

# Purple Line

## *Bicycle Access and Bicycle Hub Location Study*

PREPARED FOR THE MARYLAND NATIONAL CAPITAL PARK AND PLANNING COMMISSION AND  
PRINCE GEORGE'S COUNTY PLANNING DEPARTMENT

FUNDED BY THE METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS'  
TRANSPORTATION LAND USE CONNECTION (TLC) PROGRAM

## ABOUT THE TLC PROGRAM

The Transportation and Land Use Connections (TLC) Program provides support to local governments in the metropolitan Washington region as they work to improve transportation/land use coordination. Through the program, the Transportation Planning Board provides communities with technical assistance grants to catalyze or enhance planning efforts. TLC projects are generally targeted to a fairly small area or discrete set of issues. Lessons learned from these planning studies may then be implemented around the region.

## ACKNOWLEDGEMENTS

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### Metropolitan Washington Council of Governments

Deborah Kerson Bilek  
John Swanson  
Rex Hodgson

### M-NCPPC Project Manager

Daniel Janousek

### Other Members

Frank Bell	Montgomery County, DPWTT
Mary Davidson	MSHA, Bicycle & Pedestrian Coordinator
Lou Farber	Prince George's County Department of Public Works and Transportation
John Farley	University of Maryland, College Park
Harold Foster	M-NCPPC, Transportation Planning
Bill Gallagher	KGP Design Studio
Seth Garland	KGP Design Studio
Danielle Glaros	Office of Prince George's County, Council Member
	Eric Olson
Roy Gothie	MSHA, Regional and Intermodal Planning
Kristen Haldeman	WMATA, Planning
Daniel Hayes	UMD, Facilities Planning
Steven Kolarz	RK&K Engineering
Harriet Levine	Jacobs Engineering/MTA
John Margarelli	WMATA, Planning
Beverly Malone	University of Maryland, College Park
L'Kiesha Markley	MSHA, Regional and Intermodal Planning
Eileen Nivera	M-NCPPC, Park and Trail Planning
Meghan Powell	Jacobs Engineering/MTA
Shannon Rousey	Jacobs Engineering/MTA
Terry Schum	City of College Park
Fred Shaffer	MNCPPC, Transportation Planning
Deidre Smith	Jacobs Engineering/MTA
Paivi Spoon	Prince George's County, County Executive's Office
Elisa Vitale	City of College Park
Matthew Zych	WMATA, Planning

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# EXECUTIVE SUMMARY

Communities across the US are investing in light rail transit systems because they have proven to be a form of transportation that makes urban areas stronger and more sustainable. Light rail can connect a community with stations becoming mini-neighborhood hubs. Access on foot and by bicycle can strengthen these linkages. Developing an integrated plan that incorporates multimodal access, land use, urban design and other elements is critical to a light rail system's initial success. This report offers a piece of this holistic plan by providing initial analysis and recommendation for pedestrian and bicyclist access to and travel along the Purple Line in Prince George's County, Maryland.

This report was developed for the Maryland-National Capital Park and Planning Commission-Prince George's County (M-NCPPC-PG), with a grant from the Metropolitan Washington Regional Council of Governments TLC program. Toole Design Group conducted the study and developed the report based on three primary recommendations:

1. Use the access shed approach to identifying and prioritizing pedestrian and bicyclist station access and commit to a 10-year program to plan, design, and fund bicycle and pedestrian improvements that are necessary to fully develop each bicycle and pedestrian access shed to reach desired non-motorized access mode share goals.

2. Develop a parallel multi-use trail system and, where it is adjacent to the light rail alignment or within the same roadway corridor, include facility design and costs as an essential component of the Purple Line project.
3. Establish bicycle parking standards for each station, with the capacity to adjust parking levels and facilities as demand increases.

Construction on the Purple Line is not anticipated to begin until 2016, with service beginning closer to 2020. A number of development projects and sector planning efforts are underway. These projects provide opportunities for incorporating highly functional bicycle and pedestrian facilities along the light rail corridor and at stations. This report will inform decisions that policy makers, planners and engineers are making as the Purple Line project moves into design, construction and revenue operation.

Adequate access infrastructure is critical to meeting and exceeding ridership projections. Maximizing both the access mode share and aggregate numbers for pedestrian and bicyclist access trips can best be achieved by implementing recommendations detailed here.

## BICYCLE AND PEDESTRIAN ACCESS SHEDS

The access shed analysis identifies areas for each station from which transit riders can or are likely to access on foot or by bicycle. Access sheds are determined by the interaction of physical conditions including distance, topography, street layout and connectivity, existing conditions for bicycling and walking, existing facilities, and physical barriers.

Some access sheds are ready to serve Purple Line riders. Others have underperforming infrastructure or missing links that, if provided, would create a fully functional shed. Fully functional access sheds are essential to ensure the attractiveness of the Purple Line to potential transit riders.

Access sheds closest to Purple Line stations with the greatest potential to generate light rail users, especially those accessing the station on foot, should be functional from the first day of light rail service. Activating access sheds farther out according to their potential to attract trips to a station by bicycle or on foot should follow as quickly as possible after the start of service. Several infrastructure improvements that will increase the functionality of sheds or will remove a barrier that blocks the shed are identified in this plan. In some cases the improvements may have already been identified in the Prince George's County Master Plan of Transportation. Other proposed improvements are new connections not currently planned, or are modifications to the County's Master Plan of Transportation.

The responsibility for implementing access shed improvements depends upon where the needed improvement is located. Those along the Purple Line should be made by MTA and SHA as part of Purple Line construction. Improvements away from the Purple Line will be the responsibility of other organizations, such as Prince George's County DPWT, local municipalities, the MNCPPC, the University of Maryland, or private developers.

## CROSS-COUNTRY MULTI-USE TRAIL: PINK LINE

Anticipated demand for a multi-use trail along the Purple Line corridor can be satisfied by developing one that also serves bicyclist and pedestrian station access needs. Conceptually branded the Pink Line, this trail travels both along the Purple Line alignment in the public right-of-way, and through nearby neighborhoods using public roads, existing and proposed trails, and other connections. The Pink Line will be a mix of cycle tracks, sidewalks, bicycle lanes, sidepaths, shared use park trails, and signed/shared roadways on low volume/low speed residential streets. Most of the trail would be newly constructed facilities; however some portions will use facilities already in existence.

