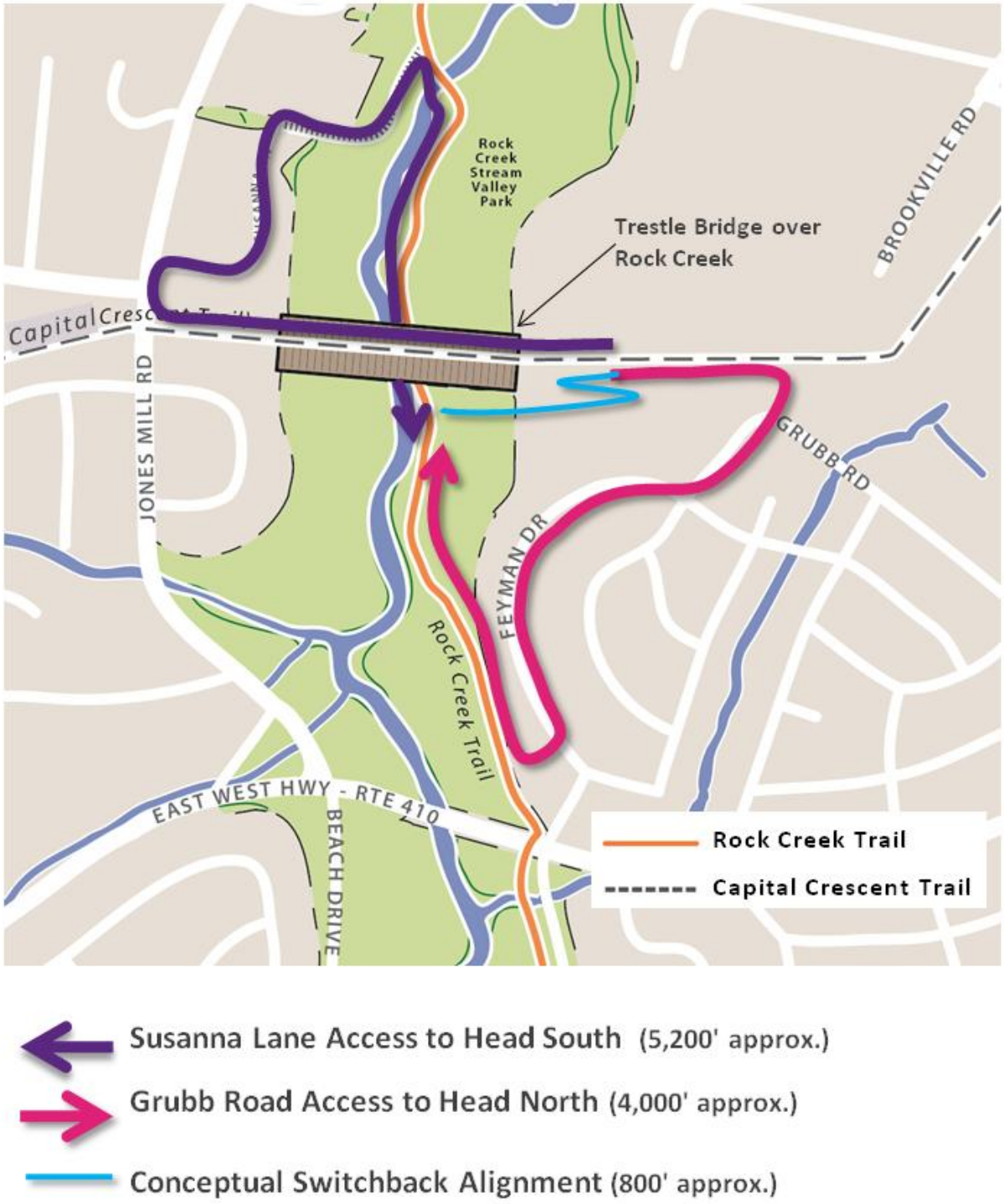
DATE: OCTOBER 2011 PLAN SHEET SCALE: AS SHOWN

CONTRACT NO. 1042
DRAWING NO. RCP-01
SHEET NO. 2 OF 2

$FILE$
$DATE$

**Attachment F.**

**Why Freyman Dr./Grubb Rd. and Susanna La. connectors should be consider as a pair**
Circuitous routes required for trail users making connections using existing streets



## Attachment G: Decision Making Matrix for Purple Line/Capital Crescent Trail Connector Options to Rock Creek Trail

**Prepared by the Department of Parks, Park Planning & Stewardship Division (November 4, 2011)**

(Refer to MTA Drawing No. RCP-01, October 2011 for map showing the 4 options)

| Trail Connector | Policy Guidance | Direct Connection? | Length | Relative cost | Relative suitability for bicyclists | Relative convenience for pedestrians and ADA | Neighborhood Impacts | Impacts to Parkland caused by Trail Connection (@) | Impacts within Right-of-Way caused by Trail Connection (@) | Ranking and Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| #1 – Susanna Lane(^) (connection from west) | Identified as an interim route by *Facility Plan for Capital Crescent and Metropolitan Branch Trails* (2001) | No | 1868' (0.35 mi.) 6 min walk | Moderate -- Construct 990 ft of sidewalk / shared use path | Good/OK - (low traffic speeds and volumes) | Fair/poor – long and circuitous route on new sidewalks | Yes - route travels along residential street with 18 homes | Low – no new impacts | Low – does not add to transitway construction impacts | 2: Impacts neighborhood; in conjunction with Freyman is the longest and most circuitous; not consistent with Master Plan |
| #2 Switchback Connector (north or south side) | Identified as trail connection by *Purple Line Functional Master Plan* (2010); *Facility Plan for Capital Crescent and Metropolitan Branch Trails* (2001) | Yes | +/- 800' (0.15 mi.) 2.5 min. walk | High ($1.4M) – Construct 797 ft. switchback connection and retaining walls | Excellent | Excellent –direct and short route | Yes - (only if on south side) Viewshed impacts to adjacent apartment buildings | TBD – depends if transitway limit of disturbance is within Right of Way | TBD – may not add to transitway construction impacts | 1: Impacts slopes, trees, and viewshed, but is most direct and consistent with Master Plan |
| #3 Freyman Drive/Grubb Road (^) (connection from east) | Identified as an interim route by *Facility Plan for Capital Crescent and Metropolitan Branch Trails* (2001) | No | 1634' (0.31 mi.) 6 min. walk | Moderate -- Construct 1250 ft of sidewalk / shared use path | Fair/OK (hilly, moderate traffic speeds and volumes) | Fair/poor – long and circuitous route on new sidewalks and hilly terrain | Yes - route travels along residential street with numerous single family and multifamily residential | Low – no new impacts | Low – does not add to transitway construction impacts | 2: Impacts neighborhood; in conjunction with Susanna is the longest and most circuitous; not consistent with Master Plan. |
| #4 Jones Mill Road Switchback Extension | None | Yes | 950' (0.18 mi.) 3 min walk | High -- Construct 740 ft of shared use path, retaining walls and new bridge over Rock Creek | Excellent | Excellent -- most direct and shortest route | Yes - Viewshed impacts to adjacent homes along Susanna Lane | TBD – depends if transitway limit of disturbance is within Right of Way | TBD – may not add to transitway construction impacts, but new trail bridge construction may add to impacts | 3: Most impacts from additional stream crossing; Impacts slopes trees, and viewshed; is most direct, but is not consistent with Master Plan. |

(^) These options are a set/pair, both must be implemented; they should not be considered an either/or choice

(@) Includes natural, historical and archaeological resources

**Note**: All options offer an opportunity to realign the Rock Creek Trail under the Purple Line to reduce flooding and resource impacts, and for Option #2 the park trail could be raised to reduce the elevation change for the switchback and therefore also the switchback length.

T&E COMMITTEE #2
March 1, 2012

**MEMORANDUM**

February 28, 2012

TO: Transportation, Infrastructure, Energy and Environment Committee

FROM: Glenn Orlin, Deputy Council Staff Director

SUBJECT: FY13-18 Capital Improvements Program—transportation: Capital Crescent Trail project

This is the third Committee worksession scheduled to review the transportation portion of the FY13-18 Capital Improvements Program. This worksession will include a presentation by the Maryland Transit Administration (MTA) of its report evaluating options for carrying the Capital Crescent Trail through the Bethesda CBD. The report is an update of the report presented to the Planning Board late last fall, and it includes evaluations of additional alternatives. The report also addresses other issues for the trail between Silver Spring and Bethesda, including:

- Should the County's trail project include continuous lighting along the trail, and if so, what kind?
- Should the project include call-boxes?
- Should the project include extra landscaping and amenities?

The Chair has indicated that, for this meeting, the Committee will hear MTA's presentation, get reaction from the Planning Board, Executive Branch and specific stakeholders, hear Council staff's analysis and recommendations, and ask questions of staff. The Committee will craft its recommendation on March 8, and that recommendation will be reported to the Council on March 13. The agenda is:

1. Opening remarks by the Chair.
2. Presentation by Michael Madden, Purple Line Study Manager, Maryland Transit Administration (approximately 30 minutes). MTA's latest report is on ©A-B, 1-47.
3. Comment period (up to 3 minutes each):
   David Anspacher, Montgomery County Planning Board staff (November 30 letter, ©48-54)
   Arthur Holmes, Jr., Director, Montgomery County Department of Transportation
   Patricia Burda, Councilmember, Town of Chevy Chase
   Ron Tripp, Chair, Coalition for the Capital Crescent Trail
   Ajay Bhatt, President, Friends of the Capital Crescent Trail
   Wayne Phyillaier, Treasurer, Purple Line NOW
   Shane Farthing, Executive Director, Washington Area Bicyclist Association
   Ginanne Italiano, Executive Director, Greater Bethesda-Chevy Chase Chamber of Commerce
4. Council staff analysis and recommendations to fund a Capital Crescent Trail project in the CIP (approximately 10 minutes).
5. Questions and answers between Councilmembers and staffs.

***Background.*** Ever since the 1990 Georgetown Branch Master Plan, it has been the County's intent that both a light rail line and a paved trail should be built along the Georgetown Branch and Metropolitan Branch rights-of-way between the Bethesda and Silver Spring CBDs. Also, ever since 1990, the understanding has been that the State would pay for the light rail line and the County would pay for the trail.

Since then, important design aspects of these two elements have changed. The light rail had been planned as a largely single-track line with double tracks at (and on the approaches to) the stations, but now it is to be double-tracked for its entire length. The trail had planned to be 10' wide, but now it is to be 12' wide. Meanwhile, of course, neither the physical constraints nor the right-of-way has changed, making the design much more challenging.

The most challenging part of the design has been trying to accommodate the Capital Crescent Trail, the light rail line, the platform for its Bethesda station, and its connection to a southern entrance to the Bethesda Metro Station through the "tunnel" beneath the Air Rights Building, Wisconsin Avenue, and the Apex Building. Tracing back to the 1990 Georgetown Branch Plan, the concept has been to place the trail above one of the two tracks.

The 1994 Bethesda CBD Sector Plan foresaw potential problems with the concept, and so it recommended two hiker-biker paths: Route A1 through the tunnel and Route A2 through Elm Street Park, and along Willow and Bethesda Avenues. The Plan acknowledges the desire for both, but states:

> The tunnel area for the CCT may be greatly reduced or perhaps eliminated if double tracks for the trolley are needed there. In the event that the CCT does not run through the tunnel, the CCT will follow only a street level route. (Bethesda CBD Sector Plan, p. 156)

Route A2 is being designed as part of the Bethesda Bikeway and Pedestrian Facilities project in the County's CIP. On February 27 the Committee tentatively recommended accelerating it so that it would be built in FY15, a year sooner than proposed by the Executive.

Last fall MTA presented its analysis of tunnel options to the Planning Board, noting that Route A1's trail-over-transit concept (Alternative A in MTA's report) requires excavating 8-10' beneath the ground level under the Apex Building and Wisconsin Avenue, costing about $50 million more (in 2020 dollars) than if solely Route A2 were built (Alternative B). Furthermore, it would pose serious risks to the structural integrity of the Apex Building. The Planning Board's response was to request more options to be studied, including: relocating the station east of the Air Rights Building entirely, at the foot of Pearl Street and behind homes on Elm Street in the Town of Chevy Chase (Alternative C); and razing and rebuilding the Air Rights Building to create an envelope wide enough for two tracks, a station platform, and the trail (Alternative D).

MTA has evaluated Alternatives C and D and found them wanting. The tear-down option was found to be infeasible from a cost standpoint. It would also delay the entire Purple Line for several years, since the State would have to condemn a major occupied office/retail building. (The State does not have "quick take" authority for buildings.) The east-of-Air Rights option places the station more than a 1000' away from the southern entrance, adding at least 3 off-board minutes of delay for transit

riders (equivalent to 6 minutes in travel forecasting models), which would have a serious deleterious effect on the Purple Line's ridership and effectiveness. MTA has ruled out both options.

The Town of Chevy Chase opposes Alternative C because of the impacts of many of its residences, but also for the reasons cited by MTA. It does not have enough information to comment on Alternative D, but it is concerned about the design's potential impact on Elm Street Park. The Town does support Alternative A, the trail above the tracks in the tunnel (©55-56).

Initially MTA was expected to report back to the T&E Committee with its analysis of the Planning Board's options by late January, but it asked for more time to evaluate other alternatives that would keep the trail in the tunnel by single-tracking the light rail line there until it reached a double-track station. It developed and evaluated three such "gauntlet track" options (Alternatives E, F, and G). Unfortunately it has concluded that all of them would introduce the potential for unacceptable delays that would seriously affect the reliability of service on the entire Purple Line.

Therefore, MTA is left with presenting the County two options: the alternative option in the Locally Preferred Alternative (Alternative A) and solely on the on-street Route A2 (Alternative B). The difference in cost is now characterized as being about $47.2 million, compared to the $50 million noted last fall; the difference is due to MTA's decision to inflate project costs to 2018 dollars rather than 2020 dollars.

MTA addressed three other issues that affect the design and cost of the entire trail. It examined two types of continuous lighting: one that would follow the County's current streetlighting practice, which would place poles 70' apart providing 1.0 foot-candles of horizontal illumination, and another that would follow new standards recommended by the Illuminating Engineering Society of North America (IESNA), setting poles 50' apart. The cost of the two options is $3.8 million and $5.2 million, respectively (2018 dollars).

The Parks Department's practice is to install emergency call boxes along most of its trails; MTA estimates this would add $0.5 million to the trail's cost. MTA also estimates that: the cost of supplementing the landscaping budget to provide 2.5"-caliper shade trees, 8'-high ornamental trees, and 6'-high evergreen trees and shrubs along the length of the trail would be $1.5 million; the cost of enhanced landscaping at 12 significant locations or junctions along the trail would cost another $0.5 million; and the cost of 40 6'-long benches would cost about $0.1 million (all costs in 2018 dollars).

The Planning Board recommends that the Council program the cost of the Capital Crescent Trail in the FY13-18 CIP concurrent with the construction schedule for the Purple Line, including the costs of lighting, call-boxes, and landscaping. MTA estimates that the entire cost of the trail, assuming Alternative A (trail elevated through the tunnel), plus the more expensive lighting option, emergency call-boxes, supplementary landscaping, and benches, and including engineering and contingencies, is $126.5 million (2018 dollars). This cost would be the County's responsibility, and none of it is currently programmed in the Approved FY11-16 CIP nor proposed by the Executive in his Recommended FY13-18 CIP.

***Council staff's comments.*** Alternative A's $47 million added cost to the Council is prohibitive, considering it is already, it may invest $80.5 million for the Bethesda Metro Station's south entrance and at least $48.1 million for the balance of the CCT between Bethesda and Silver Spring (see Council staff's recommendation, below). Constructing it would pose a substantial risk to the structural integrity of the Apex Building; MTA notes that "the costs of the modifications and the risks (structurally and due to the lost productivity/occupancy of the tenants) associated with the construction may exceed the appraisal of the existing building." Council staff concurs with MTA that Alternative A should be dropped from further consideration.

There is not enough information in the report, however, to rule out gauntlet track alternatives yet. The Council should ask MTA to present its detailed analysis of these options, especially Alternative E, which would keep the station beneath the Apex Building and closest to the new south entrance to Metrorail. MTA notes that none of the gauntlet track options allow operation of a 6-minute headway. By how much does it miss this goal? The report also notes that due to the traffic interference at intersections, train operations need to recover their schedules at the terminals. Could a "tripper" train be made available to fill in the schedule, as is done for bus service?

For the purpose of this worksession, however, the only real question is how much funding is needed for the CCT. If MTA were to continue pursuing Alternative E, and if it were ultimately chosen, the added trail cost to the County would only be for extending it at-grade through the tunnel, extending the fencing between tracks and trail, and adequate lighting. This added cost should not be more than several hundred thousand dollars.

Whether or not Alternative E is found to be doable ultimately, more attention should be turned to Route A2—the at-grade trail in the master plan—since it will be built whether or not the tunnel route is. This at-grade route should be made as safe and attractive as it can be. The Planning Board recommends that an agency working group be convened to advise County DOT on the design of this route. The group would include the State Highway Administration, the Town of Chevy Chase, the Parks Department and the Planning Department, and it would be mandated to find means to:

- upgrade its design so that it is comparable to the trail along the Purple Line;
- separate trail users from non-trail users where a number of non-trail users are present (the Bethesda Farm Women's Market is an example);
- minimize the number of driveways crossing the trail; and
- provide a safer and more convenient protected crossing at the intersection of Wisconsin Avenue, Willow Lane, and Bethesda Avenue.

The Bethesda Urban Partnership should be included in this group. So should the Coalition for the Capital Crescent Trail; even though it is not a government agency, for over two decades it has been instrumental in providing critical input to the trail's design, contributing to its maintenance, and funding some low-cost improvements to the trail.

Regarding the Wisconsin Avenue ped/bike crossing at Willow Lane/Bethesda Avenue, Council staff suggests that the working group evaluate at least the following three measures:

1. *Alter the traffic signal phasing to give more "green time" to pedestrians and bikers crossing Wisconsin Avenue during rush hours.* The current and future constraints to traffic flow on Wisconsin are the East-West Highway and Montgomery Avenue (MD 410) intersections to the north, and the Bradley Boulevard/Bradley Lane (MD 191) intersection to the south. Theoretically it should be possible to set the signal phases at the Willow Lane/Bethesda Avenue intersection so that the ped/bike crossing would get a longer phase than it does now.

2. *If the at-grade trail continues to be planned for the north-side of Bethesda Avenue, then create a longer ped/bike crossing phase by prohibiting left turns from eastbound Bethesda Avenue to northbound Wisconsin Avenue and left turns from Willow Lane to southbound Wisconsin Avenue.* Although more circuitous for motor vehicle travel, both of these movements could be accommodated at the Wisconsin Avenue/Leland Street intersection instead.

3. *Provide substantially more "green time" for the ped/bike crossing on weekends and holidays, when the trail use is at its peak and traffic on Wisconsin Avenue is not.*

A convincing case for continuous lighting along the mainline of the trail has not been made. There is no continuous lighting on the CCT west of the Bethesda CBD, and while true that most park trails are closed at night, the CCT west of Bethesda is open for commuters. Bike commuters navigate the current trail quite well at night if their bikes have headlights. The cost to install continuous lighting is expensive, and it carries with it the ongoing operating cost for power and maintenance that the County would have to absorb. Lighting at some spots along the trail would be useful, however, especially at junctions with connecting paths and in the few underpasses. Rather than spending up to $5.2 million for continuous lighting, including $1 million in the project's budget instead for spot lighting is more appropriate.

In this day and age, with the near universality of cellular phones, the need for call-boxes is unclear, especially along the CCT. There are no segments of this trail where cell service would not be available, and the emergency would have to be within a very short distance from a call-box to be used. It is noteworthy that, unlike most park trails, the existing CCT west of Bethesda does *not* have call-boxes.

On the other hand, the additional budget for supplemental enhanced landscaping along the route and at certain landmarks and trail junctions is warranted. The cost is not unreasonable and, once mature, this added landscaping will restore some of lush foliage in the right-of-way that patrons of the interim trail have enjoyed over the past two decades.