The report recommends a reallocation of the right-of-way in certain areas in order to build on-road bicycle facilities such as bicycle lanes, cycle tracks, and sidepaths, and to improve conditions for pedestrians traveling along and across wide streets with high traffic volumes. Immediate design issues include: revising proposed cross-sections; acquiring adequate right-of-way; and planning for adequate sidewalks, buffers and bicycle facilities concurrently with design and construction of the Purple Line so that the access infrastructure is in place when the light rail system opens. While the strategic value of planned or anticipated development is a contributing factor to where the Pink Line is located, relying solely or primarily on developer participation will result in piecemeal construction and a discontinuous bicycle and pedestrian system.

## BICYCLE PARKING AND BICYCLE HUBS

Providing appropriate bicycle parking at Purple Line stations will help the new light rail line meet its ridership goals by facilitating access for bicyclists. Bicycle parking is recommended for all stations, and must be supplied with modest surplus capacity to accommodate ongoing growth.

Determining the number, type and locations of bicycle parking spaces at each station is an iterative process. An initial estimate of supply has been made from ridership estimates and the average usage rate based on WMATA's experience with its heavy rail stations. However, as demand increases over time, additional parking will be needed. Station planning today should allocate space in anticipation of increased demand over time. Additionally, improvements to, and activation of, bicycle access sheds will affect the number of transit riders bicycling to Purple Line stations. In short, the provision of bicycle parking should be treated as a dynamic element of the light rail system. It affects initial station design, and how transit riders will think about their access options when service is in place.

*Bicycle hubs* are identified for stations where the highest volumes of bicycle parking will be needed and where related bicycle transportation services are located, such as indoor and outdoor parking, an attendant, rest rooms, showers, day and long term lockers, food (vending or café), bicycle rentals and shared bicycles, bicycle accessories and repair, and accommodations for police bicycle patrol. Hubs should be developed at several stations, located near the station along with other retail operations, ideally operated by a third party. Bicycle hubs should be designed for and equipped with best and emerging technologies found in the United States and abroad.

Corollary issues for bicycle access to the Purple Line include: Bicycle parking requirements for new residential and commercial development, rail car design, on-board policies, the potential for bicycle sharing services, and inclusion of

bicycle access promotion and parking supply management in TDM programs. These issues should be explored in greater detail in future planning efforts.

## PLAN ORGANIZATION

Four chapters form the basis of this report. Chapters on Bicycle and Pedestrian Access Sheds, Bicycle Parking Demand Analysis, Station Area Planning for Bicycle Parking and Hubs, and the Cross-County Multi-use Trail describe the research and recommendations included here. Maps provide a rich resource of this information, supplemented by explanatory narrative. The report's last chapter consolidates recommendations from all chapters, organized around the three key recommendations listed above.

# 1 INTRODUCTION

Communities across the U.S. are investing in light rail transit systems because they have proven to be a form of transportation that makes urban areas stronger and more sustainable. Light rail can connect a community with stations becoming mini-neighborhood hubs. Access on foot and by bicycle can strengthen these linkages. Developing an integrated plan that incorporates multimodal access, land use, urban design and other elements is critical to a light rail system's initial success. This report offers a piece of this holistic plan by providing initial analysis and recommendation for pedestrian and bicyclist access to and travel along the Purple Line in Prince George's County, Maryland.

This report was developed for the Maryland-National Capital Park and Planning Commission-Prince George's County (MNCPPC-PG), with a grant from the Metropolitan Washington Regional Council of Governments TLC program. Toole Design Group conducted the study and developed the report based on three primary recommendations:

The purpose of the proposed project is to provide faster, more direct and more reliable east-west transit service in the Purple Line corridor, which would connect the four major activity centers, including the Metrorail services located there, to each other, and with the communities located between them. The existing and expected future roadway congestion in the corridor will have an increasingly detrimental effect on the travel times and reliability of east-west bus transit services in the corridor. The proposed Purple Line corridor transit improvements are intended to improve travel times and reliability by providing more direct services that will operate on dedicated and exclusive lanes and guideways.

1. Use the access shed approach to identifying and prioritizing pedestrian and bicyclist station access and commit to a 10-year program to plan, design, and fund bicycle and pedestrian improvements that are necessary to fully develop each bicycle and pedestrian access shed to reach desired non-motorized access mode share goals.
2. Develop a parallel multi-use trail system and, where it is adjacent to the light rail alignment or within the same roadway corridor, include facility design and costs as an essential component of the Purple Line project.
3. Establish bicycle parking standards for each station, with the capacity to adjust parking levels and facilities as demand increases.

Construction on the Purple Line is not anticipated to begin until 2016, with service beginning closer to 2020. A number of development projects and sector planning efforts are underway. These projects provide opportunities for incorporating highly functional bicycle and pedestrian facilities along the light rail corridor and at stations. This report will inform decisions that policy makers, planners and engineers are making as the Purple Line project moves into design, construction and revenue operation.

## PLANNING CONTEXT AND EXISTING CONDITIONS

Engineers, planners and architects developing the Purple Line are working within a set of physical, policy and funding constraints. Based on a "small footprint" approach to this light rail line and its operation, no additional motor vehicle parking will be constructed at stations as part of this project, and ROW acquisition is being kept to the minimum. Purple Line riders will arrive at stations by walking, bicycling, riding feeder bus or by using Kiss & Ride facilities.

While the alignment of the Purple Line is primarily on streets, station placement and the limited number of stations resemble heavy rail transit. In Prince George's County, current planning for Purple Line tracks and stations places them along or in roadways. Aerial and below grade structures are anticipated in a limited number of locations. Some stations are in densely developed areas; some are located in areas where future transit-oriented development is desired and/or being planned. Others are not, making station access more difficult.

Light rail alignments are typically through the core of urban communities so riders can easily get to stations. It is essential that existing and proposed sector plans for neighborhoods along the Purple Line corridor in Prince George's County promote light rail-friendly communities that support ridership forecasts.

## PLAN DEVELOPMENT

Recommendations in this report were developed from a variety of meetings, field visits, document reviews, and analyses using GIS and aerial photography. Conversations on a large and small level were held with project planners and engineers from the Maryland Transit Administration (MTA) and the State Highway Administration (SHA), and with other local and regional stakeholders to gather information, test recommendations and understand the policies guiding Purple Line planning. Several plans from Prince George's County informed recommendations, including the Comprehensive Master Plan of Transportation, the Central US Corridor 1 Sector Plan, the Takoma-Langley Sector Plan, and other sector and development plans. The Purple Line Alternatives Analysis/Draft Environmental Impact Statement (AA/DEIS) provided relevant technical information.

The project team augmented its local knowledge of Purple Line communities with information available through GIS data and aerial photographs and targeted field work for determining both the Pink Line alignment and the functionality of bicycle and pedestrian sheds. Finally, conversations with WMATA staff and a best practices review supplied information for the bicycle parking recommendations.

*Understanding the Inter-related Analysis.* Each recommendation should not be considered in isolation. They form an inter-related system that is strengthened and supported by pursuing them all simultaneously.

- The bicycle shed analysis identifies bicycle routes to stations and potential station access volumes which relate directly to establishing needs for various segments of the Pink Line and demand for bicycle parking.
- Because of the shed analysis, the Pink Line alignment and facility study was not only conducted with through and longer cross-county bicycle movements in mind, but to facilitate station access movements for both bicyclists and pedestrians.

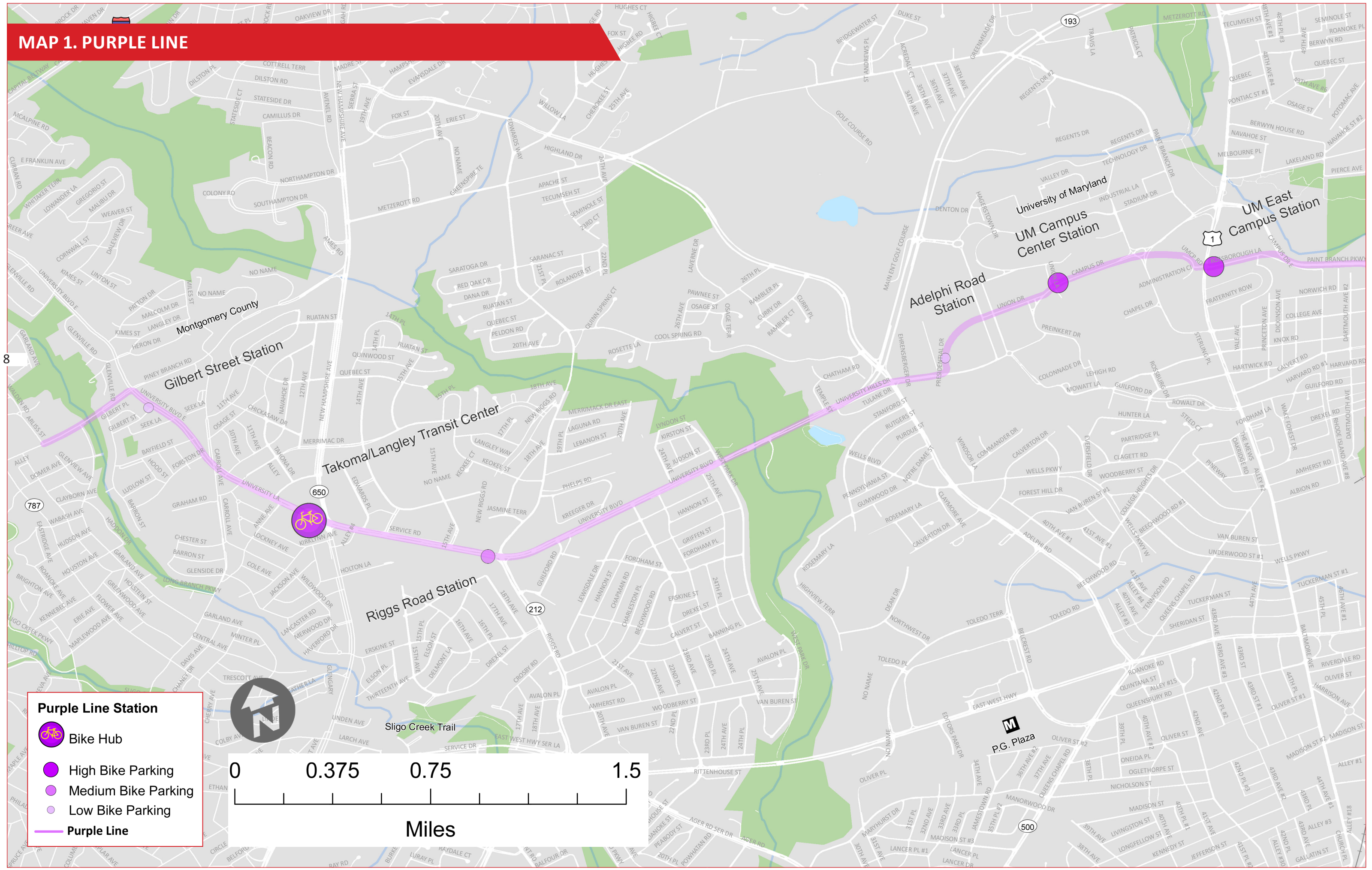
- A deeper understanding of potential bicycle parking demand has implications for station design and public space needs around each station, as well as determining which stations may support the higher grade and volume of services offered by a Bicycle Hub.

*Plan Organization.* Four chapters form the basis of this report. Chapters on Bicycle and Pedestrian Access Sheds, Bicycle Parking Demand Analysis, Station Area Planning for Bicycle Parking and Hubs, and the Cross-County Multi-use Trail describe the research and recommendations included here. Maps provide a rich resource of this information, supplemented by explanatory narrative. The report's last chapter consolidates recommendations from all chapters, organized around the three key recommendations listed at the beginning of this chapter.