**Council staff recommendation: Include into the CIP a <u>Capital Crescent Trail</u> project for $48.1 million ($27.6 million in the FY13-18 period) that includes the mainline trail from Elm Street Park in Bethesda to Silver Spring as a largely 12'-wide hard-surface hiker-biker path, connecting paths, a new bridge over Connecticut Avenue, a new underpass beneath Jones Mill Road, supplemental landscaping, and lighting at trail junctions, in underpasses, and at other critical points (©57).** If approved, this would be the first time that the permanent trail between Bethesda and Silver Spring will have ever been funded in a Capital Improvements Program. The cost in the PDF includes two other key assumptions:

1. The State's estimate for Alternative B is in the range of $65-70 million in 2018 dollars, not including additional costs for lighting, call-boxes, or enhanced landscaping and amenities. However, this assumes that the so-called "shared" costs between the light rail and trail—retaining walls and other similar elements—will be split between the State and County. However, the State and County have not yet negotiated how such costs will be split. If the Council is going to program funds for the CCT ahead of the State's programming of construction funds for the Purple Line, then the County should program only the amount that would be "floor" of what it might expect would be the ultimate contribution.

   This "floor" figure of $48.1 million is based on the position that, since the Georgetown Branch trail exists, any cost associated with fitting the Purple Line with the CCT in that right-of-way should be a State cost. Costs which enhance the existing trail, however, should be County costs: extending the trail along the Metropolitan Branch to Silver Spring, paving the existing Georgetown Branch trail, building the CCT bridge over Connecticut Avenue, improving its connecting paths, lighting in spots, and enhanced landscaping along the CCT. MTA has reviewed Council staff's calculations to reach the $48.1 million figure, and it concurs with the math. However, MTA wishes to ensure that the Council understands that this cost estimate differs from MTA's position regarding the light rail/trail cost allocation, and that it does not concur with Council staff's characterization of the trail's costs.

2. Councilmember Floreen's point at the February 13 worksession was that if the Bethesda Metro Station Southern Entrance needs to be funded concurrent with the construction of the Purple Line, the same is true for the CCT. Council staff agrees with her logic, *but only where the trail is cheek-by-jowl with the Purple Line—along the Georgetown Branch, that is.* Along the Georgetown Branch all the construction in the right-of-way will be built at the same time: in FYs16-17 and the first half of FY18, according to MTA's production schedule.

   However, this schedule is not necessary for the 1.1-mile-long segment along the Metropolitan Branch, where the CCT will be on the northeast side of the CSX tracks and the Purple Line will be on the southwest side. In this segment, Council staff's assumption is that the trail would be built in FYs 19-20, so that the entire trail between Silver Spring and Bethesda would open when the Purple Line opens in 2020. With this construction schedule, only $27.6 million of the $48.1 million cost would be in the FY13-18 period.

**Council staff also recommends that the Council ask MTA to pursue Alternative E further. Should it be found that there is a way this option—or a variation of it—is workable in providing frequent and reliable service for the Purple Line, then the Council should program the additional funds needed to extend an at-grade trail through the tunnel, with appropriate fencing and lighting.**

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Purple Line

# CAPITAL CRESCENT TRAIL CONSIDERATIONS FOR MONTGOMERY COUNTY

FEBRUARY 24, 2012

VERSION 02

MTA Maryland

***DCN: 2012.02.20.PO.PE.12.CCT Considerations for MoCo-02***



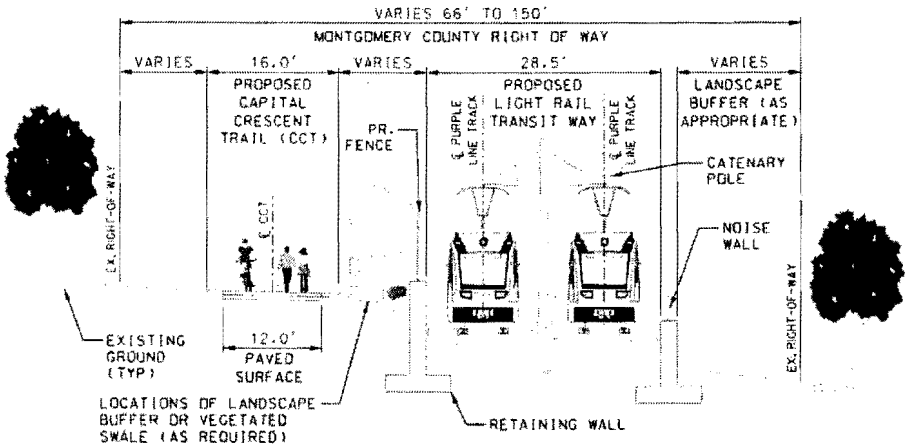
(A)

**Table of Contents**

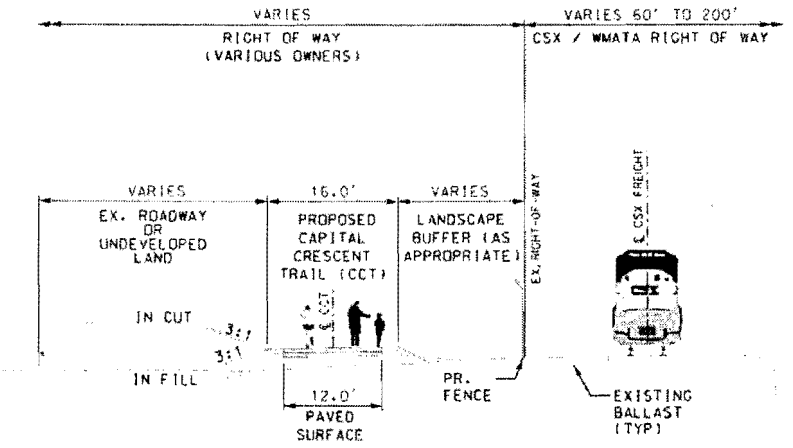
# 1 Introduction

The Maryland Transit Administration (MTA) has proposed the Purple Line, an east-west Light Rail Transit (LRT) line through Montgomery and Prince George's Counties in Maryland. At the west end of the Purple Line, the terminal station is in Bethesda, Montgomery County, Maryland. The main purpose of this station is to provide connectivity between the Purple Line and Washington Metropolitan Area Transit Administration's (WMATA) Red Line and downtown Bethesda. To meet these goals, this station is proposed be constructed in the vicinity of Woodmont Avenue, Wisconsin Avenue and Elm Street. Therefore, the Purple Line will travel through an underground tunnel along an alignment previously used by the Baltimore and Ohio (B&O) Railroad's Georgetown Branch, which is beneath two existing buildings (the Apex Building and the Air Rights Building) and beneath Wisconsin Avenue, which is carried across the easement by a single span multi-girder bridge.

The Capital Crescent Trail (CCT) is a mixed-use trail that will be constructed from the Bethesda Station to the Silver Spring Transit Center where it will connect to the Metropolitan Branch Trail and the Silver Spring Green Trail (a Montgomery County Project that will likely be constructed at the same time as the CCT, which is not part of the project). The CCT is envisioned to be both a recreational trail and a commuter trail. As a commuter trail it will connect residential communities to proposed Purple Line stations at Bethesda, Connecticut Avenue/Chevy Chase Lakes, Lyttonsville, Woodside and Silver Spring Transit Center. The CCT is proposed to be adjacent to the Purple Line transitway along the north side from Bethesda to Lyttonsville. East of Lyttonsville the CCT and the Purple Line split and run on opposite sides of the CSX/WMATA corridor until they reach the Silver Spring Transit Center. The trail will run along the north side of this corridor with the Purple Line running on the south side of the corridor. The trail will be paved, and will typically be 12' wide with 2-foot unpaved shoulders on each side. Refer to the proposed typical sections below.




**Typical Section Bethesda to Lyttonsville**




**Typical Section Lyttonsville to Silver Spring Transit Center**

The goals of the Bethesda Station are to present a welcoming station experience; to provide platforms of sufficient width for the expected ridership of 11,500 weekday boardings; to connect with the proposed Bethesda South access for the Washington Metro Area Transit Authority's (WMATA) Red Line; to maximize the available open space for the station; to minimize the impacts to the existing structures, the risks associated with construction and re-development of properties surrounding the station/alignment, and the cost of the project; to include tail tracks or over run tracks beyond the platform; and to accommodate the CCT. The five station platform alternatives are evaluated in this report are:

1. Alternative A - The Locally Preferred Alternative with a platform under the Apex Building with the CCT elevated above the Purple Line through the tunnel
2. Alternative B - A platform under the Apex Building with the CCT connecting to a surface alignment through Elm Street Park
3. Alternative C - A platform east of the Air Rights Building with the CCT on the surface through the tunnel
4. Alternative D - A platform under the Air Rights Building following the redevelopment of the Air Rights Building with the CCT through the tunnel
5. A family of "reduced transitway width" like options:
    a. Alternative E - A platform under the Apex Building with gauntlet tracks through the Air Rights Building with an adjacent CCT
    b. Alternative F - A platform in the Woodmont Plaza with reduced track centers through the Apex and Air Rights Building with an adjacent CCT
    c. Alternative G - A platform in the Woodmont Plaza with a single track through the Apex and Air Rights Building with an adjacent CCT

The current estimated total construction cost of the CCT is $68.25 M (2011 dollars). The total trail cost of $93.94 M (2011 dollars) includes engineering services (engineering through construction) and unallocated contingencies. Refer to Appendix 1 for the May 2011 trail cost breakdown that was

presented in 2010 dollars and does not include updated costs covered in this paper. Appendix 1 also includes mapping that defines the components of the trail cost that are either costs assigned to the trail, costs shared between the trail and the Purple Line Transitway, or costs that are assigned fully to the Purple Line Transitway. This cost does not include provisions for trail lighting, emergency communications, and supplemental landscape and hardscape features. County decisions required on these topics are covered later in this white paper.

A significant component of the trail cost is related to both the CCT and the Purple Line occupying the space beneath the existing Apex Building, Wisconsin Avenue and the Air Rights Building. Refer to the table below that summarizes the costs related to the various components of the trail. This white paper outlines updated costs, some of the risks associated with constructing both the CCT and the Purple Line in this space and new issues that have come to light upon further more detailed investigation and design of the Bethesda Station.

| Location | Neat Construction (Millions) | Engineering Services (Millions) | Unallocated Contingency (Millions) | Total (Millions) | % Total |
|---|---|---|---|---|---|
| Apex Building | $19.60 | $6.27 | $1.11 | $26.98 | 28.7% |
| Wisconsin and Air Rights Building | $9.80 | $3.14 | $0.55 | $13.49 | 14.4% |
| Other Segments of Trail | $38.85 | $12.43 | $2.19 | $53.47 | 56.9% |
| Total | $68.25 | $21.84 | $3.85 | $93.94 | 100.0% |

**Trail Costs Associated with the Locally Preferred Alternative**

The Capital Crescent Trail will be planned and built as part of the Purple Line, but construction will be funded by sources to be identified by Montgomery County and MTA. This white paper is being prepared to assist Montgomery County in defining their ultimate vision for the permanent Capital Crescent Trail. The decisions made by the County will be coordinated with the Maryland Transit Administration (MTA) to ensure that the Purple Line is designed to accommodate this ultimate vision with MTA's feasible station platform alternatives. They are meant to help define a long-term vision for the trail, and therefore some elements could be implemented in the future.

# 2 Bethesda Station and Capital Crescent Trail Alternatives Considered

Five alternatives have been evaluated for the Bethesda Station and CCT. As described above, these alternatives were developed in order to better meet the goals of the MTA, the Purple Line, the CCT, and the community.

## 2.1 Alternative A - Locally Preferred Alternative

**Plan and Profile:** See Drawings 1 and 2

**Station:** 200' side platforms would be provided under the Apex Building, with access from Woodmont Plaza and the street level via elevators and stairs at the corner of Elm Street and Wisconsin Avenue. The platforms are 12' and 15' wide. The station will be constructed around the existing columns and caisson foundations which will come through the platform. In order to provide adequate platform length and to meet the required running clearances, the platform requires a slight horizontal curve. This is undesirable from an operational point of view due to the gap created between the platform and the train. In order for patrons to reach the south track from the Bethesda South Access, an at-grade crossing is required at the station.

**Tail Track:** Each track will be extended 130' from the end of the station platform to provide room for overrun and an energy absorbing bumping post. This overrun track will extend approximately 80' past the end of the Apex building.

**Catenary:** A termination pole and tie down for the catenary will be provided beyond the limits of the Apex Building.

**Trail:** The CCT begins west of the Apex Building along the existing CCT alignment. The CCT then climbs to an aerial structure above the south track adjacent to the south wall of the building. The aerial structure ties into a mezzanine that connects the CCT to the MTA Purple Line/WMATA Red Line elevator lobby. The mezzanine ties into a concrete box structure under the Wisconsin Avenue Bridge to support the trail over the LRT tracks. Coming off of the box structure at the transition to the Air Rights Building, a truss structure, with single-column integral piers centered between the tracks, carries the trail eastward out of the Air Rights Building where it comes back down to grade north of the LRT tracks. No columns for the structure will be located on the station platforms. A connection between the CCT and Elm Street Park will be provided.

**Structural Considerations:** At least 35 of the existing columns of the Apex Building, founded on unreinforced caissons, will require strengthening due to lowering the grade by up to 8' from the existing ground in order to accommodate the necessary clearances for the LRT and the CCT. Because the caissons are unreinforced, removing any ground material from around them reduces their capacity, which is nearly reached under the present loading conditions of the building. If the existing caissons were to be strengthened by wrapping them and the uncertainties of the caisson size may result in significant structures in the middle of the station platform. The existing building requires temporary support at each caisson location during the excavation and strengthening. Significant structural monitoring will be required. The columns

cannot be relocated due to the use of the first floor of the building as a transfer slab. Due to the need for a crash wall adjacent to the LRT tracks, the south wall of the Apex Building will require strengthening in order to meet the requirements of a crash wall.

The exterior wall of the Apex Building along Elm Street needs to be underpinned for up to 20'+ vertically due to the bottom of wall elevation as high as 339.25 at some locations at the east end. This elevation is significantly higher than the proposed platform elevation. There are existing grade beams that are above the proposed platform location that may require strengthening.

Due to continued occupancy, the age of the existing structure, and uncertainties of the structures' design, the risks and costs associated with modifying the existing Apex Building are extremely high.

The tracks would be inside of a concrete box structure that would carry the trail above the tracks under the Wisconsin Avenue Bridge. The box structure will be supported on micropiles and will not impact the structural integrity of the existing bridge.

The existing Wisconsin Avenue Bridge was constructed around an older structure. The piers of the original bridge structure were to be cut off below grade during the construction of the existing structure, and they are likely in the vicinity of the proposed concrete box structure and its pile foundation. The presence of the previous foundation needs to be considered during design and construction. Removal of these structures could result in an increased cost which is not currently included in the cost estimate.

The clearances for the LRT are very tight to avoid impacting the walls at the Air Rights Building. The impact is expected to be minimal.

**Geotechnical Considerations:** The Designers cannot be certain of the caisson diameters and quality; field conditions likely do not match the plans. If they are to be exposed, particularly in the Apex Building, the existing elements could be very unsightly and require significant facings in order to make the caissons look presentable.

The original piers of the old Wisconsin Avenue Bridge may need to be removed.

**Architectural Considerations:** There will be potentially large "columns" in the middle of the platform due to the need to strengthen and or retrofit the existing building's columns and caissons. Existing beams which are currently buried will be exposed and possibly will require strengthening.

**Operational Considerations:** None expected.

## 2.2 Alternative B - Platform Under the Apex Building with the Capital Crescent Trail Connecting To A Surface Alignment Through Elm Street Park

**Plan and Profile:** See Drawings 3 and 4

**Station:** 200' center platform will be provided under the Apex Building, with access from the street level via elevators, stairs and a ramp at the corner of Elm Street and Wisconsin Avenue.

The platform is 15' wide. The station will be constructed around the existing columns which will come through the platform. In order to provide adequate platform length and to meet the required running clearances, the platform requires a slight horizontal curve. This is undesirable from an operational point of view due to the gap created between the platform and the train. In order for patrons to reach the platform from the Bethesda South Access, an at-grade crossing is required at the station.

**Tail Track:** Each track will be extended an extra 130' to provide room for overrun and an energy absorbing bumping post. This overrun track will extend 75' past the end of the Apex building.

**Catenary:** A termination pole and tie down for the catenary will be provided beyond the limits of the Apex Building.

**Trail:** The CCT follows the "surface alignment" currently under development by the County that starts at Woodmont Plaza, travels east on the north side of Bethesda Avenue, crosses Wisconsin Avenue at a signalized intersection, continues onto Willow Lane, and then heads north through Elm Street Park. At Elm Street Park the CCT connects to a truss structure. The structure carries the trail eastward out of the Air Rights Building where it comes back down to grade north of the LRT tracks.

**Structural Considerations:** There are no expected impacts at the existing Apex Building, Wisconsin Avenue Bridge and the Air Rights Building.

**Geotechnical Considerations:** None expected.

**Architectural Considerations:** There will be six 20" x 14" existing columns for the Apex Building in the middle of the center platform. There will be columns in the middle of the path from the east end of the center platform to the WMATA Red Line Access point.

**Operational Considerations:** None expected.

## 2.3 Alternative C - Platform East of Air Rights Building With Trail to Woodmont Plaza

**Plan and Profile:** See Drawings 5 and 6

**Station:** 200' side platforms will be provided just to the east of Pearl Street. The platforms are each 12' wide. Connections to the platforms will be from the west end of the platforms via the CCT or from Elm Street Park. The CCT will be able to be accessed from the street level at Elm Street and Wisconsin Avenue and Pearl St. Patrons can also access the CCT from Woodmont Plaza west of the Apex Building and at the Elm Street Park. An at-grade crossing is required at the west end of the platforms in order for patrons to access the south platform.

A station east of Pearl Street would be approximately ¼ mile from the planned south entrance to the Bethesda Metro station, Woodmont Plaza and downtown Bethesda. This location would add three more minutes on the walk time to reach the Metro connection, Woodmont Avenue and Wisconsin Avenue. In choosing to use transit, walk time as part of a transfer or as part of the trip getting to and from a station is perceived by passengers as more onerous than time spend riding

on a train by a factor of two. The additional three minute walk time will have an adverse effect not only on the level of ridership attracted to the Purple Line but reduced the travel time saving (user benefits) to those who would use the system. While this not only reduces the benefits gain from the investment in the Purple Line, it will also have an adverse effect on the FTA cost-effectiveness index that is critical to obtaining federal funding for the project. In addition, the station would be located on the edge of the development area adjacent to residential properties in the Town of Chevy Chase.

For these reasons this alternative is not viable from a transit service standpoint and was dropped from further consideration.

**Tail Track:** One (1) tail track, 250' long, will be provided under the Air Rights Building with a turn out.

**Catenary:** A termination pole and tie down for the catenary will be provided under the Air Rights Building.

**Trail:** The CCT will run along its existing alignment under the Apex Building and Wisconsin Avenue Bridge. Under the Air Rights Building, the trail will run at existing elevation, but will shift from the existing horizontal alignment to run adjacent to the existing north crash wall. An at-grade connection between the CCT and Elm Street Park will be provided, east of the Air Rights Building.

**Structural Considerations:** A retaining wall will be required on the north side of the Trail east of the Air Rights Building. Structural impacts to the Air Rights Building are expected to be minimal. There are no expected impacts at the existing Wisconsin Avenue Bridge or the Apex Building.

**Geotechnical Considerations:** None expected.

**Architectural Considerations:** None expected.

**Operational Considerations:** None expected.

## 2.4 Alternative D - Platform Under A New Air Rights Building With Trail to Woodmont Plaza

**Plan and Profile:** See Drawings 7 and 8

**Station:** 200' long side platforms will be provided under a redeveloped Air Rights Building. The platforms are each 15' wide. Connections to the platforms from the street level will be provided at Elm Street and Wisconsin Avenue, Waverly Street and Wisconsin Avenue, Elm Street Park, and, via the CCT, at the Woodmont Plaza west of the Apex Building.