## A FINAL INTRODUCTORY WORD

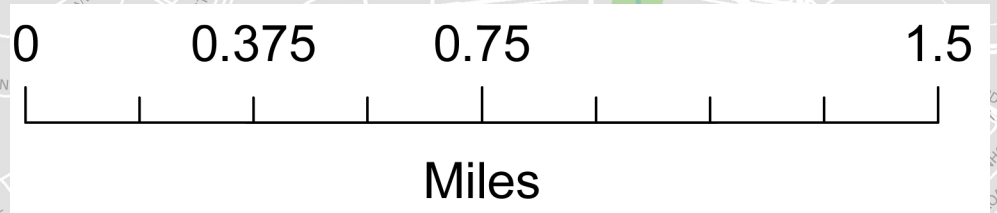
Ridership projections will only be met or exceeded with adequate access infrastructure in place. Maximizing both the mode share and aggregate numbers for pedestrian and bicyclist access trips relies on several elements, including implementing the recommendations detailed in this report.

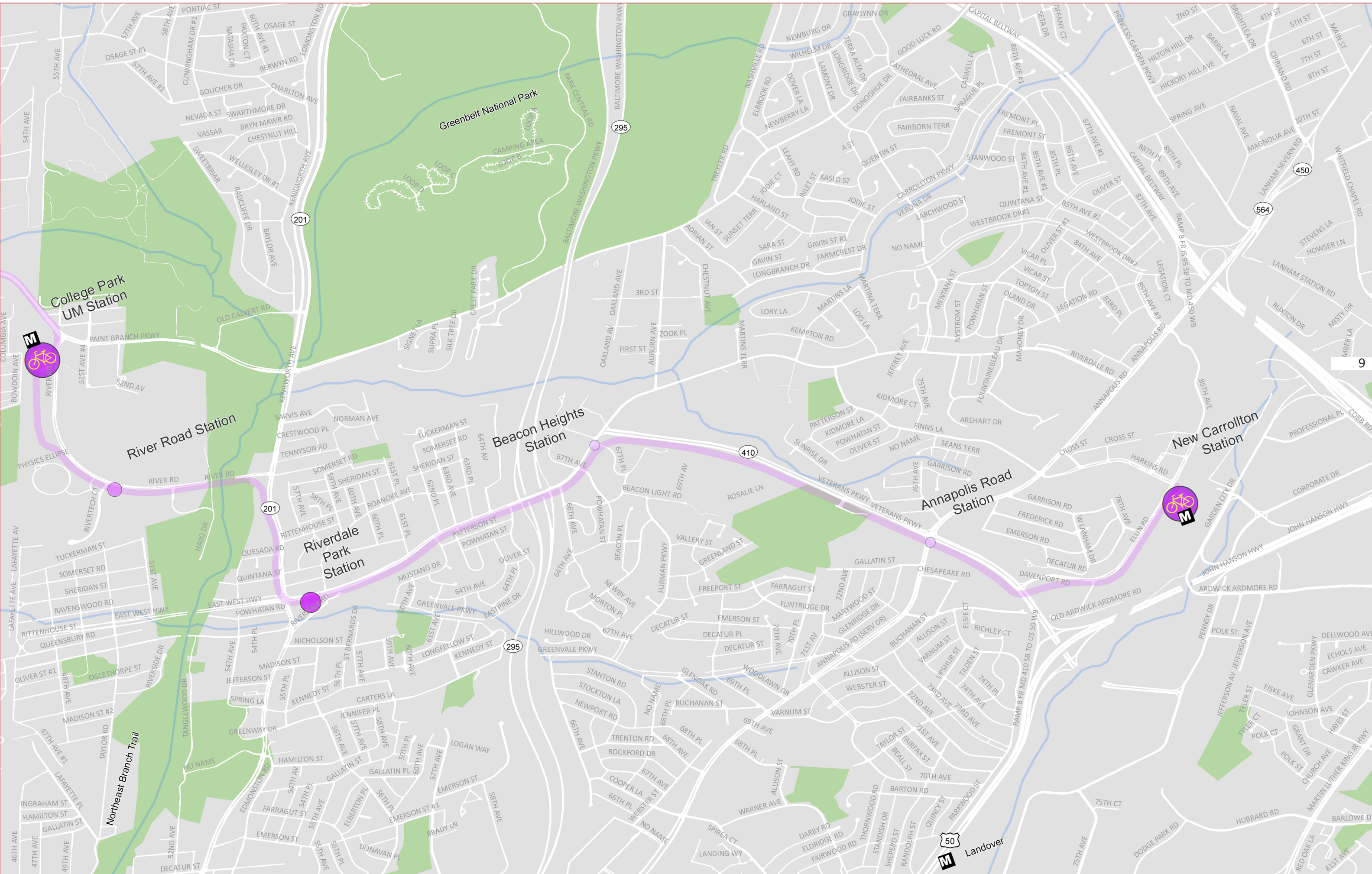
# MAP 1. PURPLE LINE



## Purple Line Station

-  Bike Hub
-  High Bike Parking
-  Medium Bike Parking
-  Low Bike Parking
-  Purple Line