A station under the Air Rights building would require the redevelopment of at least a portion of the Air Rights complex. A high level review was conducted to determine the economic feasibility of this redevelopment concept under the existing development density limits. Factors considered include the allowable density, value of the towers, cost of new construction, potential increase in value (higher rents, more efficient buildings, etc.), loss of revenue during

construction, and the risk associated with finding new tenants. It was determined that purchasing the buildings was not economically feasible since the public investment would likely not be recouped by redevelopment on-site. Joint development with the property owner was also considered. This could reduce some of the financial burden as there would be no purchase of the buildings, however, the increase in value would have to be great enough to warrant the owner to take on the additional risk and cost of redevelopment and finding new tenants. It was determined that this would still require significant public subsidies, possibly including compensating the owner for the loss of income during the years of construction, and was also not economically feasible. Based on this analysis it was determined that this alternative is not economically viable and was dropped from further consideration.

**Tail Track:** Each track will be extended 130' from the end of the station platform to provide room for overrun and an energy absorbing bumping post.

**Catenary:** The catenary for both tracks will be tied down to the underside of the box structure under Wisconsin Avenue.

**Trail:** The CCT will enter the Apex building at existing ground level and will then begin to climb, supported by two MSE walls, within its existing easement. It will rise up to an aerial structure at a mezzanine level where it connects with the MTA Purple Line/WMATA Red Line elevator lobby. This mezzanine ties into a concrete box structure that supports the CCT under the Wisconsin Avenue Bridge. Coming off of the box structure at the transition to the Air Rights Building, a truss structure, with single-column integral piers, carries the trail eastward out of the Air Rights Building, where it comes back down to grade north of the LRT tracks. No columns will be placed on the platforms. A connection between the CCT and Elm Street Park will be provided.

**Structural Considerations:** This option results in no impact to the Apex Building. This option assumes complete reconstruction of the Air Rights property, with an easement provided for the tracks, the station, and the CCT.

Inside of the concrete box under Wisconsin will be the walkway to connect the Elm Street and Wisconsin Avenue access point to the station under the Air Rights Building. The box structure will be supported on micropiles and will not impact the structural integrity of the existing bridge.

The existing Wisconsin Avenue Bridge was constructed around an older structure. The piers of the original bridge structure were to be cut off below grade during the construction of the existing structure, and they are likely in the vicinity of the proposed concrete box structure and its pile foundation. The presence of the previous foundation needs to be considered during design and construction.

**Geotechnical Considerations:** None expected.

**Architectural Considerations:** The redevelopment of the Air Rights property allows for open space, both horizontally and vertically, for the concourse area. A walkway will be provided through the box structure at Wisconsin Avenue in order to tie the access point at the corner of Elm Street and Wisconsin Avenue into the MTA Purple Line Station.

This option also allows for additional access points through the Air Rights property and the Elm Street Park to both the Purple Line and the CCT. The potential to bring natural light into the station exists in this option as well.

**Operational Considerations:** None expected.

## 2.5 Reduced Transitway Width Family of Alternatives

This family of alternatives utilizes three different track scenarios to minimize the footprint of the transitway to allow for the CCT to run adjacent to the transitway under various portions of the Apex Building, Wisconsin Avenue and the Air Rights Building.

### 2.5.1 Alternative E - Platform Under Apex Building with Gauntlet Track Under Air Rights Building

**Plan and Profile:** See Drawings 9 and 10

**Station:** A 200' long center platform will be provided under the Apex Building, with access from the street level via elevators and stairs at the corner of Elm Street and Wisconsin Avenue, and via sidewalk from the corner of Woodmont Avenue and Bethesda Avenue. The platform will be 16' wide. The station will be constructed around the existing columns which will come through the platform. In order to provide adequate platform length and to meet the required running clearances, the platform requires a slight horizontal curve. This is undesirable from an operational point of view. In order for patrons to reach the platform from the Bethesda South Access, an at-grade crossing is required at the station.

**Tail Track:** Each track will be extended 130' from the end of the station platform to provide room for overrun and an energy absorbing bumping post. This overrun track will extend into the Woodmont Plaza.

**Catenary:** A termination pole and tie down for the catenary will be provided in the Woodmont Plaza.

**Trail:** The CCT begins as a 5' wide sidewalk to the north of the Purple Line tracks in the Woodmont Plaza. The sidewalk continues into the Apex Building and begins to climb to an aerial structure to go over the crossing from the platform to the proposed Bethesda South access. The sidewalk then widens out to 10' as it descends down to grade under the Wisconsin Avenue Bridge, eventually widening out to 11' and then 12' as space permits under the Air Rights Building. An at-grade connection between the CCT and Elm Street Park will be provided, east of the Air Rights Building.

**Structural Considerations:** To grade-separate the trail from the access path from the platform to the WMATA Red Line, a retaining wall is required along the north column line of the Apex Building. The trail will cross the access path with an approximately 30' long bridge. The north wall of the Apex Building along Elm Street needs to be

underpinned up to 8'+ vertically due to the Building bottom of wall elevation being as high as 340.5' at the east end. This elevation is slightly higher than the trail.

The trail and LRT will be aligned parallel to each other below the existing Wisconsin Avenue Bridge. This will require retaining walls on the north side of the trail and south side of the LRT guideway to remove a portion of the bridge slope protection. In addition, the trail is elevated as compared to the LRT so an additional retaining wall will be required between the trail and the LRT.

The existing Wisconsin Avenue Bridge was constructed around an older structure. The piers of the original bridge structure were to be cut off below grade during the construction of the existing structure, and they may be in the vicinity of the proposed retaining walls. The presence of the previous foundation needs to be considered during design and construction.

Structural impacts to the Air Rights Building are expected to be minimal.

**Geotechnical Considerations:** The original piers of the old Wisconsin Avenue Bridge may need to be removed.

**Architectural Considerations:** There will be six 20" x 14" existing columns for the Apex Building in the middle of the platform. There will be approximately five additional columns in the middle and south side of the WMATA access path.

### 2.5.2 Alternative F - Platform In Woodmont Plaza with Reduced Track Centers Through the Apex and Air Rights Building

**Plan and Profile:** See Drawings 11 and 12

**Station:** 180' side platforms will be provided in the Woodmont Plaza, with access from the street level via elevators and stairs at the corner of Elm Street and Wisconsin Avenue, via stairs and a ramp from Elm Street, via sidewalk from the corner of Woodmont Avenue and Bethesda Avenue, and the CCT. The platforms are each 10' wide. The desirable 200' platform length cannot be provided due to Woodmont Avenue and the columns under the Apex building. In order to provide adequate platform length and to meet the required running clearances, the platform requires a slight horizontal curve. This is undesirable from an operational point of view. In order for patrons to reach the south platform from the Bethesda South Access, an at-grade crossing is required at the station.

**Tail Track:** Each track will be extended approximately 60' from the end of the station platform to provide room for overrun and an energy absorbing bumping post. The desirable 130' length cannot be provided due to Woodmont Avenue and the associated sidewalk.

**Catenary:** A termination pole and tie down for the catenary will be provided in the Woodmont Plaza.

**Trail:** The CCT begins west of the Apex Building along the existing CCT alignment. The trail continues near existing ground elevation adjacent the south wall of the Apex Building at a width of 18'. The trail begins to narrow as it passes under the Wisconsin Avenue Bridge, and settles in at a width of 10' as it continues under the Air Rights Building, still continuing along the south wall. The trail then narrows to 9' wide and begins to rise above the elevation of the Purple Line tracks, supported by structure, to provide a connection between the CCT and Elm Street Park. The structure carries the trail eastward out of the Air Rights Building where it comes back down to grade north of the LRT tracks.

**Structural Considerations:** The sidewalk from the north platform to the WMATA access will be supported on a retaining wall along the north column line of the Apex Building. The sidewalk will have a connection to Elm Street by removing a portion of the Apex Building north wall. This wall also needs to be underpinned for up to 15'+ vertically due to the Building bottom of wall elevation being as high as 340.5' at the east end. This elevation is significantly higher than the sidewalk.

The trail and LRT will run parallel to each other below the existing Wisconsin Avenue Bridge. This will require retaining walls built on the south side of the trail and north side of the LRT guideway to remove a portion of the bridge slope protection.

The existing Wisconsin Avenue Bridge was constructed around an older structure. The piers of the original bridge structure were to be cut off below grade during the construction of the existing structure, and they may be in the vicinity of the proposed retaining walls. The presence of the previous foundation needs to be considered during design and construction.

Under the Air Rights Building, a retaining wall is required between the LRT and the trail and on top of the Air Rights crashwall to support the trail. To the east of the Air Rights Building, an approximately 100' long pedestrian bridge will carry the trail over the LRT.

**Geotechnical Considerations:** The original piers of the old Wisconsin Avenue Bridge may need to be removed.

**Architectural Considerations:** No impacts expected.

### 2.5.3 Alternative G - Platform In Woodmont Plaza with Single Track Through the Apex and Air Rights Building

**Plan and Profile:** See Drawings 13 and 14

**Station:** 180' side platforms will be provided in the Woodmont Plaza, with access from the street level via elevators and stairs at the corner of Elm Street and Wisconsin Avenue, via stairs and a ramp from Elm Street, via sidewalk from the corner of Woodmont Avenue and Bethesda Avenue, and from Elm Street Park via the CCT. The platforms are each 10' wide. The desirable 200' platform length cannot be provided due to Woodmont Avenue and the columns under the Apex building. In order to provide

adequate platform length and to meet the required running clearances, the platform requires a slight horizontal curve. This is undesirable from an operational point of view. In order for patrons to reach the south platform from the Bethesda South Access, an at-grade crossing is required at the station.

**Tail Track:** Each track will be extended approximately 60' from the end of the station platform to provide room for overrun and an energy absorbing bumping post. The desirable 130' length cannot be provided due to Woodmont Avenue and the associated sidewalk.

**Catenary:** A termination pole and tie down for the catenary will be provided in the Woodmont Plaza.

**Trail:** The CCT begins west of the Apex Building along the existing CCT alignment. The trail continues near existing ground elevation adjacent the south wall of the Apex Building at a width of 18'. The trail begins to narrow as it passes under the Wisconsin Avenue Bridge, and settles in at a width of 14' as it continues under the Air Rights Building, still continuing along the south wall. The trail then begins to rise above the elevation of the Purple Line tracks, supported by structure, to provide a connection between the CCT and Elm Street Park. The structure carries the trail eastward out of the Air Rights Building and over the LRT tracks, where it comes back down to grade north of the LRT tracks.

**Structural Considerations:** The sidewalk from the north platform to the WMATA access will be supported on a retaining wall along the north column line of the Apex Building. The sidewalk will have a connection to Elm Street by removing a portion of the Apex Building north wall. This wall also needs to be underpinned for up to 15'+ vertically due to the Building bottom of wall elevation being as high as 340.5' at the east end. This elevation is significantly higher than the sidewalk.

The trail and LRT will run parallel to each other below the existing Wisconsin Avenue Bridge. This will require retaining walls built on the south side of the trail and north side of the LRT guideway to remove a portion of the bridge slope protection.

The existing Wisconsin Avenue Bridge was constructed around an older structure. The piers of the original bridge structure were to be cut off below grade during the construction of the existing structure, and they may be in the vicinity of the proposed retaining walls. The presence of the previous foundation needs to be considered during design and construction.

Under the Air Rights Building, a retaining wall is required between the LRT and the trail and on top of the Air Rights crashwall to support the trail. To the east of the Air Rights Building, an approximately 100' long pedestrian bridge will carry the trail over the LRT.

**Geotechnical Considerations:** The original piers of the old Wisconsin Avenue Bridge may need to be removed.

**Architectural Considerations:** No impacts expected.

### 2.5.4 Operational Considerations:

All three alternatives were developed to physically enable some version of a limited width trail to share the space under the Air Rights Building, Wisconsin Avenue Bridge, and the Apex Building with the Purple Line by reducing the width of the space needed for the Purple Line transitway. The reduced transitway width has the effect of restricting train operations to one direction at a time through this area as well as increasing operating time requirements for the associated signal and safety features required. This additional operating time would reduce the number of trains that could operate in and out of the Bethesda terminal station and along the entire Purple Line. All three of the reduced transitway width alternatives yielded very similar performance results in operational simulations. None of the three will enable the Purple Line to operate at the six-minute headway required to carry the peak period passenger demand. With substantial portions of the Purple Line operating in street-running conditions subject to traffic interference especially at intersections, the train operations need to be able to have a schedule recovery time at terminal stations, including the Bethesda Station. The operational limitations imposed by these reduced transitway width concepts at the Bethesda Station would not allow for this recovery time, which would severely reduce the reliability of the service for the entire Purple Line. Therefore, due to these fatal operational deficiencies, this family of alternatives was eliminated from further study.

## 2.6 Comparison of Station Alignment Alternatives

The table below presents a comparison between the alignment alternatives for the proposed Purple Line through the terminal station at the west end of the line in Bethesda, Montgomery County, Maryland. The table reviews the five (5) alternatives with respect to the Capital Crescent Trail (CCT), the Purple Line tracks, access from various points in the vicinity of the station, the structural requirements and impacts, the property and right-of-way impacts, and the risks of each alternative. There are undesirable impacts to varying degrees stemming from each of the items reviewed. For each alternative, the undesirable impacts are highlighted in yellow to help to identify the disadvantages.

| | Factor | Alternative A: Apex Platform with Trail in Tunnel | Alternative B: Apex Platform with Surface Trail | Alternative C: Platfrom East of Air Rights Building | Alternative D: Platform Under New Air Rights Building | Alternative E: Apex Platform with Gauntlet Track | Alternative F: Woodmont Plaza Platform with Reduce Track Centers | Alternative G: Woodmont Plaza Platform Single Track |
|---|---|---|---|---|---|---|---|---|
| | TRAIL | | | | | | | |
| 1 | The trail will be completely within the easement | No | No | Yes | Yes | No | No | No |
| 2 | Access to the trail is provided from Elm Street Park | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| | | | | | | | | |
| | RAIL | | | | | | | |
| 1 | Two (2) tracks allow for maintenance of operating headways | Yes | Yes | Yes | Yes | No | No | No |
| 2 | Each track would have a 100' tail track for overrun | Yes | Yes | No | Yes | Yes | No | No |
| 3 | Platform(s) are located in a horizontal curve | Yes | Yes | No | No | Yes | Yes | Yes |
| 4 | The termination poles and trolley wires will be within the limits of the buildings | No | No | Yes | Yes | No | No | No |
| 5 | Purple Line service could be interupted if buildings were to redevelop following Purple Line construction | Yes | Yes | No | No | Yes | Yes | Yes |
| | | | | | | | | |
| | ACCESS | | | | | | | |
| 1 | Station Access is from only 2 locations | No | Yes | No | No | Yes | No | No |
| 2 | Station Access is from more than 2 locations | Yes | No | Yes | Yes | No | Yes | Yes |
| 3 | Elevators to Red Line tie into CCT and Purple Line Platform | Yes | N/A | Yes | Yes | No | Yes | Yes |
| 4 | There is sufficient space to house ticketing machines and passenger information. | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 5 | Walking distance (from access point to red line at elevators) to edge of platform(s) | 75' & 100' | 100' | 1000' & 1050' | 350' & 350' | 175' | 475' & 400' | 475' & 400' |
| 6 | Columns for the trail structure will obstruct the platform(s) | Yes | No | No | No | No | No | No |
| 7 | Requires an at grade pedestrian crossing to access both platforms from elevators at Bethesda South | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 8 | Direct access from Elm Street Park to the Purple Line Station will be provided | Yes | No | Yes | Yes | No | Yes | Yes |
| 9 | Potential for natural light to be provided to station | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 10 | An open concourse area adjacent to the platforms will be provided | No | No | No | Yes | No | Yes | Yes |
| | | | | | | | | |
| | STRUCTURAL | | | | | | | |
| 1 | Structural integrity of Wisconsin Avenue Bridge will be impacted | No | No | No | No | No | No | No |
| 2 | The impact to the Air Rights Building will be minimal | Yes | Yes | Yes | No | Yes | Yes | Yes |
| 3 | The impact to the Apex Building will be minimal | No | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | Wall & caisson retrofitting required within the Apex Building | Yes | No | No | No | Yes | No | No |
| 5 | The north wall of the Apex building requires underpinning | Yes | Yes | No | No | Yes | Yes | Yes |
| 6 | Grade beams will be exposed and will likely need strengthening retrofits | Yes | No | No | No | No | No | No |
| 7 | The caissons at the east end of the APEX Building will be exposed | Yes | No | No | No | No | No | No |
| | | | | | | | | |
| | Property/ROW Impacts | | | | | | | |
| 1 | The CCT west of the APEX Building will remain in its current location | No | No | Yes | Yes | No | No | No |
| 2 | The station platforms are within the Apex building | Yes | Yes | No | No | Yes | No | No |
| 3 | The station platforms are within the Air Rights building | No | No | No | Yes | No | No | No |
| 4 | The Apex Building property will be completely redeveloped | No | No | No | No | No | No | No |
| 5 | The Air Rights Building property will be completely redeveloped | No | No | No | Yes | No | No | No |
| | | | | | | | | |
| | Risks and Costs | | | | | | | |
| 1 | The modifications to the existing structures are extremely risky. | Yes | No | No | N/A | No | No | No |
| 2 | Level of structural monitoring required. | High | Low | None | N/A | Low | Low | Low |

KEY: Unfavorable Difference

## 2.7 Future Redevelopment Considerations

Should a surface alternative for the CCT be chosen rather than stacking the CCT over the Purple Line, it would be costly and disruptive to stack them in the future with Apex and Air Rights redevelopments. As noted above, the advantage of selecting a surface alignment for the CCT is that the elevation of the tracks can be set high enough such that the existing foundations will not be impacted by the Purple Line/CCT. In doing so, regardless of the future development initiatives, the Wisconsin Avenue Bridge becomes the controlling point for the vertical clearance over the Purple Line. Even if the developers of the future buildings provide enough clearance to include a trail over the tracks, the Wisconsin Avenue Bridge cannot be raised high enough to provide a stacked track and trail beneath the roadway above.

This does not mean that the CCT would always have to cross Wisconsin Avenue at-grade. If a surface CCT alternative was selected, the CCT could remain in the Master Plan under the Apex Building, Wisconsin Avenue and the Air Rights Building. Upon redevelopment, additional width can be reserved adjacent to the Purple Line and a tunnel could be created beneath Wisconsin Avenue, adjacent to the existing bridge, to connect the trail between the future Apex Building and the future Air Rights Building.

# 3 Bethesda Station and Capital Crescent Trail Alternatives Retained for Consideration

## 3.1 Alternative A - The Locally Preferred Alternative

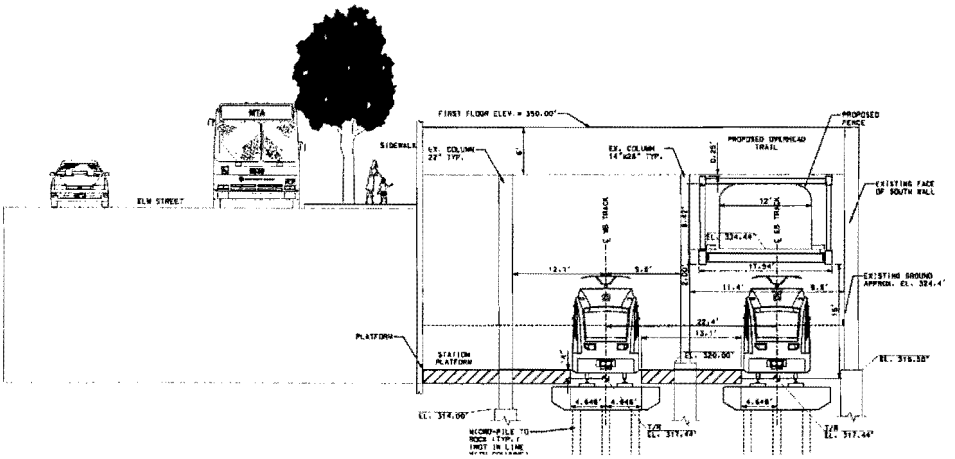
The Locally Preferred Alternative (LPA) layout includes a station with two curved platforms beneath the Apex Building with tail or run out tracks and bumping posts extending into the Woodmont East development parcel, located to the west of the Apex Building. Side platforms would be provided under the Apex Building, with access from the street level via elevators and stairs at the corner of Elm Street and Wisconsin Avenue, as well as pedestrian access from Woodmont East. The station will be constructed around the existing columns and caisson foundations, which would protrude through the platforms. These columns will impede pedestrian flow and boardings and alightings. In order to provide adequate platform length and to meet the required vehicle clearances, the platform requires a slight horizontal curve. Patrons would have access to the proposed WMATA Red Line Bethesda South Entrance at the corner of Elm Street and Wisconsin Avenue from the station.

As part of the LPA layout, the CCT would be on an aerial structure above the tracks that gained elevation through a switchback ramp in the Woodmont East plaza. The alignments then continue east, beneath the Maryland State Highway Administration bridge that carries MD 355 (Wisconsin Avenue) over the former Georgetown Branch right-way, on a proposed rigid box structure. Beneath the Air Rights Building, a bridge structure is included to carry the CCT out of the buildings and back down to grade. A connection between the CCT and Elm Street Park will be provided. Refer to Sheet 1 for plan and typical sections that show the arrangement of the Purple Line at several key points of interest along the alignment.

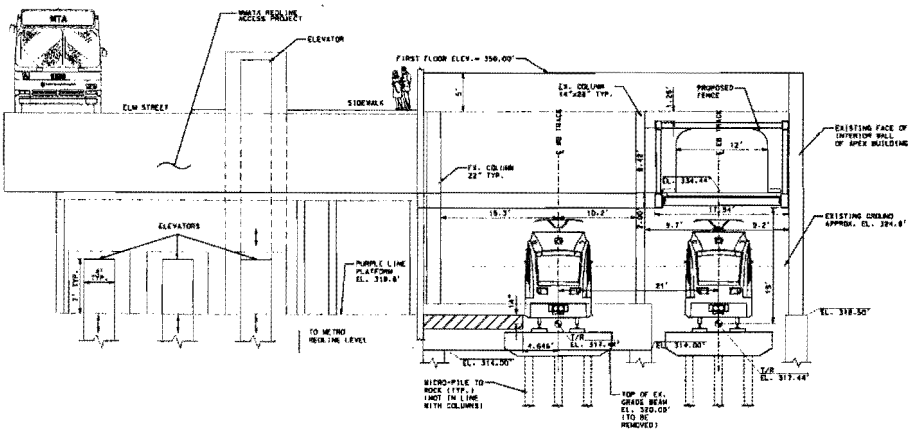
### 3.1.1 Investigation

#### *3.1.1.1 Apex Building*

In order to accommodate the construction of the trail above the Purple Line, but beneath the existing Apex Building, the reconstruction or strengthening of at least 35 existing columns would be required, as well as the relocation/reconfiguration of the 3 bracing grade beams along Elm Street to provide enough room for station platforms. The column foundations for the existing building are made up of unreinforced caissons that are founded on bedrock. The first floor of the Apex Building is a transfer slab to these columns, which means that the columns cannot be relocated in order to minimize impacts to the foundations/columns.



**Typical Section through Apex Building and Station Platforms**



**Typical Section through Apex Building at WMATA Access Point**

In order to accommodate the CCT and the Purple Line, the ground surrounding the unreinforced caissons would need to be lowered by approximately 8 to 10 feet, resulting in the need to modify and strengthen or replace the columns/caissons. The elevations of the tops of these caissons in the Apex Building are high enough such that the trail and the tracks cannot both be constructed without exposing the unreinforced caissons. These columns and caissons are near their intended structural capacities, which further complicates the process of lowering the grade while safely and effectively supporting the structure above it. Because the caissons are unreinforced, the surrounding ground is acting as the confining element that interacts with the structural element to provide the capacity. Removing this surrounding soil would compromise the caisson's structural integrity and require the construction of temporary

foundations and support frames to transfer the loads off the columns and caissons while the grade is lowered and the columns/caissons are modified, strengthened, or reconstructed. Due to the type of construction, the caisson as constructed may be irregular in shape, orientation, and size, which may result in substantial structures/obstructions in the middle of the station platforms in order to make the necessary structural modifications. Rather than retrofitting the existing columns, another option is to replace the columns at the Apex Building and extend them to the existing caisson at a lower elevation than the track subgrade; this allows for smaller column sections coming through the platform compared to the retrofitting option, but larger columns than those that currently exist. Due to low overhead clearances, however, this is likely to be a very time-consuming and expensive procedure that carries great risks.

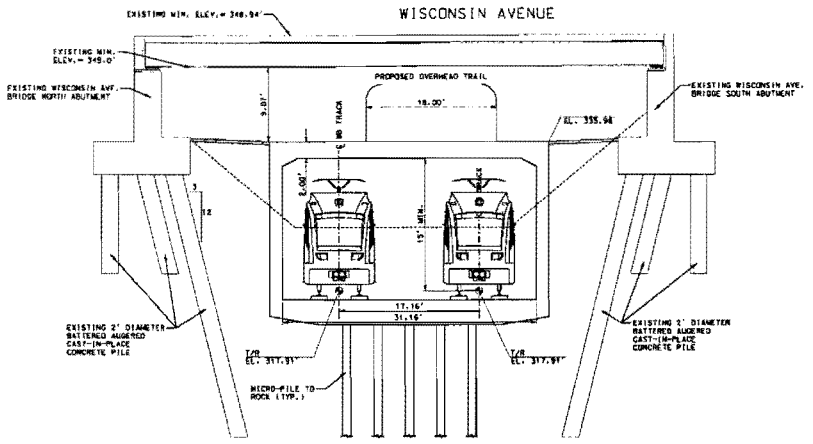
While all buildings within the vicinity will require some level of monitoring, the Apex Building will need additional and more comprehensive monitoring for settlement and rotation throughout construction while daily building activities/operation takes place. Should settlement or rotation of the building occur, construction would be halted and the building evacuated. The building would need to be inspected/stabilized/recertified for occupancy before construction could proceed. The costs of the modifications and the risks (structurally and due to the lost productivity/occupancy of the tenants) associated with the construction may exceed the appraisal of the existing building.

Regardless of whether the columns and caissons are retrofitted or replaced, the exterior wall of the Apex Building along Elm Street needs to be underpinned for up to 20'+ vertically due to the fact that the bottom of wall elevation is as high as 339.25' at some locations at the east end. This elevation is significantly higher than the proposed platform elevation of 318.5'required in order to accommodate the CCT. There are existing grade beams that are above the proposed platform location that require removal and reconstruction. Additionally, the wall on the south side of the railroad corridor along the parking garage is not structurally adequate to act as a crash wall as required by current MTA LRT design criteria. Therefore, a wall would need to be constructed to protect the existing structure, or guardrails would need to be provided.

Due to the risks and costs associated with constructing the trail within the existing constraints of the Apex Building, the idea of waiting until the Apex Building redevelops and then constructing the trail at that time has been considered. The developer would be given an envelope to redevelop around the Purple Line station and incorporate the trail at that time. However, even under redevelopment of the Apex Building, the constraints for installing the CCT above the Purple Line are driven by the Wisconsin Avenue Bridge, thereby setting the profile under the Apex Building. Refer to Sheet 1 for the relationship between the LPA station platforms and the modified building columns.

### *3.1.1.2 Wisconsin Avenue Bridge*

As the Purple Line and CCT moves east, the tracks run inside of a concrete box structure that carries the trail above the tracks under the Wisconsin Avenue Bridge.

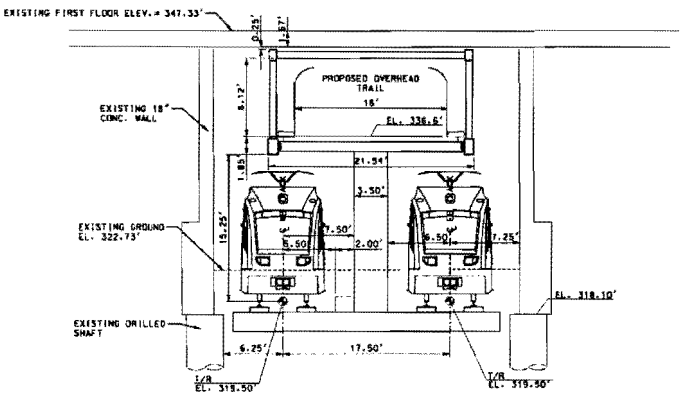



**Typical Section through Wisconsin Avenue Bridge**

The box structure would be supported on micropiles and would not compromise the structural integrity of the existing bridge. However, the existing Wisconsin Avenue Bridge was built around an older structure. The piers of the original bridge structure were to be cut off below grade during the construction of the existing structure, and they are likely in the vicinity of the proposed concrete box structure and its pile foundation. The presence of the previous foundations needs to be considered during design and construction. In addition, the clearances for installing the Purple Line and CCT in the same space beneath the bridge are very tight. The task of avoiding impact to the existing foundations while at the same time providing the absolute minimum operating clearances for the Purple Line and the catenary system, as well as the vertical clearance for the trail is extremely tedious. The construction will need to take place with low overhead equipment and will require significant structural reinforcement of the box due to span and foundation geometry to prevent loading effects from the proposed structure on to the existing foundations. Micropiles would be used to support the box to prevent these load effects by carrying the proposed loads directly to bedrock through a below ground pile cap.

### *3.1.1.3 Air Rights Building*

Inside the Air Rights Building, the track elevation is such that the top of rail is above the top of the existing caissons and the existing crash walls are acceptable for the proposed tracks, requiring no modifications to the existing building.




**Typical Section through Air Rights Building**

### *3.1.1.4 CCT Structure*

The truss/bridge structures required to support the trail within the Apex and Air Rights Buildings are significant structures. In order to support the CCT and minimize impacts to the Purple Line, the structures would need to span lengths of up to 240' in order to minimize support locations on an already constrained platform, and would require tighter engineering and construction controls to reduce deflections and camber due to tight construction clearances. The span lengths may possibly be reduced for the structures not over the platforms to optimize the costs of construction and the tighter tolerances required. Due to access requirements for construction, the CCT structures and their infrastructure beneath the Wisconsin Avenue Bridge and the Air Rights Building would need to be in place before the Purple Line could be built. The Apex and Air Rights Buildings and the Wisconsin Avenue Bridge surround the Purple Line, which make it impractical to construct these CCT structures once the Purple Line is in operation without taking the Bethesda Station out of service for an extended period of time. The structures would be expensive and inefficient because of the tight site constraints and limited clearances for deflection of the truss under load. The deflection limits are necessary in order to minimize the effect of the truss on the operations of the light rail vehicles as the pantograph travels along the catenary/trolley wire. The clearance between the truss and the top of rail is less than preferred by the MTA, making the deflection requirements even more pertinent. The box structure beneath the Wisconsin Avenue Bridge will be heavily reinforced and require significant support of excavation and bracing during construction. All of these factors drive up the cost of the trail and Montgomery County's portion of the infrastructure costs to support the Purple Line beneath

these buildings. The aforementioned items are unchangeable, whether the Apex Building is redeveloped or not.

### 3.1.2 Alternative A - Summary and Cost Analysis

In summary, below are the significant facts and costs for consideration:

a. The tight horizontal and vertical clearances within the Air Rights Building and underneath the Wisconsin Avenue Bridge, along with, more specifically, the control of the Wisconsin Avenue Bridge, drive the profile of the Purple Line for incorporating the CCT above.

b. The profile and existing building constraints require the use of inefficient, constrained and expensive temporary works in order to construct the project beneath the Apex Building and Wisconsin Avenue Bridge. This does not include the substantial and costly modifications required to the Apex Building columns/foundations, not to mention the associated risks.

c. In order to control the camber and deflections to maintain less-than-preferred minimum clearances for the catenary/trolley wires for the Purple Line, the truss structures will need to be built outside the Air Rights Building on temporary supports, the deck placed to control the camber, and then adjusted prior to moving the structures into position within the Air Rights Building and jacking them into place. This is specialized construction that results in additional costs. Once the structures are in place, the catenary/trolley wire can be installed and the remainder of the Purple Line built.

d. Moving a structure of this size and weight into place within the tight constraints of the Air Rights Building will require specialized construction techniques and skilled labor, resulting in additional costs.

e. The construction cost impacts associated with accommodating the trail with respect to the Apex Building and making the necessary modifications to the Apex Building are approximately $19.6 million (Neat Construction Costs in 2011 Dollars with allocated construction contingencies). This amount is in addition to the costs associated with simply placing the Purple Line within the Georgetown Branch right-of-way.

f. The risks of structural damage to the Apex Building and lost productivity/occupancy of the tenants in the Apex Building, associated with the above construction may translate into costs that exceed the appraisal of the existing building. These costs are not included in the estimates reported herein.

g. The costs of accommodating the trail with respect to the Wisconsin Avenue Bridge and Air Rights Building are approximately $9.8 million (Neat Construction Costs in 2011 Dollars with allocated construction contingencies). This amount is in addition to the costs associated with simply placing the Purple Line within the Georgetown Branch right-of-way.

h. The total costs of accommodating the trail along its current alignment and above the Purple Line are approximately $29.4 million (Neat Construction Costs in 2011 Dollars with allocated

construction contingencies). Escalating this cost out to Year 2018 (approximate average rate of 3.1% per year) and including Engineering Services (32% of neat construction cost) and unallocated contingencies (5% neat construction costs and 2% engineering services) the total cost is $50.92 million.

i. The costs associated with constructing the CCT beneath the Wisconsin Avenue Bridge or the Air Rights Building do not change whether the Apex Building is redeveloped or not.

| Location | 2011 Neat Construction Cost (with allocated Contingencies) | Neat Construction Cost, Year 2018 Escalated Rate | Engineering Services (32% of Neat Construction Cost, Escalated) | Unallocated Contingency (5% of Neat Construction Cost, Escalated) | Unallocated Contingency (2% of Engineering Services, Escalated) | Total (Millions) |
|---|---|---|---|---|---|---|
| Apex Building | $19.6 | $24.26 | $8.24 | $1.29 | $0.16 | $33.95 |
| Wisconsin Avenue Bridge and Air Rights Building | $9.8 | $12.13 | $4.12 | $0.64 | $0.08 | $16.97 |
| Total | $29.4 | $36.39 | $12.36 | $1.93 | $0.24 | $50.92 |

**Trail Costs in the Tunnel Associated with Alternative A**

## 3.2 Alternative B - Platform Under the Apex Building with the Capital Crescent Trail Connecting To A Surface Alignment Through Elm Street Park

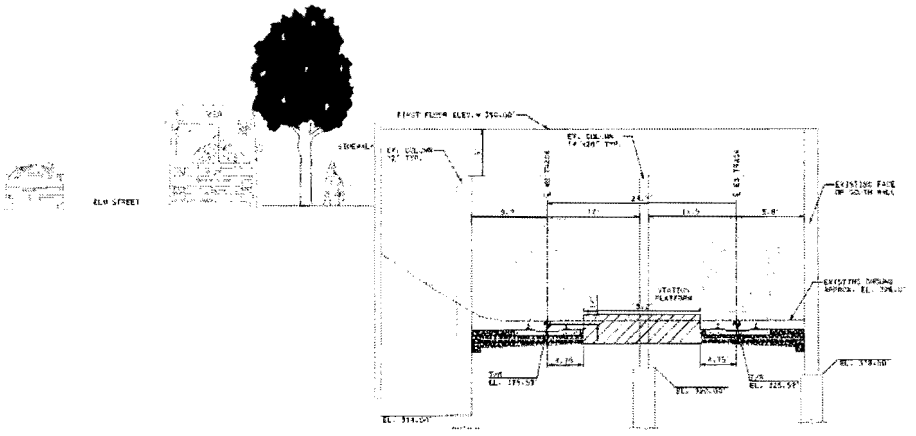
Alternative B layout includes a station with a center platform beneath the Apex Building with tail or run out tracks and bumping posts extending into the Woodmont East development parcel, located to the west of the Apex Building. Center platforms would be provided under the Apex Building, with access from the street level via elevators and stairs at the corner of Elm Street and Wisconsin Avenue, as well as pedestrian access from Woodmont East. The station will be constructed around the existing columns and caisson foundations, which would protrude through the platform. These columns will impede pedestrian flow and boardings and alightings. In order to provide adequate platform length and to meet the required vehicle clearances, the platform requires a slight horizontal curve. Patrons would have access to the proposed WMATA Red Line Bethesda South Entrance at the corner of Elm Street and Wisconsin Avenue from the station.

The CCT follows the "surface alignment" currently under development by the County that starts at Woodmont Plaza, travels east on the north side of Bethesda Avenue, crosses Wisconsin Avenue at a signalized intersection, continues onto Willow Lane, and then heads north through Elm Street Park. At Elm Street Park a connection to the CCT on the north side of the Purple Line will be made. Refer to Sheet 3 for plan and typical sections that show the arrangement of the Purple Line at several key points of interest along the alignment.

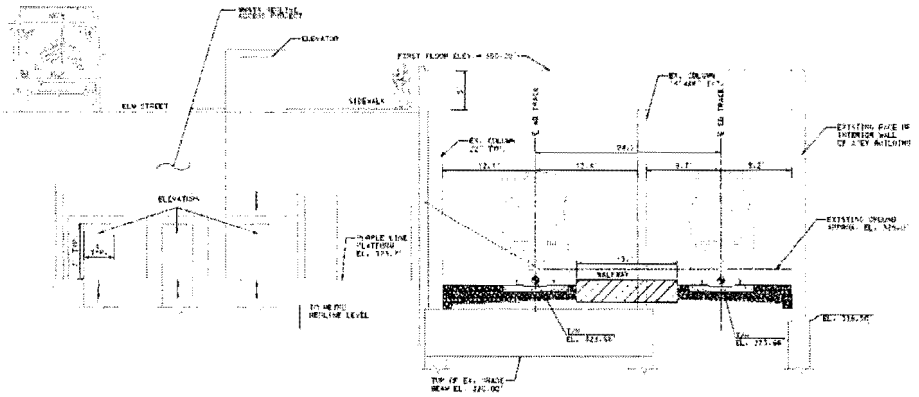
### 3.2.1 Investigation

#### *3.2.1.1 Apex Building*

Refer to the typical sections below for the relationship between the transitway, station platform and the Apex Building. There are no anticipated impacts at the existing Apex Building.



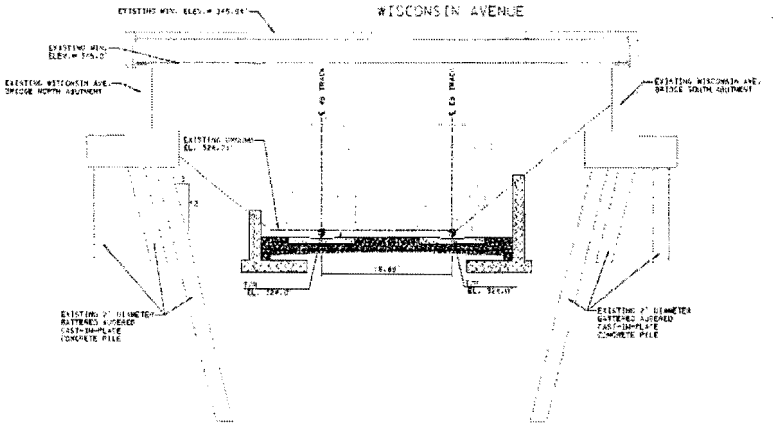
**Typical Section through Apex Building and Station Platforms**



**Typical Section through Apex Building at WMATA Access Point**

### *3.2.1.2 Wisconsin Avenue Bridge*

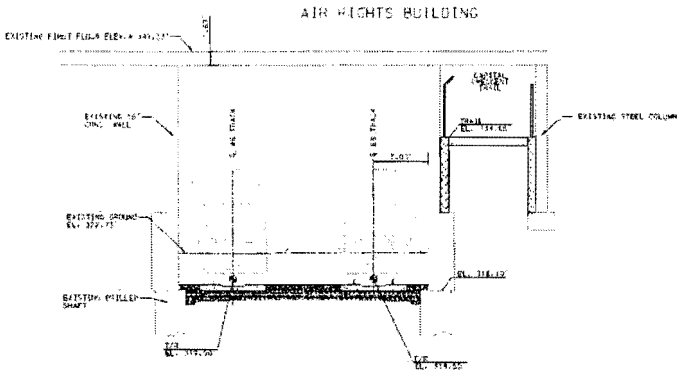
Refer to the typical section below for the relationship between the transitway and the Wisconsin Avenue Bridge. There are no anticipated impacts at the Wisconsin Avenue Bridge.