College Park  
UM Station

River Road Station

Riverdale  
Park Station

Beacon Heights  
Station

Annapolis Road  
Station

New Carrollton  
Station

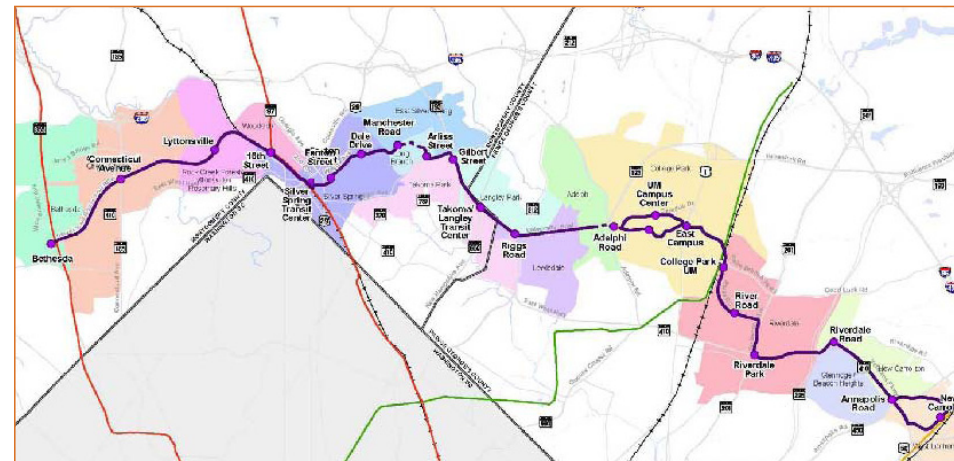
50  
Landover

# 2

# BICYCLE AND PEDESTRIAN ACCESS SHEDS

Bicycle and pedestrian access sheds (or catchment areas) are geographic areas, to and from which light rail users can access a Purple Line station on foot or by bicycle. Access sheds are generally limited by distance or defined by barriers through which a bicyclist or pedestrian cannot readily pass. Access sheds are further limited by the travel conditions a bicyclist or pedestrian will experience making the trip, such as street crossings, topography, the presence, lack of and quality of infrastructure to facilitate the trip, and other factors.

To understand the service area of the Purple Line and the communities it serves, a Socioeconomic Report was completed as part of the AA/DEIS. The figure below is a map of Purple Line neighborhood from that report. The Bicycle and Pedestrian Shed analysis looked at access for these communities and others that will be within bicycle range of the Purple Line stations.



For this study, it was determined that bicycle sheds would extend no more than 3 miles from a station and typically extend only 1.5 to 2.0 miles. Pedestrian sheds do not extend more than a mile, and are generally up to 0.5 miles from the station. Access sheds for the

University of Maryland campus area were excluded from this analysis primarily because they are being looked at through other ongoing studies. See Appendix A for details.

## PEDESTRIAN SHED RESULTS

Prior to identifying Bicycle Sheds, 21 Pedestrian Access Sheds were identified 16 sheds need improvements; 5 sheds are non-functioning. A principal assumption was that people living within walking distance would probably choose to walk instead of bicycle. Therefore, mapping which residential areas were generally close enough to walk to the station established the first limit on the Bicycle Sheds.<sup>1</sup> However, since bicycle access is the focus of this study, minimal analysis was completed on these sheds. See Appendix B for a map of the Pedestrian Access Sheds.

## BICYCLE SHED RESULTS

The first step in the bicycle shed analysis was to identify discrete bicycle access sheds, associate them with specific stations, and delineate their boundaries. The following factors were used in this analysis:

1. Challenging physical barriers to bicycle travel
2. Actual and perceived distance<sup>2</sup>
3. Street layout and connectivity
4. Directness of optimal route(s)

1 - While there is no standard distance for this factor in the field of transit access planning, it was assumed that bicycle use would begin to be attractive from trip origins 0.35 miles from the station, and be preferred over walking from most locations 0.75 miles or more from the station. However, due to the fine-grained nature of these assumptions and the lack of existing residential density within 0.25 miles of most stations, this analysis did not attempt to account for this factor.

2 - Actual distances were measured "as the crow flies," not by length of actual usable route. Perceived distance refers to the transit users likely perception of how far the station is, or whether the station is perceived to be within the users neighborhood or an adjacent neighborhood.

5. Topography
6. Existing bicycle and pedestrian facilities on route(s)
7. New facilities or facility upgrades needed
8. Bicycling and walking conditions along usable access routes
9. Expected comfort crossing arterial roadways
10. Proximity to another Purple Line station or a Metrorail station
11. Continuity of neighborhood

The analysis was done using GIS data and other map resources, field verification, online aerial photography, and knowledge of the locally-based consulting team.

This analysis identified 49 bicycle sheds which are mapped as polygons in GIS (See Maps A and B). Each shed is named, numbered and associated with the station to which it “drains.” See Appendix C for a list of the Bicycle Sheds and their associated data.

Some areas between stations offer neighborhood residents a choice between two stations that are relatively equal in accessibility. Three of these areas are identified by hatched shading on Maps A and B.

### EVALUATE FUNCTIONALITY OF DESIRED ROUTE(S) IN BICYCLE SHEDS

The following characteristics were examined to assess the functionality and quality of access within each shed:

- What routes exist for bicycling and walking today? Are these routes fully functional or compromised in some way? What are traffic conditions like along the route?
- What are the off-site barriers to bicycle and pedestrian travel to and from a station, and could they be significantly mitigated by typical bicycle/pedestrian infrastructure improvements, such as sidewalks, signed bicycle routes, bicycle lanes, safety improvements at intersections, trails, bridges over streams, lighting, etc.?
- What bicycle and pedestrian facilities will be needed along and within the Purple Line corridor to provide high quality bicycle and pedestrian access?
- How should Transit-Oriented Development site or area plans be designed to provide high quality bicycle and pedestrian access? Are changes in existing street layouts needed? Are improvements to above or below grade crossings needed? What is needed in the immediate vicinity of the station to ensure high quality bicycle and pedestrian access?
- What are the facilities already in place that support bicycle access? How can they be built upon to increase the attractiveness of bicycling to a Purple Line station?

From this analysis a basic functionality rating was assigned to each shed. Because the access values inherent in these characteristics could not be easily quantified, three subjective ratings were developed; their criteria are described following:

*Type 1. Functional Sheds (Green):* These sheds are functional under existing conditions, have relatively bicycle friendly conditions along easily identified routes. Many of these sheds have trails that provide access for a major portion of the route. Wayfinding signs and other minor improvements are all that would be necessary to make these sheds fully functional when the Purple Line opens.