**Typical Section through Wisconsin Avenue Bridge**

#### *3.2.1.3 Air Rights Building*

Refer to the typical section below showing the transitway and the CCT structure making the connection to Elm Street Park. There are no expected impacts at the existing the Air Rights Building.




**Typical Section through Air Rights Building**

#### *3.2.1.4 CCT Structure*

At Elm Street Park the CCT connects to a truss structure. The structure carries the trail eastward out of the Air Rights Building where it comes back down to grade north of the LRT tracks.

### 3.2.2 Alternative B - Summary and Cost Analysis

The costs of accommodating the trail connection to Elm Street Park on a structure through the eastern end of the Air Rights Building are approximately $2 million (Neat Construction Costs in 2011 Dollars with allocated construction contingencies). This amount is in addition to the costs associated with simply placing the CCT within the Georgetown Branch right-of-way.

| Location | 2011 Neat Construction Cost (with allocated Contingencies) | Neat Construction Cost, Year 2018 Escalated Rate | Engineering Services (32% of Neat Construction Cost, Escalated) | Unallocated Contingency (5% of Neat Construction Cost, Escalated) | Unallocated Contingency (2% of Engineering Services, Escalated) | Total (Millions) |
|---|---|---|---|---|---|---|
| Apex Building | $0 | $0 | $0 | $0 | $0 | $0 |
| Wisconsin and Air Rights Building | $2 | $2.48 | $0.84 | $0.13 | $0.05 | $3.50 |
| Total | $2 | $2.48 | $0.84 | $0.13 | $0.05 | $3.50 |

**Trail Costs in the Tunnel Associated with Alternative B**

## 3.3 Considerations

a. In light of the above noted feasible station platform alternatives, constraints, risks and costs, what is the County's recommended location for the trail?

# 4 Trail Lighting

## 4.1 Background

It is anticipated that the Purple Line will operate 1 hour before and after the hours of operation of the WMATA Metro due to the connections between the two systems. It is also anticipated that the Capital Crescent Trail will connect residential communities to the proposed Purple Line stations. Given the commuter use of the Capital Crescent Trail it is expected that pedestrians may be using it during hours of darkness. Current Montgomery County practice for a trail within public right-of-way that expects significant use during darkness would require that all portions of the trail be lit for safety concerns. Other options for consideration could include providing no lighting or only lighting select portions of the trail, such as in the vicinity of stations, at entrances to the trail or portions where use is expected to be highest.

The Montgomery County Department of Transportation, Division of Traffic Engineering and Operations (DTEO) document *Streetlight Installation Guidelines Underground Distribution (Policy LTG-2)* indicates that the preferred light fixture for pathways in publicly maintained land is a post top fixture mounted from twelve to sixteen feet above ground. Three styles of post top fixtures are listed; colonial, contemporary and decorative Washington globe. The preferred lamp for use in each style of luminaire is a 70 watt high pressure sodium vapor lamp. All luminaires use an Illuminating Engineering Society of North America (IESNA) Type III distribution.

The IESNA publication *RP-8-00 Roadway Lighting* is the current standard that most state departments of transportation and other municipalities adopt in its entirety or portions for establishing their own lighting standards. The publication recommends that three criteria be satisfied when completing the lighting design for a shared walkway/bikeway. These criteria are:

- Average Horizontal Illuminance – An average of the light levels reaching all the points on the horizontal surface of the shared walkway/bikeway. Average horizontal illuminance criteria should be met or exceeded.
- Uniformity Ratio (Average Horizontal Illuminance to Minimum Horizontal Illuminance) – A ratio between the average horizontal illuminance and the light level of the point with the minimum horizontal illuminance level. This ratio indicates how even or uniform the lighting is. Lower uniformity ratios indicate more uniform light which is preferable.
- Minimum Vertical Illuminance – The lowest light level of the set of points on a vertical plan set 4.9 feet above the surface of the shared walkway/bikeway. Minimum vertical illuminance criteria should be met or exceeded.

Horizontal illuminance is what enables a user of a shared walkway/bikeway to see the path itself and any objects that may be within it. The uniformity ratio is an indication of the variance of lighting levels in the area of concern and is used to minimize the occurrence of very bright spots and very dark spots. Vertical illuminance helps light vertical surfaces which contribute to the

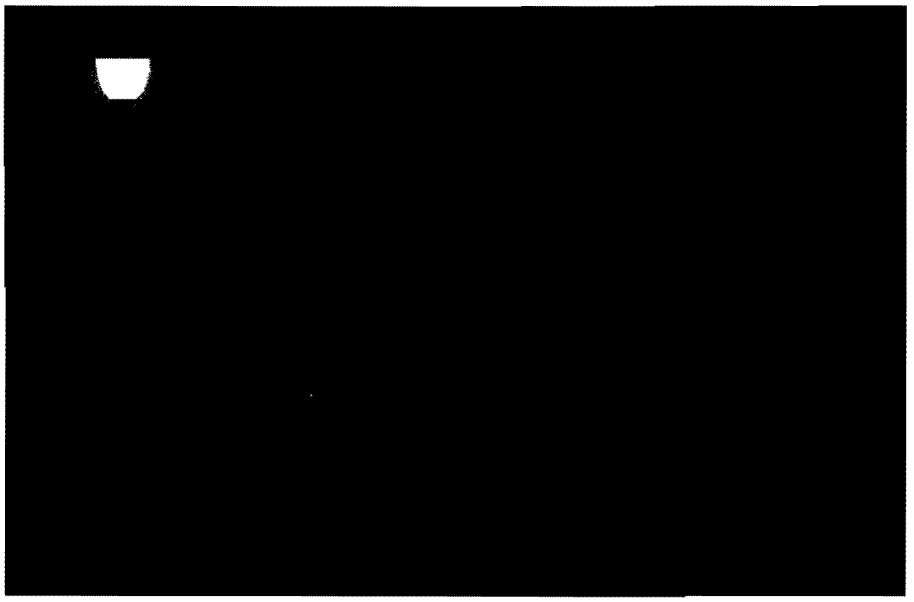
brightness of the environment and aides in facial recognition, valuable for security considerations.

Montgomery County's current practice is to light pathways to an average horizontal illuminance of 1.0 foot-candles. Criteria for the uniformity ratio and minimum vertical illuminance are not specified by Montgomery County standards. When providing an average horizontal illuminance of 1.0 foot-candles per Montgomery County standards, additional guidance from *RP-8-00* for shared walkway/bikeway lighting suggests that a minimum vertical illuminance of 0.5 foot-candles at a height of 4.9 feet above the surface of the walkway/bikeway also be provided. Finally, a horizontal uniformity ratio (average illuminance: minimum illuminance) of 4.0:1 is recommended by *RP-8-00*.

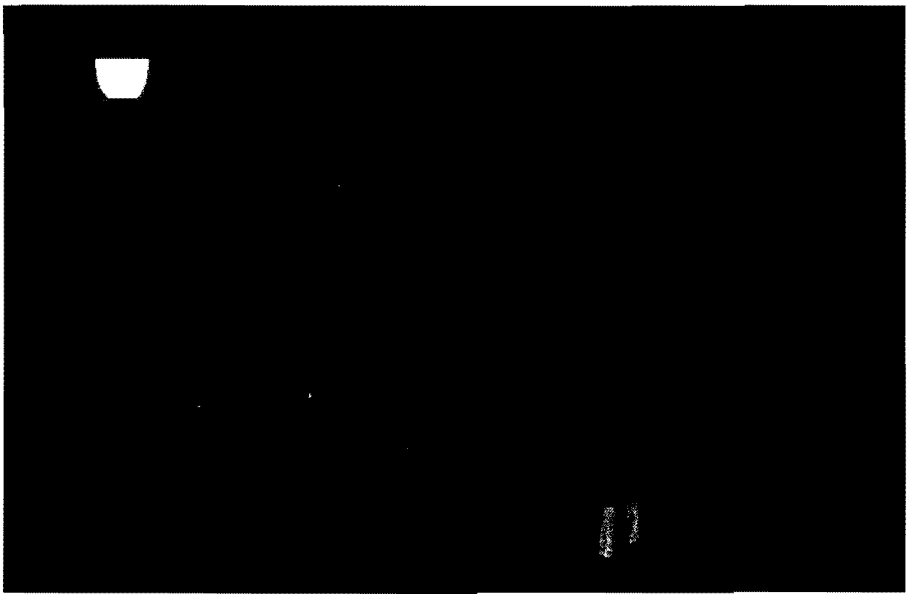
In order to estimate a typical pole spacing that would be needed for continuous lighting along the trail, photometric calculations were completed for a 12' wide segment of the proposed trail representative of the typical section for several different options (light poles assumed on one side only).

- Using the luminaires described above from TEO *Policy LTG-2* with 70 watt high pressure sodium vapor luminaires a pole spacing of approximately 65-70 (all luminaire styles) feet provides an average illuminance of 1.0 foot-candles.
- In order to satisfy the minimum vertical illuminance criteria as recommended by *RP-8-00* a pole spacing ranging from 30 feet (colonial/contemporary style) to 50 feet (decorative Washington globe style) is required and the horizontal illuminance is typically increased by 1.5-2.0 times the required 1.0 foot-candles.
- Under both scenarios the uniformity ratio is satisfied.

Rendering 1 below illustrates the amount of light reaching a person when only horizontal illuminance levels are considered using a light pole spacing of 70 feet. Rendering 2 illustrates the amount of light reaching a person when horizontal and vertical illuminance levels are considered using a light pole spacing of 50 feet, which results in higher average horizontal illuminance compared to Rendering 1. A graphical interpretation of the differences is shown in Figures 1 and 2 below. In these figures, cooler colors (blue to green - Figure 1) represent a lower light intensity shown on the vertical plane, warmer colors (yellow to red – Figure 2) represent higher light intensity.



Rendering 1 – Depiction of Average Horizontal Illuminance Only
(70 foot light pole spacing)



Rendering 2 – Depiction of Minimum Vertical Illuminance (50 foot light pole spacing)

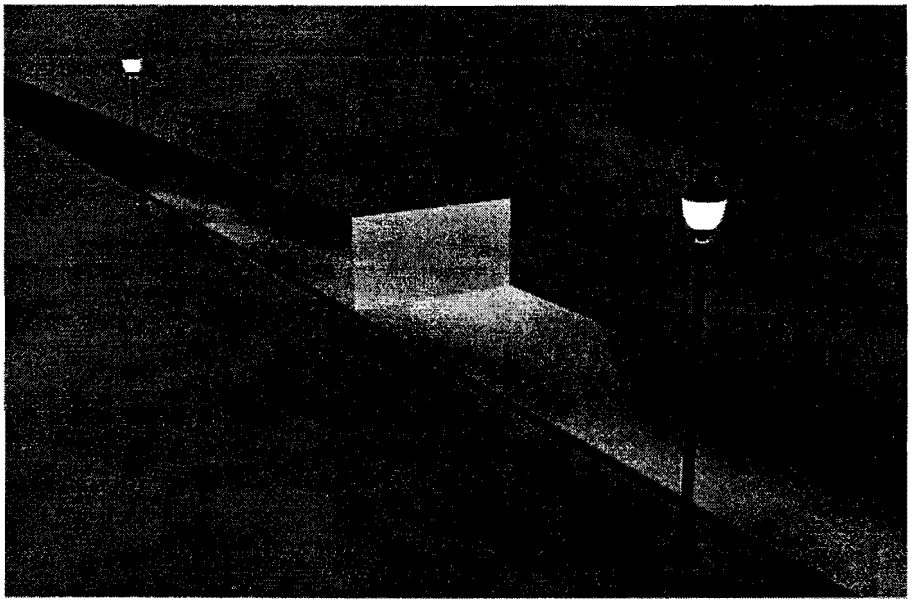


Figure 1 – Depiction of Average Horizontal Illuminance Only
(70 foot light pole spacing)

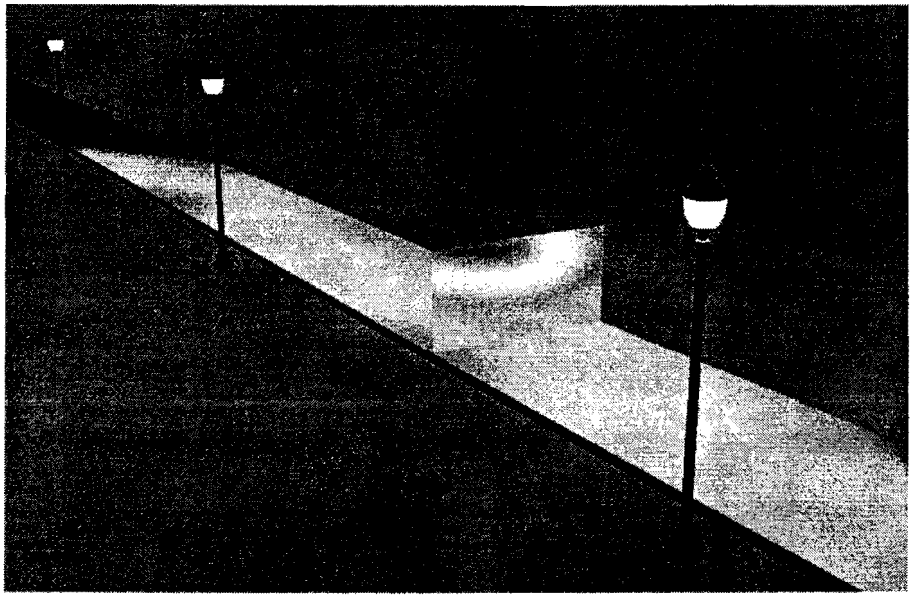


Figure 2 – Depiction of Minimum Vertical Illuminance (50 foot light pole spacing)

The proposed trail is approximately 4.5 miles long (23,760 feet). Additionally, there is approximately 4,500 feet of pathways that will be constructed to provide access/connections to the trail and Purple Line. In total, approximately 28,260 feet of trail is proposed. Using the pole

spacings determined from the photometric calculation options above the following total number of poles would be required:

- For 70 watt high pressure sodium vapor lamps approximately 450 light poles (all luminaire styles) would be required to provide a horizontal illuminance of 1.0 foot-candles on all portions of the trail in accordance with current Montgomery County practice. This would add approximately $3.1 million (2011 dollars) to the total cost of the trail including engineering services and unallocated contingencies.
- If the vertical illuminance criteria recommended by RP-8-00 is considered, approximately 600 light poles would be required along the trail, dependent on the luminaire style chosen for use. This would add approximately $4.2 million (2011 dollars) to the total cost of the including engineering services and unallocated contingencies.

If only key areas were selected for lighting the total number of poles would be reduced significantly; however, this would leave segments of the trail unlit.

## 4.2 Considerations

i. Should the Capital Crescent Trail and the connections be designed with continuous lighting? If so, should the lighting be designed to Montgomery County's current practice or the higher IESNA standard?

ii. If not, should the Capital Crescent Trail and the connections be designed with lighting only select portions of the trail, such as in the vicinity of stations, at entrances to the trail or portions where use is expected to be highest? If so, should the lighting be designed to Montgomery County's current practice or the higher IESNA standard?

iii. If not, should the Capital Crescent Trail be designed without lighting?

# 5 Emergency Communications

## 5.1 Background

Emergency communication is vital to creating a safe environment along trails, and emergency call boxes are a successful way to create a safe environment. It is Montgomery County's current practice to install emergency call boxes along trails. It is likely that at the time of construction, the type of call box that could be used will have solar power, wireless, two-way audio and strobe lights on the call boxes. A two-way audio box will allow for a person to have a conversation with security. The strobe light will flash to support quick location of the emergency. Generally the spacing for emergency call boxes on a trail of this type would be every ¼ mile with additional boxes placed at key points like stairwells and tunnels. A call box system consisting of 25 emergency call boxes would add approximately $400,000 (2011 dollars) to the total trail cost including engineering services and unallocated contingencies.

## 5.2 Considerations

i. Should the Capital Crescent Trail be designed with emergency call boxes?

# 6 Landscape and Hardscape Requirements

## 6.1 Background

The current trail cost estimate does not include extensive or specific landscaping along the outside of the trail adjacent to the community, but rather an allowance for general seeding and turf establishment. The landscaping between Purple Line and the CCT is accounted for in the trail cost.

The following additional landscape and hardscape features could be considered for the Capital Crescent Trail:

- Longitudinal landscape treatments for the Capital Crescent Trail could help knit the new Purple Line Transitway and trail improvements into the existing landscape. Trail plantings could be focused along the outside edges of the trail adjacent to the community. Plants would be selected that are native or adapted to the region and could be implemented in a manner to minimize maintenance. Including 2.5" cal. shade trees, 8' Ht. ornamental trees, 6' Ht. evergreen trees and shrubs as appropriate would add approximately $1.2M (2011dollars) to the total trail cost including engineering services and unallocated contingencies.

- At key points along the alignment such as trail connections to the community and in the vicinity of stations, enhanced landscaping may be desired. In these areas a higher level of finish and detail may be utilized to highlight important connections and to provide for a variety of experiences along the length of the alignment. Including enhanced landscaping at 12 locations/connections would add approximately $400,000 (2011dollars) to the total trail cost including engineering services and unallocated contingencies.

- Site furnishings such as benches could be installed at regular intervals along the outside edge of trail for users to rest and for general enjoyment. Including forty (40) 6-foot long benches would add approximately $100,000 (2011 dollars) to the total trail cost including engineering services and unallocated contingencies.

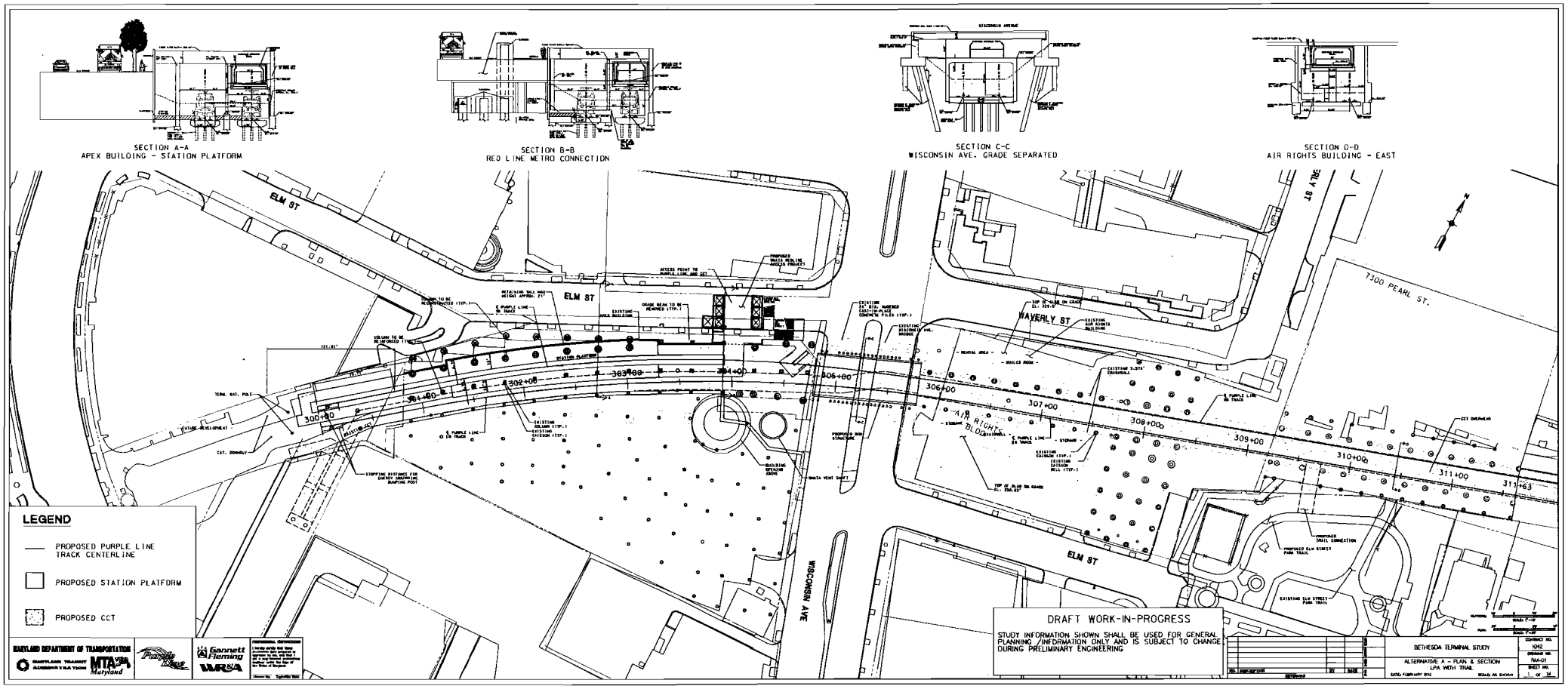
## 6.2 Considerations

ii. Should the Capital Crescent Trail be designed to include longitudinal landscape treatments along the outside edge of the trail adjacent to the community?

iii. Should the Capital Crescent Trail be designed to include enhanced landscaping at key points such as connections and stations?

iv. Should the Capital Crescent Trail be designed to include site furnishings adjacent to the trail?