*Type 2. Sheds Needing Improvement (Yellow):* These sheds have routes to stations, but have key portions of the route that would need improvements to conditions to make them sufficiently bicycle friendly to draw meaningful numbers of bicycle access trips to the Purple Line. Improvements needed may include crossing safety upgrades at major intersections, new access links to improve directness, or bicycle facilities on arterial or other key roads serving the shed.

*Type 3. Non-Functional Sheds (Red):* Under existing conditions these sheds meet one or both of the following criteria: a) A new facility such as a trail through a park or a bridge over a stream is needed to make the shed functional, or b) existing bicycle conditions on usable routes are sufficiently poor or existing routes are sufficiently indirect such that it is expected that no (or very few) bicycle access trips would be generated by the shed.

### POPULATION ANALYSIS

To evaluate the relative potential for each bicycle shed to generate bicycle access trips, a population analysis was conducted using U.S. Census 2008 residential population estimates for census block groups. It should be noted that a number of major redevelopment areas will increase residential populations around some stations significantly, such as the East Campus Station. Moreover, unspecified but expected redevelopment in the Langley Park area and other station areas will increase residential densities as well. These factors could not be addressed in a quantitative manner in this analysis, but are factored in, in a general way when comparing the potential for each bicycle shed to generate bicycle trips to its respective station.<sup>3</sup>

**Table 1. Estimated Bicycle Shed Population by Shed Status**

Bicycle Shed Status (2010)	Estimated Residential Population in Mapped Sheds	Percentage
Functional Sheds	27,482	20%
Sheds Needing Improvement	45,853	33%
Non-Functional Sheds	66,086	47%
	139,421	100%

<sup>3</sup> - Mixed Use Transit Oriented Development is generally expected to occur at most Purple Line Stations, in keeping with state and local planning and zoning policies. However, because that development will take place primarily within 0.5 miles of each station, it is expected that it will generate more pedestrian access trips to the station than bicycle trips.

### BICYCLE SHED FINDINGS

Good bicycle access to Purple Line stations will be available to Type 1, Functional Sheds, when light rail service begins. However, the residential population in these sheds is just one-fifth of the population living along the light rail corridor. Table 1 indicates that if further bicycle improvements are not made prior to the opening of the Purple Line, 80% of the potential transit riders that live within bicycling distance of a station will likely be without viable bicycle access to a station. Further study should be undertaken to determine if current ridership projections are dependent on some of these populations having bicycle access to the stations. If so, bicycle access improvements may be necessary to ensure that early-year ridership projections are met.

*Access planning decisions.* Beyond the overall assessment presented above, the Bicycle Shed analysis can be used to inform a number of important bicycle access planning decisions (and later ridership promotion programs). For example:

- All Purple Line stakeholder agencies can better understand the potential demand for bicycle parking at each station, and how that demand will be manifested over time based upon which, if any access improvements are made and when they come on line.
- State, County and Municipal planning, parks and public works agencies can determine which improvements to bicycle access, including components of the Pink Line, may have the greatest yield in terms of increased numbers of bicycle access trips to the Purple Line. Appendix D provides a list of these physical improvements to both bicycle and pedestrian access sheds.
- The sheds provide a base, or framework, upon which further analysis of specific residential populations can be conducted. Using existing demographic data, or direct surveys of these potential customers, TDM programs or other agencies can inexpensively find out about other factors that might affect use of bicycles to access Purple Line stations.
- The County or Purple Line operating agency can use the bicycle sheds for bicycle use promotional communications that are customized to particular sheds, allowing particular stations to be targeted and particular routes, conditions or improvements to be referenced or announced.

Chapter 3 provides additional analysis of how bicycle access sheds will affect the demand for bicycle parking at stations. The effect of bicycle parking demand on station area planning and design, along with more information on bicycle hubs is included in Chapter 4.

# BIKE SHED A

12

**UMD Campus Routes**

- Blue
- Green
- Purple
- Yellow
- orange

**Pink Line By Facility**

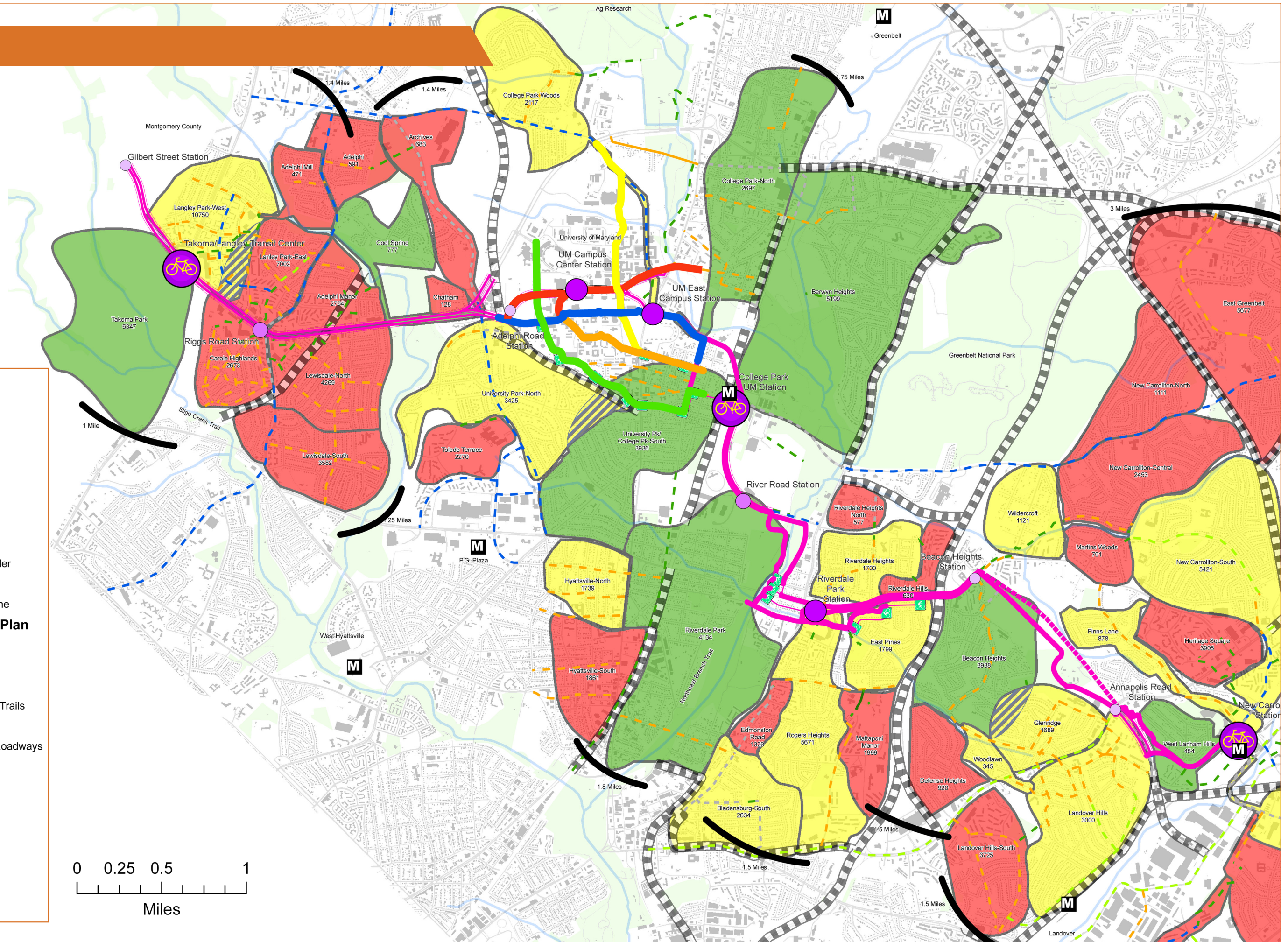
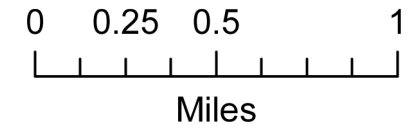
- Cycletrack & Sidewalk
- On Road
- Shared Bike Ped Shoulder
- Shared Use Path
- Slow Bike/Walk Bike Zone

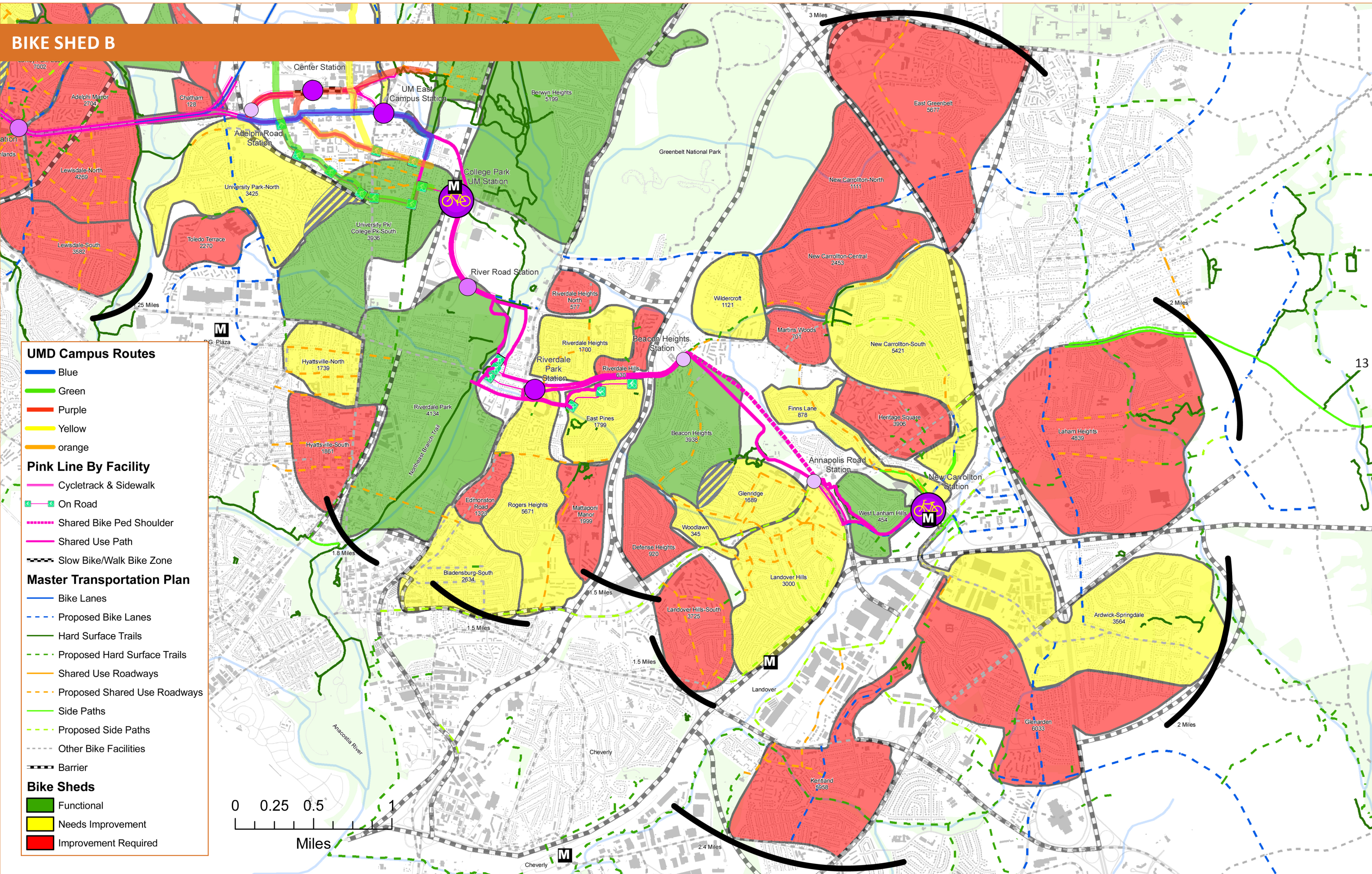
**Master Transportation Plan**

- Bike Lanes
- Proposed Bike Lanes
- Hard Surface Trails
- Proposed Hard Surface Trails
- Shared Use Roadways
- Proposed Shared Use Roadways
- Side Paths
- Proposed Side Paths
- Other Bike Facilities
- Barrier