# ALTERNATIVE A (DRAWING 1)




(34)

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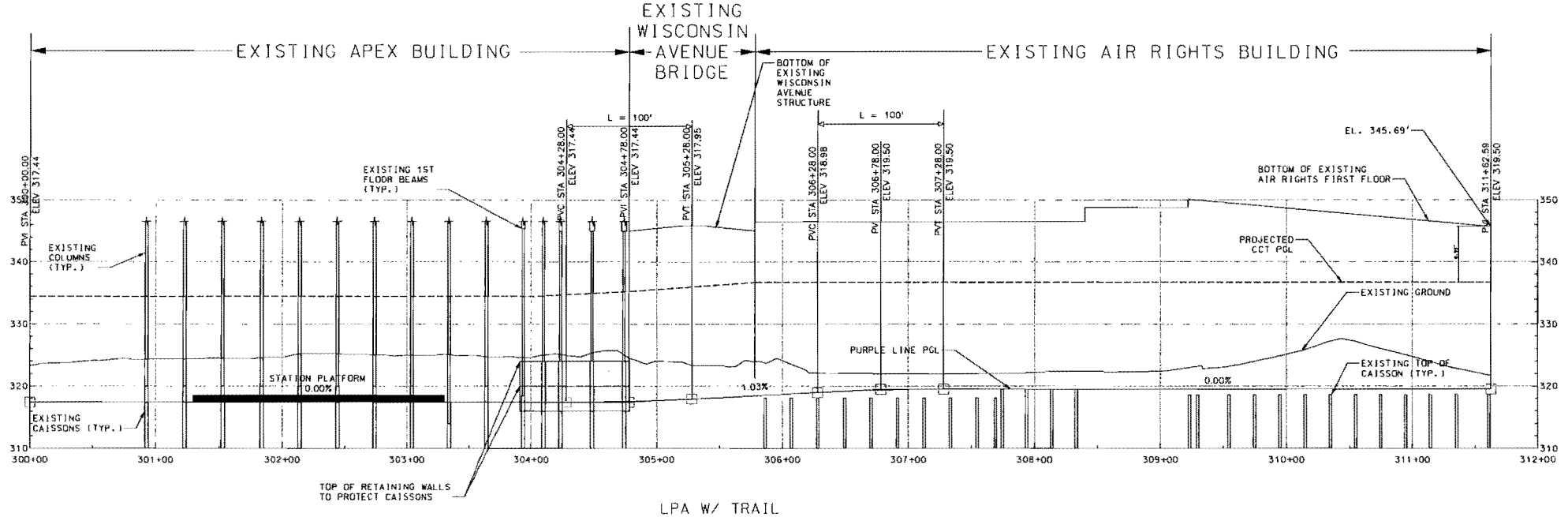



LPA W/ TRAIL

DRAFT WORK-IN-PROGRESS

STUDY INFORMATION SHOWN SHALL BE USED FOR GENERAL PLANNING /INFORMATION ONLY AND IS SUBJECT TO CHANGE DURING PRELIMINARY ENGINEERING

MARYLAND DEPARTMENT OF TRANSPORTATION — MARYLAND TRANSIT ADMINISTRATION — MTA Maryland — Gannett Fleming — WRSA

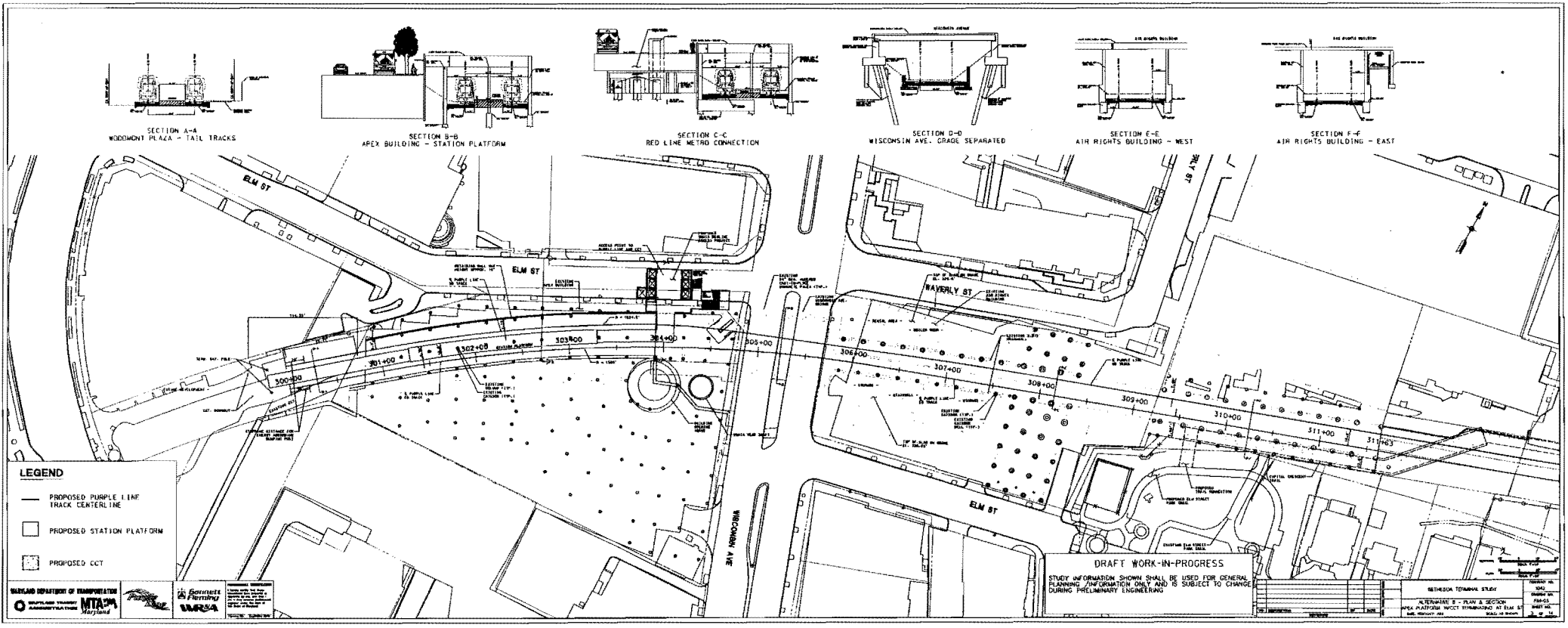
BETHESDA TERMINAL STUDY

ALTERNATIVE A – PROFILE
LPA WITH TRAIL

CONTRACT NO. 1042
DRAWING NO. RM-02
SHEET NO. 2 OF 14

35

# ALTERNATIVE B (DRAWING 3)



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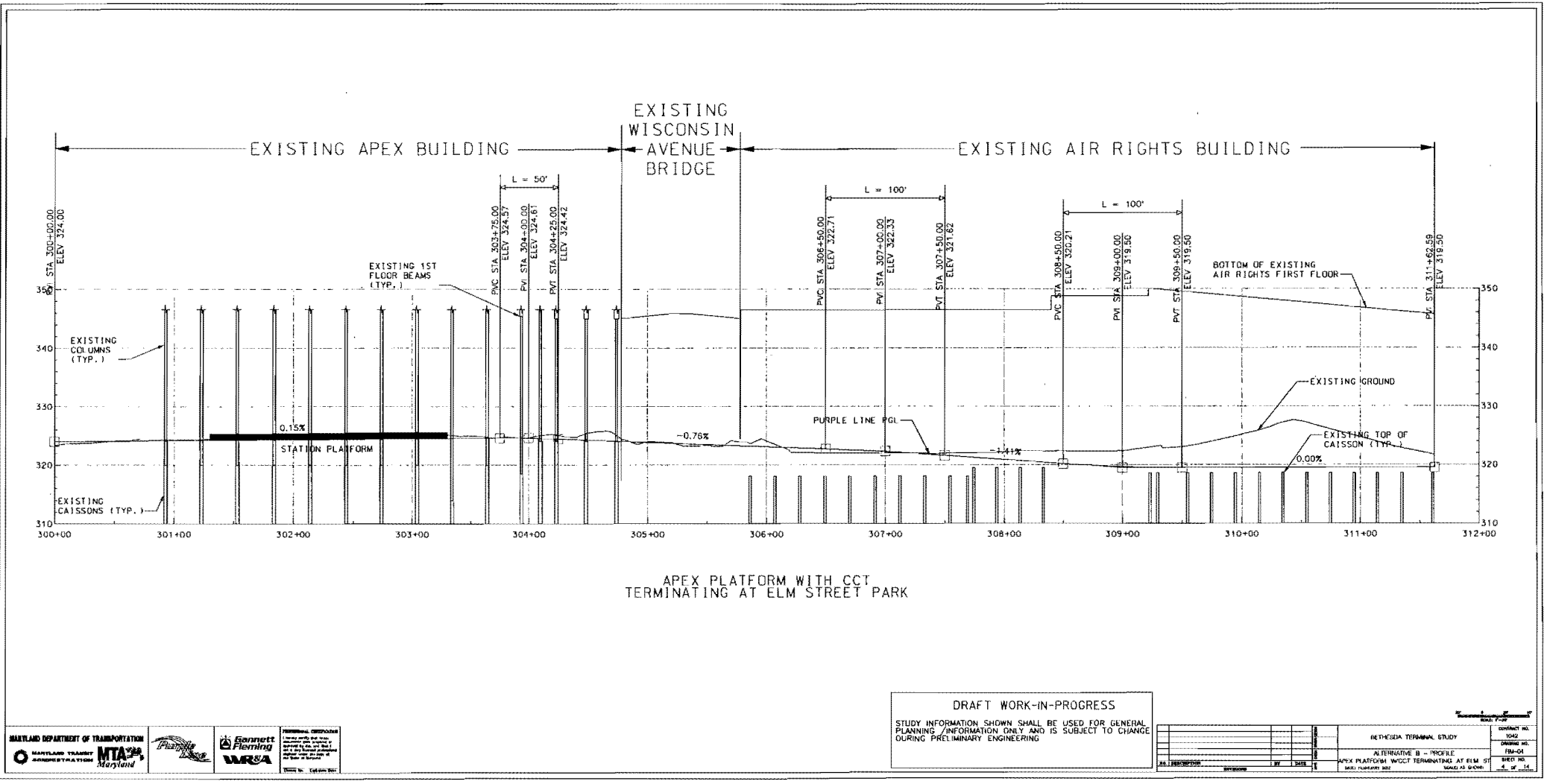


APEX PLATFORM WITH CCT
TERMINATING AT ELM STREET PARK

DRAFT WORK-IN-PROGRESS

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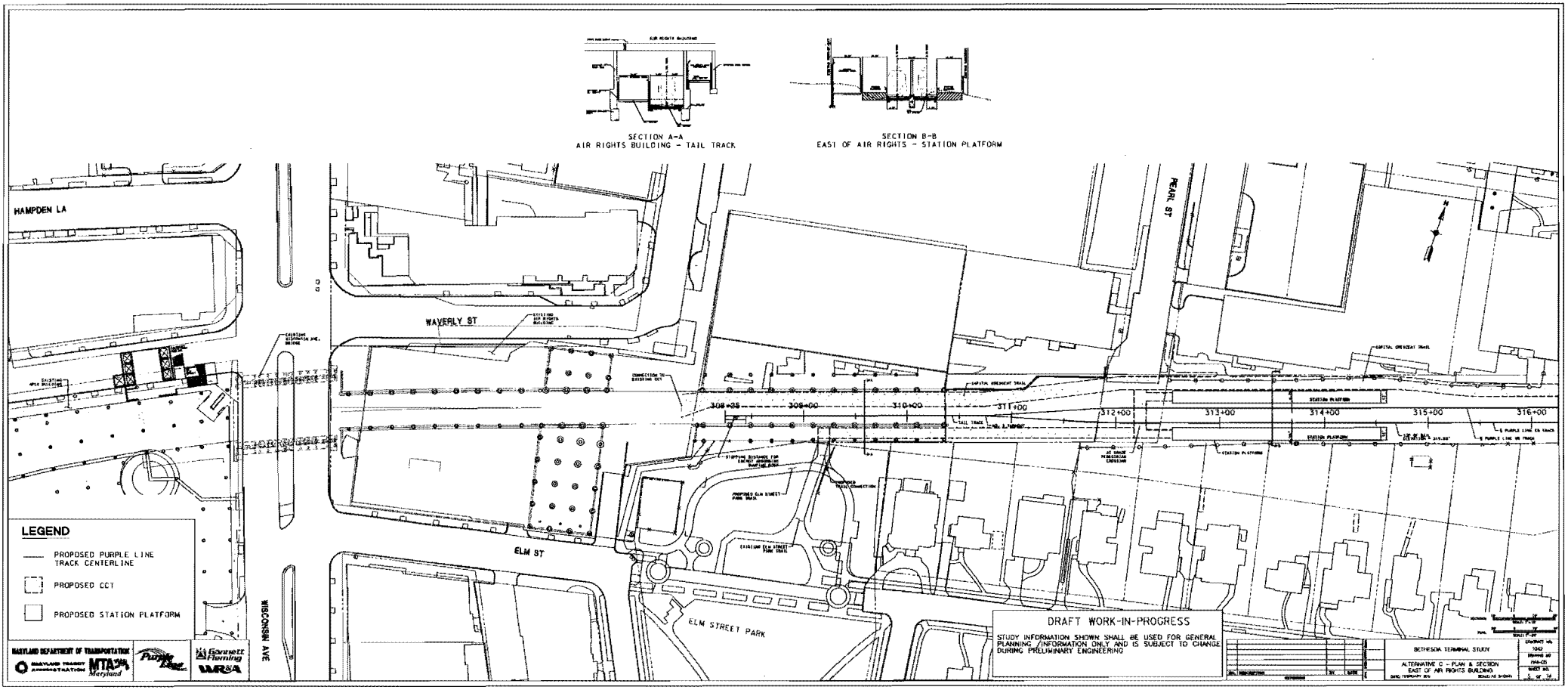
MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND TRANSIT ADMINISTRATION MTA Maryland
Parsons Brinckerhoff
Gannett Fleming WRSA

BETHESDA TERMINAL STUDY
ALTERNATIVE B - PROFILE
APEX PLATFORM W/CCT TERMINATING AT ELM ST
CONTRACT NO. 1042
DRAWING NO. FIN-04
SHEET NO. 4 OF 14

(27)

# ALTERNATIVE C (DRAWING 5)



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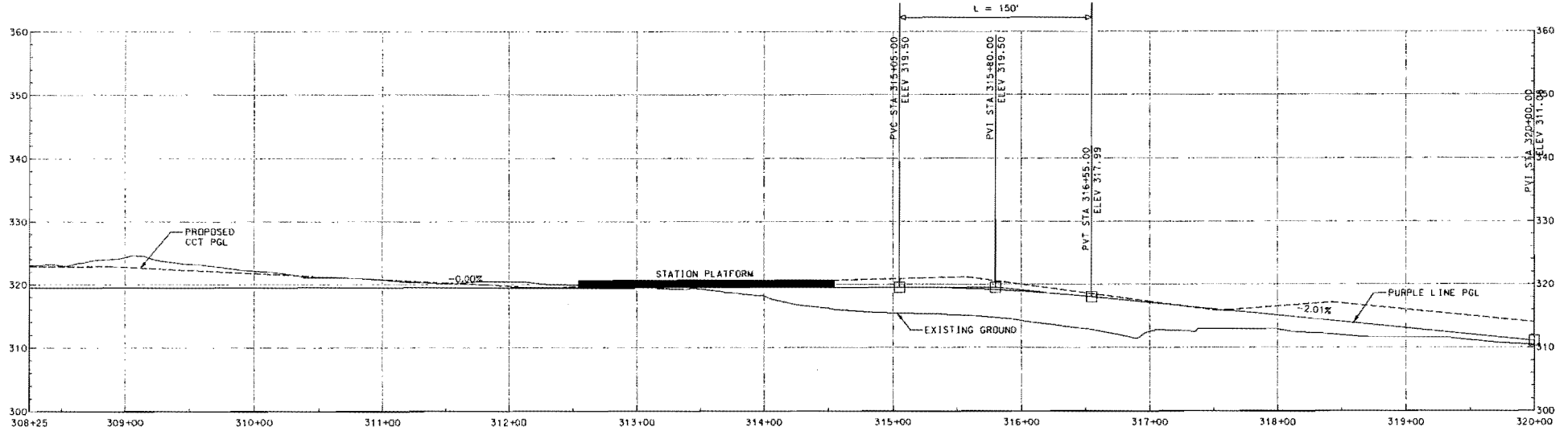


EAST OF AIR RIGHTS

DRAFT WORK-IN-PROGRESS

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MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND TRANSIT ADMINISTRATION
MTA Maryland
Purple Line
Gannett Fleming
WRSA

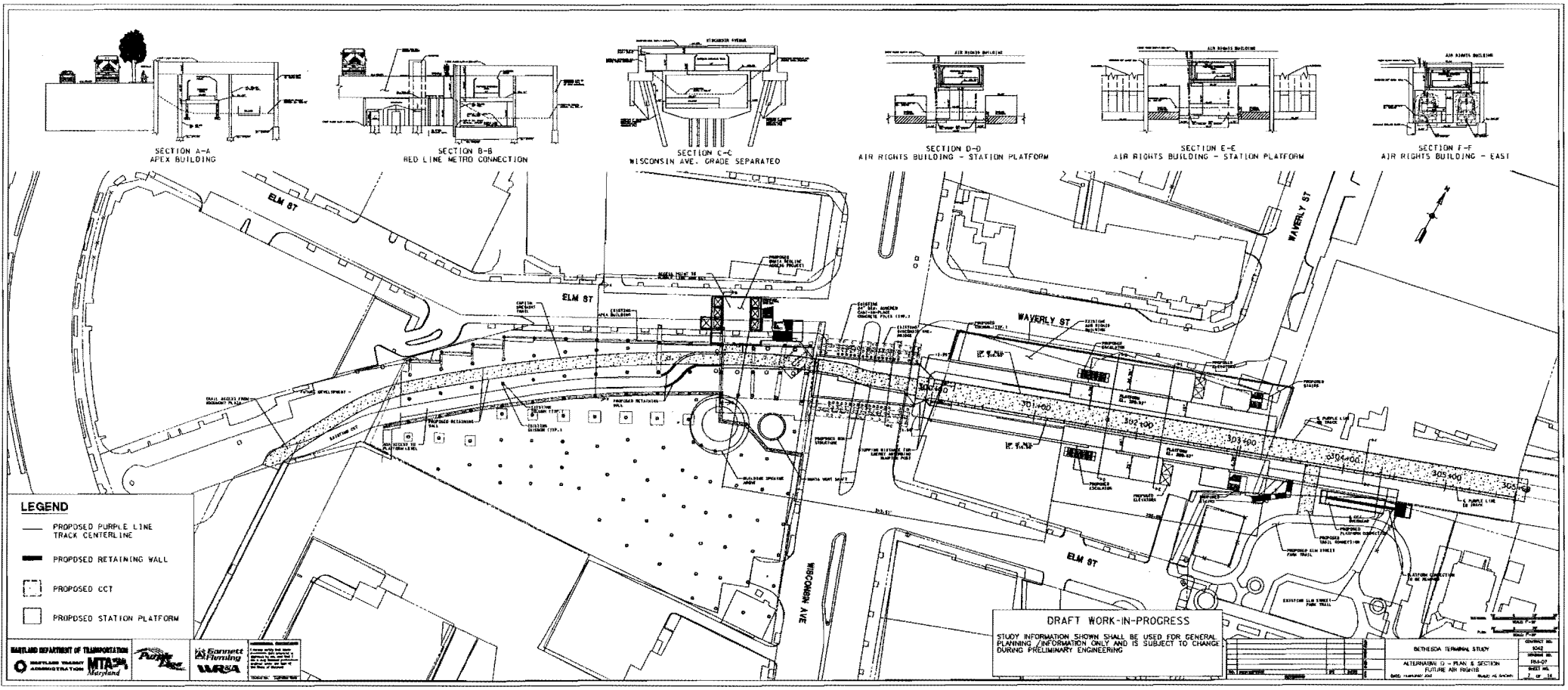
BETHESDA TERMINAL STUDY

ALTERNATIVE C - PROFILE
EAST OF AIR RIGHTS BUILDING

CONTRACT NO. 1042
DRAWING NO. PM-06
SHEET NO. 6 OF 14

36

# ALTERNATIVE D (DRAWING 7)



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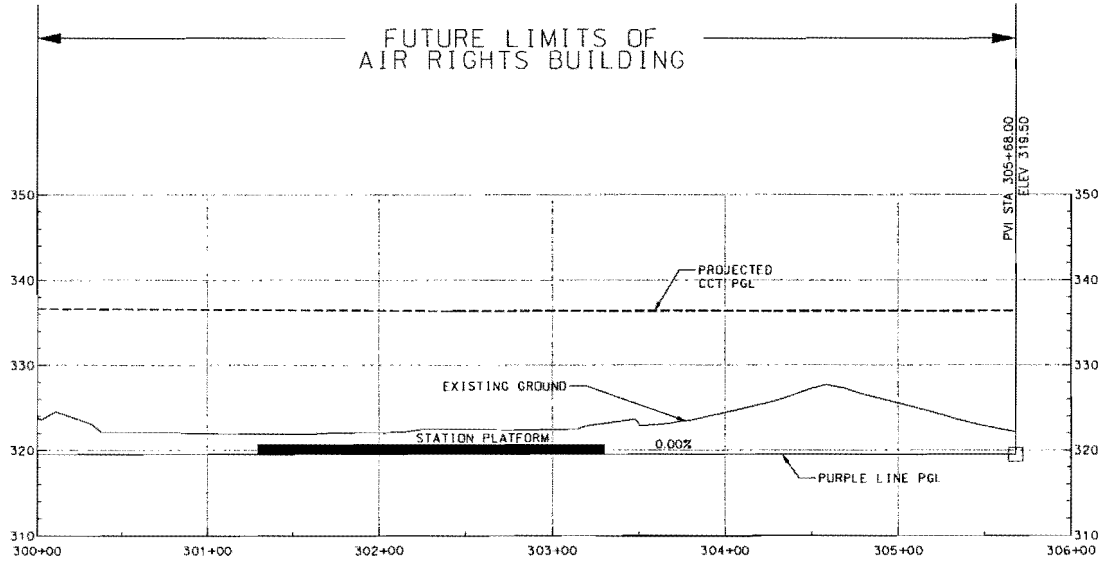



FUTURE AIR RIGHTS

DRAFT WORK-IN-PROGRESS

STUDY INFORMATION SHOWN SHALL BE USED FOR GENERAL PLANNING /INFORMATION ONLY AND IS SUBJECT TO CHANGE DURING PRELIMINARY ENGINEERING

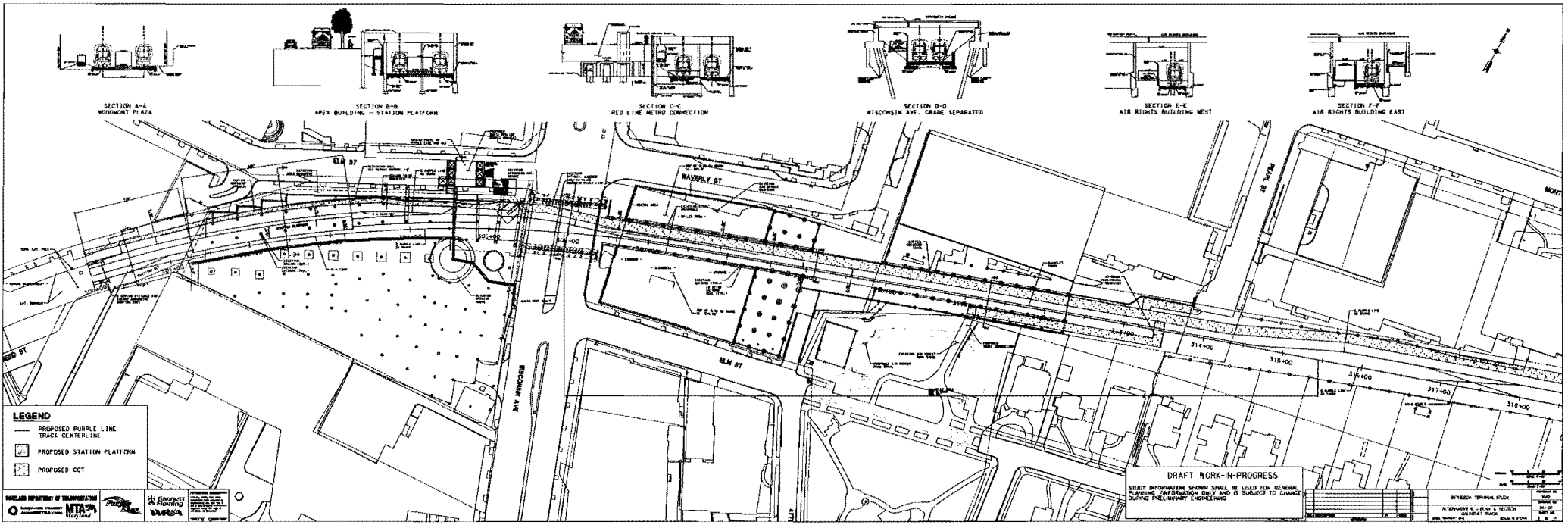
MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND TRANSIT ADMINISTRATION
MTA Maryland
Purple Line
Gannett Fleming
WR&A

BETHESDA TERMINAL STUDY
ALTERNATIVE D - PROFILE
FUTURE AIR RIGHTS

CONTRACT NO. 1042
DRAWING NO. PM-08
SHEET NO. 8 OF 14

17

# ALTERNATIVE E (DRAWING 9)



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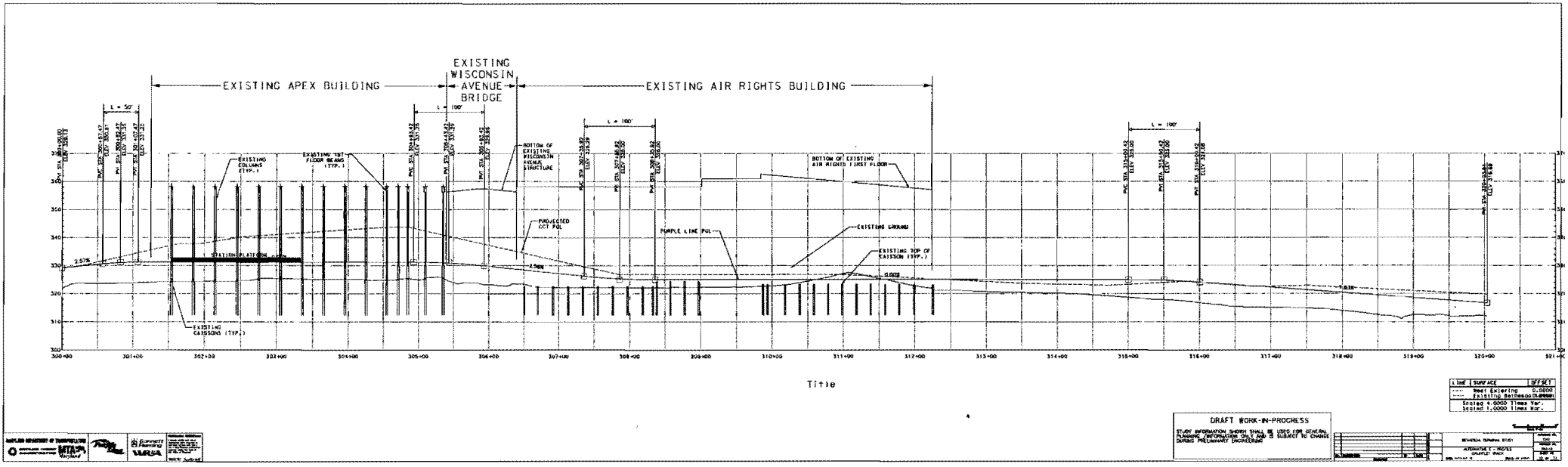


Title

| LINE | SURFACE | OFFSET |
|---|---|---|
| | West Exterior | 0.0000 |
| | Existing Bethesda Elevation | |

Scaled x 0.0000 Times Ver.
Scaled 1.0000 Times Hor.

DRAFT WORK-IN-PROGRESS

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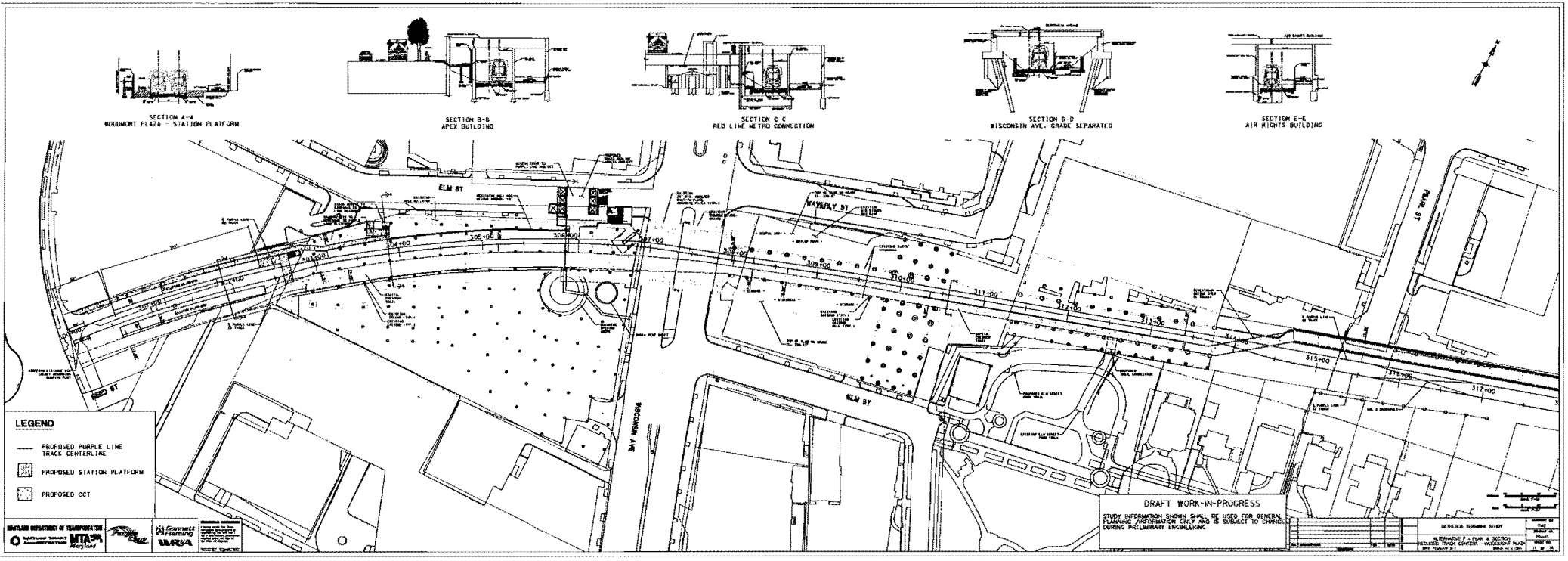
BETHESDA TERMINAL STUDY

ALTERNATIVE E - PROFILE

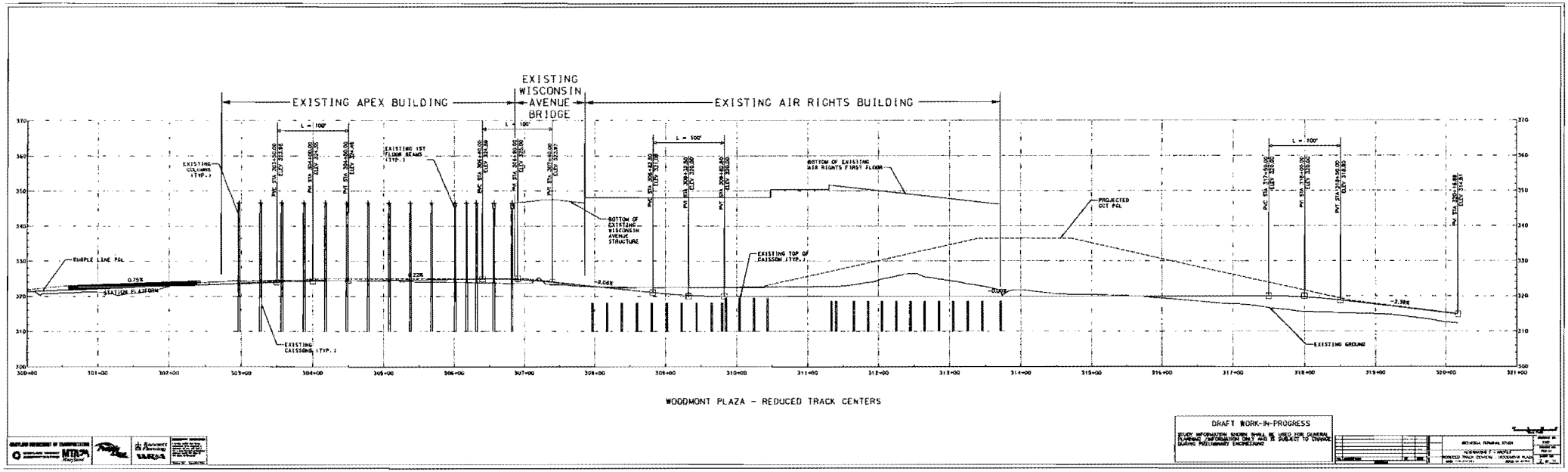
(42)

# ALTERNATIVE F (DRAWING 11)




(44)

# ALTERNATIVE F (DRAWING 12)



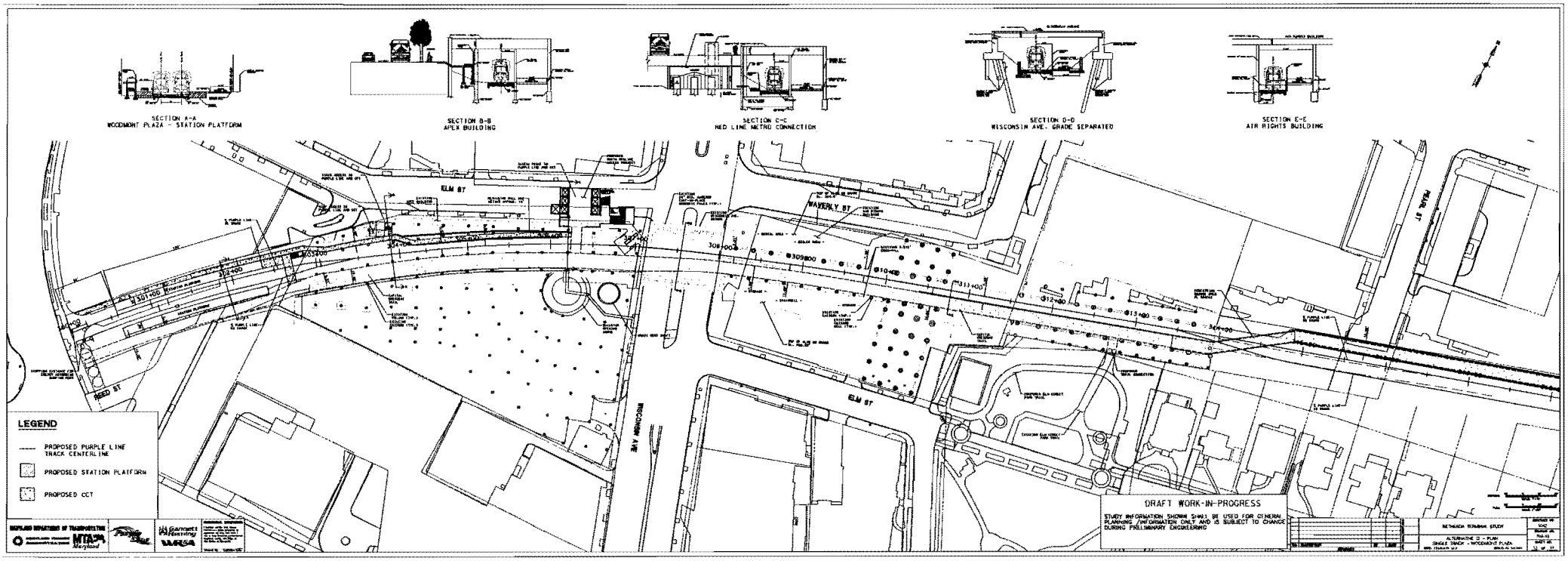

WOODMONT PLAZA - REDUCED TRACK CENTERS

DRAFT WORK-IN-PROGRESS

SELECT INFORMATION SHOWN SHALL BE USED FOR GENERAL PLANNING INFORMATION ONLY AND IS SUBJECT TO CHANGE DURING PRELIMINARY ENGINEERING

45

# ALTERNATIVE G, DRAWING 13




(96)

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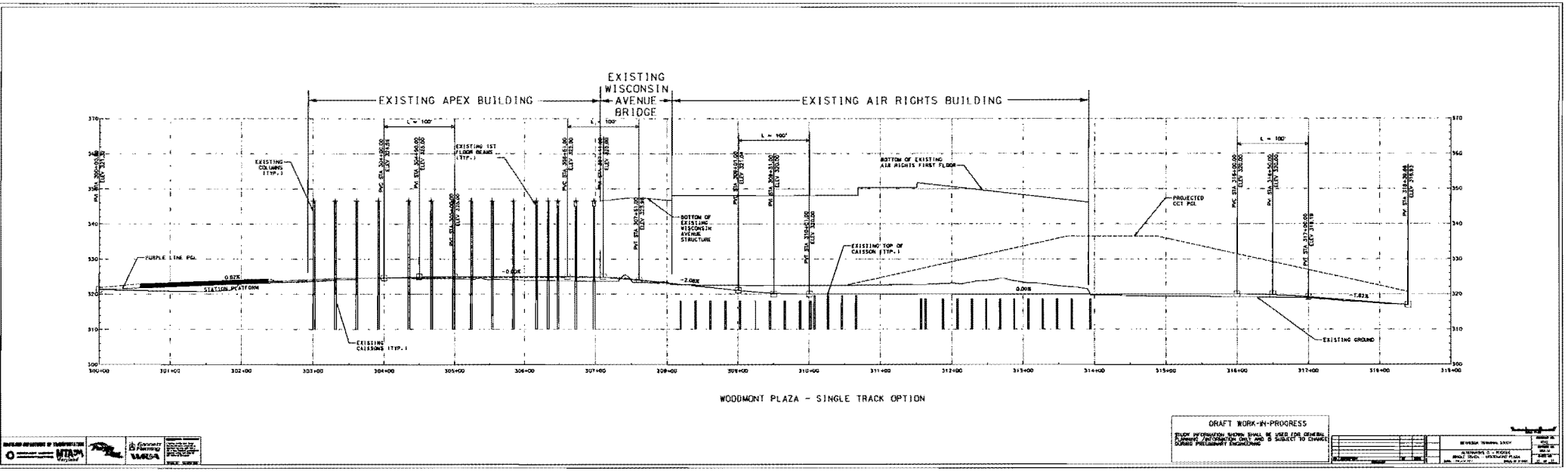


(47)

MONTGOMERY COUNTY PLANNING BOARD
THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

OFFICE OF THE CHAIR

November 30, 2011

The Honorable Valerie Ervin
President, Montgomery County Council
Stella B. Werner Council Office Building
100 Maryland Avenue
Rockville, Maryland 20850

RE: Capital Crescent Trail Scope Refinement

Dear President Ervin:

At our regularly scheduled meeting on November 17th, the Planning Board reviewed several scope questions regarding the Capital Crescent Trail that have been raised by the Maryland Transit Administration (MTA). The following list summarizes the Planning Board's recommendations. A detailed list of recommendations is included as Attachment A.

1. Create a CIP project for the Capital Crescent Trail to evaluate MTA engineering drawings for the trail and to construct the trail in conjunction with the Purple Line.
2. More design work is needed before a recommendation can be made with confidence on whether to construct the Capital Crescent Trail in the tunnel.
    a. Constructing the trail may be feasible if:
        i. further engineering investigation reveals that the cost or risk differential between building the Purple Line and the Capital Crescent Trail in the tunnel and building the Purple Line only in the tunnel (with an upgraded surface trail) is significantly smaller than currently estimated; or
        ii. a mechanism is found to reduce the public outlay and/or risk to the Apex Building associated with putting both the trail and the Purple Line in the tunnel.
    b. We recommend that MTA brief the County Council in six months time with designs, updated cost estimates and risk comparisons for the following scenarios so that this decision can be made with greater assurance.
        i. Purple Line only in the tunnel with an upgraded surface trail
        ii. Trail in the tunnel with the Purple Line station under the Air Rights Building, removing the need to put the Purple Line through the tunnel.

8787 Georgia Avenue, Silver Spring, Maryland 20910 Phone: 301.495.4605 Fax: 301.495.1320
www.montgomeryplanningboard.org E-Mail: mcp-chair@mncppc-mc.org

iii. Trail in the tunnel with the Purple Line station just east of the Air Rights Building, removing the need to put the Purple Line through the tunnel.

c. If the cost and risk differential between building both the Purple Line and the Capital Crescent Trail in the tunnel and building only the Purple Line in the tunnel (with an upgraded surface trail) remains as great as currently estimated, we recommend that the County Council determine the tunnel route to be financially infeasible and concentrate more effort on building the planned surface trail with an alignment and features that will accommodate the volume and variety of user groups anticipated.

3. Convene an agency working group with the mandate to develop a design and circulation concept that upgrades the planned surface alignment, especially if the tunnel route is found financially infeasible. This alignment should provide a safe, convenient, and protected crossing for pedestrians and cyclists at the intersection of Wisconsin Ave / Willow Lane / Bethesda Ave. Attachment A details the types of upgrades to be considered.
4. Provide continuous lighting on the Capital Crescent Trail between Bethesda and Silver Spring to the Illuminating Engineering Society of North America (IESNA) standard for vertical illuminance, and provide maximum protection for undesirable spillover onto adjacent properties.
5. Include emergency call boxes in the design of the Capital Crescent Trail.
6. Continue to include the master-planned switchback connection to the Rock Creek Trail on the east side of the creek in the design of the Capital Crescent Trail, but evaluate a new option that would route the connection through park land to the south of the Georgetown Branch right-of-way, to reduce environmental and aesthetic impacts.
7. Include additional landscaping and hardscaping in the design of the Capital Crescent Trail. Landscaping and hardscaping (including benches and trash cans) should be provided along the community side of the trail as well as the Purple Line side, with enhanced landscaping at stations.
8. The master-planned surface route should remain on the north side of Bethesda Avenue and any private development or public projects potentially affecting that route will be required or advised, respectively, that the Bethesda Avenue bike route needs to be accommodated until:[1]
   a. A better surface alignment is identified.

[1] The bulk of this recommendation relates to how the Planning Board would determine appropriate conditions to place on any development proposed along the north side of Bethesda Ave. Should the Council prefer options that would reroute the surface alignment, a master plan amendment likely would be needed.

b. We have assurance from other parties involved – including the State Highway Administration and the Montgomery County Department of Transportation – that they concur with the new surface alignment and will ensure that a high-quality, safe route is feasible.
c. The master plan is amended.

There were two corrections to the staff memo regarding cost, which are identified in an errata sheet in Attachment B. The full Planning Board packet is included as Attachment C.

If you have any additional questions or would like to discuss this further, please contact me at (301) 495-4605 or David Anspacher of our staff at (301) 495-2191.

Sincerely,

Françoise M. Carrier
Chair

cc: Roger Berliner, Chairman T&E Committee
Senator Richard S. Madaleno, Jr.
Mike Madden, MTA
Edgar Gonzalez, MCDOT
Gary Erenrich, MCDOT
Glenn Orlin
Mary Bradford
Rollin Stanley
Mary Dolan
Rose Krasnow
Tom Autrey
David Anspacher

50

Attachment A: Detailed Planning Board Recommendations

Lighting

1. Provide continuous lighting on the Capital Crescent Trail between Bethesda and Silver Spring to the Illuminating Engineering Society of North America (IESNA) standard for vertical illuminance, and provide maximum protection for undesirable spillover.

Tunnel

2. It appears that more design work is needed before a recommendation can be made with confidence on whether to construct the Capital Crescent Trail in the tunnel.
    a. Constructing the trail may be feasible if:
        i. further engineering investigation reveals that the cost or risk differential between building the Purple Line and the Capital Crescent Trail in the tunnel and building the Purple Line only in the tunnel (with an upgraded surface trail) is significantly smaller than currently estimated; or
        i. a mechanism is found to reduce the public outlay and/or risk to the Apex Building associated with putting both the trail and the Purple Line in the tunnel.
    b. We recommend that the Maryland Transit Administration brief the County Council in six months time with designs, updated cost estimates and risk comparisons for the following scenarios so that this decision can be made with greater assurance.
        i. Purple Line only in the tunnel with an upgraded surface trail
        ii. Trail in the tunnel with the Purple Line station under the Air Rights Building, removing the need to put the Purple Line through the tunnel.
        iii. Trail in the tunnel with the Purple Line station just east of the Air Rights Building, removing the need to put the Purple Line through the tunnel.
    c. If the cost and risk differential between building both the Purple Line and Capital Crescent Trail in the tunnel and building only the Purple Line in the tunnel (with an upgraded surface trail) remains as great as currently estimated, we recommend that the County Council determine the tunnel route to be financially infeasible and concentrate more effort on building the planned surface trail with an alignment and features that will accommodate the volume and variety of user groups anticipated.
3. Create a CIP project for the Capital Crescent Trail. The CIP project should provide funds to:
    a. Evaluate MTA engineering drawings for the trail.
    b. Construct the trail in conjunction with the Purple Line.

Emergency Call Boxes

4. Emergency call boxes should be included in the design of the Capital Crescent Trail. Emergency call boxes should be located as follows:
    a. Where there is no access to other assistance, such as long stretches between access points.
    b. Where cell phone coverage is spotty, such as in tunnels.
    c. For other reasons as deemed necessary.
5. Emergency call box locations should be selected in consultation with the Montgomery County Police Department and the Maryland-National Capital Park Police, Montgomery County Division.

Rock Creek Trail

6. Continue to include the master-planned switchback connection to the Rock Creek Trail on the east side of the creek in the design of the Capital Crescent Trail, but evaluate a new option that would route the connection through park land to the south of the Georgetown Branch right-of-way, to reduce environmental and aesthetic impacts.
7. Include additional landscaping and hardscaping in the design of the Capital Crescent Trail. Landscaping and hardscaping (including benches and trash cans) should be provided along the community side of the trail as well as the Purple Line side, with enhanced landscaping at stations.

Landscaping / Hardscaping

8. Include additional landscaping and hardscaping in the design of the Capital Crescent Trail. Landscaping and hardscaping (including benches and trash cans) should be provided along the community side of the trail as well as the Purple Line side, with enhanced landscaping at stations.
    a. The plant materials that are selected should establish an acceptable aesthetic character for trail users when the trail is constructed and should replace the existing tree canopy over time.
    b. The landscaping plan should be consistent with Crime Prevention Through Environmental Design principles so that appropriate materials are used, for instance so they do not block trail lighting or grow to interfere with trail lighting.
    c. Provide hardscaping that is consistent with a park-like experience.
    d. Provide benches with uneven, non-level seating.

A Better Surface Alignment for the Capital Crescent Trail between Elm Street Park and Woodmont Ave

If the tunnel route is not financially feasible, the surface route becomes much more important. The following steps should be taken to provide a premier surface route through Bethesda. Even if a way is found to retain the trail in the tunnel, a similar approach should be used to assure that local access to the trail is provided in the best possible way.

9. Implement a bold redesign of the area surrounding the Capital Crescent Trail surface alignment.
10. Convene an agency working group with the mandate to develop a design and circulation concept that prioritizes the trail along the surface alignment.
11. The working group will be composed of representatives from the Montgomery County Department of Transportation (MCDOT), the State Highway Administration (SHA), the Department of Parks, the Town of Chevy Chase and the Planning Department.
12. The priorities of the working group will include:
    a. Providing an off-road path that is wide enough to accommodate anticipated demand (12 ft is recommended).
    b. Creating a continuous trail experience from Silver Spring to downtown Bethesda that extends the lighting, landscaping, benches, and other amenities to the surface alignment.
    c. Providing a safe, convenient, and protected crossing for pedestrians and cyclists at the intersection of Wisconsin Ave / Willow Lane / Bethesda Ave.
    d. Separating trail users from non-trail users in areas where a large number of non-trail users are likely to be present.

e. Minimizing the number of driveways that cross the trail.
f. Completing the surface alignment prior to completion of the Purple Line as part of the Bethesda Bikeway and Pedestrian Facilities CIP project.

13. The following treatments are the level of investment that we recommend as the starting point for the working group:
    a. Evaluate the design of the surface alignment through Elm Street Park to ensure that it will safely accommodate the anticipated heavy use, and to minimize negative impacts to park users and facilities.
    b. The working group should identify a preferred location for the path on 47th Street.
    c. At the intersection of 47th Street and Willow Lane create a four-way stop with a raised crosswalk due to the expected volumes of trail users.
    d. The working group will determine on which side of the road to locate the trail on Willow Lane.
    e. Eliminate conflicts for pedestrians crossing Wisconsin Ave. This could be accomplished by:
        - Prohibiting left turns from Bethesda Ave to northbound Wisconsin Ave and prohibiting right turns on red in the southbound direction, to eliminate all conflicts between trail users and motor vehicles.
        - Providing a pedestrian only phase across Wisconsin Ave.
    f. Realign the crosswalk on the north leg of the Wisconsin Ave / Willow Lane intersection so that it connects directly to Willow Lane.
    g. On Bethesda Avenue:
        - Locate the trail on the north side of Bethesda Ave
        - Remove a row of parking between Wisconsin Ave and Woodmont Ave as recommended in the sector plan.
        - Implement the following typical section on Bethesda Ave between the existing curbs: from north to south include a 12 ft trail, 2 ft buffer, two 11 ft traffic lanes, and an 8 ft row of parking.
        - Consolidate driveways to the extent possible.
14. The master-planned surface route should remain on the north side of Bethesda Avenue and any private development or public projects potentially affecting that route will be required or advised, respectively, that the Bethesda Avenue bike route needs to be accommodated until:[2]
    d. A better surface alignment is identified.
    e. We have assurance from other parties involved – including SHA and MCDOT – that they concur with the new surface alignment and will ensure that a high-quality, safe route is feasible.
    f. The master plan is amended.

[2] The bulk of this recommendation relates to how the Planning Board would determine appropriate conditions to place on any development proposed along the north side of Bethesda Ave. Should the Council prefer options that would reroute the surface alignment, a master plan amendment likely would be needed.

Attachment B: Planning Board Memo Errata Sheet

Two costs items were incorrectly reported in the November 17, 2011 memo to the Planning Board for the Capital Crescent Trail (item #3).

The cost of lighting to the Illuminating Engineering Society of North American (IESNA) standard for vertical illuminance should be changed from "$7.3 million" to "$4.2 million" in the following locations:

- Page 4, second bullet
- Page 7, fourth paragraph

The cost of the master-planned Rock Creek Trail connection should be changed from "$1.4 million" to "$1.9 million" on:

- Page 4, fifth paragraph
- Page 16, sixth paragraph

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CC
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The Town of Chevy Chase



066836



February 22, 2012

Montgomery County Councilmembers
100 Maryland Avenue
Rockville, MD 20850

Dear County Councilmembers:

As you know, the County's Planning Board has asked the Maryland Transit Authority to consider other design options for the Bethesda/Chevy Chase Purple Line station in order to accommodate both a trail and trains in the narrow tunnel under Wisconsin Avenue. While we applaud the Planning Board's open-mindedness and creativity in thinking about options that would allow the trail to continue safely through the tunnel—something we strongly support—we do oppose the particular option that would place the station completely outside of the tunnel, adjacent to Town residences.

In the area outside of the tunnel, the available right of way is just 33 feet opening up only to 66 feet. We believe that placing a station in this particularly narrow area would put it within 50 feet of actual residences. We can't help but believe there is the potential for property condemnation, as well as increased lighting, noise and safety concerns for those properties. Inevitably, any station is accompanied by extensive platform lighting, general station noises such as PA systems, people talking, and trains breaking.

Currently – without a station adjacent to the Town – the State's noise estimates for this area are within one decibel point of the Federal Transit Administration's Severe Impact Threshold, which would require much higher levels of mitigation than the Moderate Impact Threshold at which the Town's impacts are currently estimated (see attached study by MTA, September 19, 2011). It is clear that the noise levels associated with a station outside of the tunnel would tip that equation and force further, more costly, mitigation measures adding more costs to the overall project.

While these issues alone should be enough to condemn this option, a station located outside of the tunnel also will have negative impacts for users of the Purple Line. In particular, placing the station at this location would add a several minute walk to the elevators allowing for a transfer between the Purple Line and Metro's Red Line. Lessening connectivity to Metro will have

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www.townofchevychase.org

serious consequences for overall ridership estimates. Likewise, the station would be that much farther from downtown Bethesda, another factor used in estimating ridership. Additionally, it remains unclear how this proposed station would interact with the Trail, bringing into question the overall viability of the current Trail design configuration in this area. The County and State went to great lengths to move the Trail to the north side of the alignment but this will potentially interfere with station access at Pearl Street.

At this time, the Town does not have enough information to weigh in on the potential station location at the Air Rights building adjacent to Elm Street Park. However, we are concerned about what negative changes could occur at Elm Street Park, particularly the playground that has been promised to the larger community as part of a development project at Pearl Street.

We have attached for your review our testimony as presented to the County Planning Board explaining why we feel a tunnel option for the Trail remains so important. In particular, we would like to highlight the detailed information—prepared by the County itself—as to why this section of Wisconsin Avenue is a dangerous "high incidence area" and wholly inappropriate for a heavily-trafficked Trail crossing.

The locally preferred alternative was presented and approved by the community with the tunnel-trail option and an above-grade crossing at Connecticut Ave. We hope and expect that our elected representatives will keep faith with the community by adhering closely to the promises made when the project was sold to the community and adopted by the Council. On behalf of the Town, thank you for your continuing commitment to do so.

Sincerely,

David J. Lublin

David Lublin
Mayor

DRAFT

# Capital Crescent Trail

| | | | |
|---|---|---|---|
| Category | Transportation | Date Last Modified | February 24, 2012 |
| Subcategory | Pedestrian Facilities/Bikeways | Required Adequate Public Facility | No |
| Administering Agency | Transportation | Relocation Impact | None |
| Planning Area | Bethesda-Chevy Chase/Silver Spring | Status | Planning Stage |

**Expenditures Schedule ($000)**

| Cost Element | Total | Thru FY11 | Est. FY12 | Total 6 Years | FY13 | FY14 | FY15 | FY16 | FY17 | FY18 | Beyond 6 Years |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Planning, Design, and Supervision | 6,000 | 0 | 0 | 6,000 | 0 | 0 | 3,000 | 0 | 0 | 3,000 | 0 |
| Land | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site Improvements and Utilities | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Construction | 42,100 | 0 | 0 | 21,600 | 0 | 0 | 0 | 8,700 | 8,700 | 4,200 | 20,500 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **48,100** | **0** | **0** | **27,600** | **0** | **0** | **3,000** | **8,700** | **8,700** | **7,200** | **20,500** |

**Funding Schedule ($000)**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GO Bonds | 48,100 | 0 | 0 | 27,600 | 0 | 0 | 3,000 | 8,700 | 8,700 | 7,200 | 20,500 |
| **Total** | **48,100** | **0** | **0** | **27,600** | **0** | **0** | **3,000** | **8,700** | **8,700** | **7,200** | **20,500** |

**Operating Budget Impact ($000)**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Energy | | | | | | | | | | | |
| Maintenance | | | | | | | | | | | |
| Program Staff | | | | | | | | | | | |
| **Net Impact** | | | | | | | | | | | |

## DESCRIPTION

This project provides for the funding of the Capital Crescent Trail, including the main trail from Elm Street Park in Bethesda to Silver Spring as a largely 12'-wide hard-surface hiker-biker path, connecting paths at several locations, a new bridge over Connecticut Avenue, a new underpass beneath Jones Mill Road, supplemental landscaping and amenities, and lighting at trail junctions, in underpasses, and at other critical points.

## ESTIMATED SCHEDULE

The interim trail along the Georgetown Branch right-of-way between Bethesda and Lyttonsville will be upgraded to a permanent trail in FYs16-18, concurrent with the construction of the Purple Line in that segment. The new extension of the trail on the northeast side of the Metropolitan Branch between Lyttonsville and the Silver Spring Transit Center will be built in FYs19-20. The Metropolitan Branch segment will be open concurrent with the planned opening of the Purple Line in 2020.

## JUSTIFICATION

This trail will be part of a larger system of trails to enable non-motorized travel around the Washington region. This trail will connect to the existing Capital Crescent Trail from Bethesda to Georgetown, the Metropolitan Branch Trail from Silver Spring to Union Station, and the Rock Creek Bike Trail from northern Montgomery County to Georgetown. The trail will serve pedestrians, bicyclists, joggers, and skaters, and will be American with Disabilities Act of 1990 (ADA)

Plans & Studies: Bethesda CBD Sector Plan, Purple Line Functional Master Plan

| Appropriation and Expenditure Data | | |
|---|---|---|
| Date First Appropriation | | ($000) |
| First Cost Estimate Current Scope (FY13) | | 48,100 |
| Last FY's Cost Estimate | | 0 |
| | | |
| Appropriation Request | FY13 | 0 |
| Appropriation Request Est. | FY14 | 0 |
| Supplemental Approp. Request | | 0 |
| Transfer | | 0 |
| | | |
| Cumulative Appropriation | | 0 |
| Expenditures/Encumbrances | | 0 |
| Unencumbered Balance | | 0 |
| | | |
| Partial | FY11 | 0 |
| New Partial Closeout | FY12 | 0 |
| Total Partial Closeout | | 0 |

**Coordination**

Maryland Transit Administration
Department of Transportation
State Highway Administration
M-NCPPC
Bethesda Bikeway and Pedestrian Facilities
Coalition for the Capital Crescent Trail

**Map**