**Bike Sheds**

- Functional
- Needs Improvement
- Improvement Required





# BIKE SHED B

- UMD Campus Routes**
  - Blue
  - Green
  - Purple
  - Yellow
  - orange
- Pink Line By Facility**
  - Cycletrack & Sidewalk
  - On Road
  - Shared Bike Ped Shoulder
  - Shared Use Path
  - Slow Bike/Walk Bike Zone
- Master Transportation Plan**
  - Bike Lanes
  - Proposed Bike Lanes
  - Hard Surface Trails
  - Proposed Hard Surface Trails
  - Shared Use Roadways
  - Proposed Shared Use Roadways
  - Side Paths
  - Proposed Side Paths
  - Other Bike Facilities
  - Barrier
- Bike Sheds**
  - Functional
  - Needs Improvement
  - Improvement Required



# 3 BICYCLE PARKING DEMAND ANALYSIS

The bicycle access shed analysis described in Chapter 2 helps determine anticipated demand for parking at each station. Juxtaposed against ridership forecasts completed as part of the AA/DEIS, bicycle parking demand becomes a dynamic element of station planning and operation.

Bicycle parking at Purple Line stations is a strategic tool in achieving access mode estimates calculated by the MTA. Parking is recommended for all stations, matching supply with demand. An initial estimate of the supply-demand requirements can be made from ridership estimates and the average bicycle parking usage rate based on WMATA's experience. As the supply-demand dynamic changes over time, additional parking is needed. Improvements to bicycle access sheds will affect station access by bicycle and may affect overall transit ridership. Where space allows, bicycle parking should be on the station platform. The remainder of bicycle parking needs should be provided in areas adjacent to the station.

Bicycle parking demand estimates should be updated when additional ridership forecasting is completed. Two years prior to the opening of the Purple Line a more detailed needs assessment should be conducted to make a final determination of the parking levels and facilities needed for opening day.

**Table 2.**

	High LRT	1% Bike Access	25% Board	Park at Station	Planning Number*
Takoma-Langley	3,700	37	9	28	30
Riggs Road	900	9	2	7	10
Adelphi Road	700	7	2	5	5
UMD Campus Center	2,200	22	6	17	20
East Campus	4,700	47	12	35	35
College Park	8,900	89	22	67	70
River Road	700	7	2	5	5
Riverdale Park	1,500	15	4	11	10
Beacon Heights	700	7	2	5	5
Annapolis Road	1,200	12	3	9	10
New Carrollton	4,500	45	11	34	35

\* The Planning Number rounds the Park at Station number to the nearest 5.

## BICYCLE PARKING DEMAND

This report uses ridership estimates prepared as part of the AA/DEIS to determine expected bicycle access and parking demand at Prince George's County stations. Because the initial ridership forecast did not include the bicycle access mode, WMATA's system-wide access mode experience of 1% is used for the analysis in this report. Assuming one-quarter of those arriving by bicycle take their bicycles

on board, the remaining 75% will need to park at the station. Table 1 shows the results of these calculations and provides a range of demand for bicycle parking to be from 5 to 70 spaces, depending upon the station.

A 5% growth in bicycle access mode share increases the demand for bicycle parking at each station, as shown in Table 3. The growing number of transit riders bicycling to stations may be due to bicycle access shed improvements and overall ridership increases. This five-fold change pushes the range of bicycle parking demand up to 335.

**Table 3.**

	High LRT	Park at Station Planning Number	
		1% Bike Access	5% Bike Access
Takoma-Langley	3,700	30	140
Riggs Road	900	10	35
Adelphi Road	700	5	25
UMD Campus Center	2,200	20	80
East Campus	4,700	35	175
College Park	8,900	70	335
River Road	700	5	25
Riverdale Park	1,500	10	55
Beacon Heights	700	5	25
Annapolis Road	1,200	10	45
New Carrollton	4,500	35	170

The following four levels of bicycle parking should be developed based upon the estimated demand shown in Table 2: low, medium, high and hub. Shown in Table 3, each level assumes a mix of bicycle racks and secure parking. Table 4 recommends parking levels at each Purple Line station in Prince Georges' County.

Determine when and where to establish bicycle hubs includes the demand for parking, plus two additional factors: the level of services and the overall spacing vis-à-vis stations. Prince George's County initially designed the College Park station to install a bicycle hub. However, based on the work completed for this project and the preference for an appropriate spacing of bicycle hubs along the Purple Line, the East Campus station may be a better location.

**Table 4. Bicycle Parking Levels and Features**

<b>Low</b> 5 to 25	On-street racks (2 bicycles per rack) with canopy, lighting; 15% are lockers
<b>Medium</b> 10 to 35	On-street two-level racks with canopy, lighting; 30% are lockers, some on-demand
<b>High</b> 30 to 80	Two-level racks with canopy, lighting; 50% area lockers, some on-demand
<b>Hub</b> over 80	Mix of on-street parking and enclosed hub with services and operational characteristics drawn from a menu of options

**Table 5. Bicycle Parking by Station**

Takoma-Langley	Hub
Riggs Road	Medium
Adelphi Road	Low
UMD Campus Center	High
East Campus	High/Hub
College Park	High/Hub
River Road	Meidum
Riverdale Park	High
Beacon Heights	Low
Annapolis Road	Low
New Carrollton	Hub

### BICYCLE ACCESS SHEDS AND CHANGES IN DEMAND

Potential Purple Line riders may live in bicycle sheds with under-performing infrastructure of missing links. Thus, improving or activating these sheds will increase the station access by bicycle and increase demand for racks and secure parking. Population numbers within each access shed type help identify the potential for increasing the bicycle access mode due to improved infrastructure. Table 5 shows bicycle shed population and area for all Purple Line stations included in the analysis. Stations with bicycle access sheds with the largest surrounding populations form which to attract bicycle access trips Riggs Road, Riverdale, Beacon Heights, and New Carrollton.

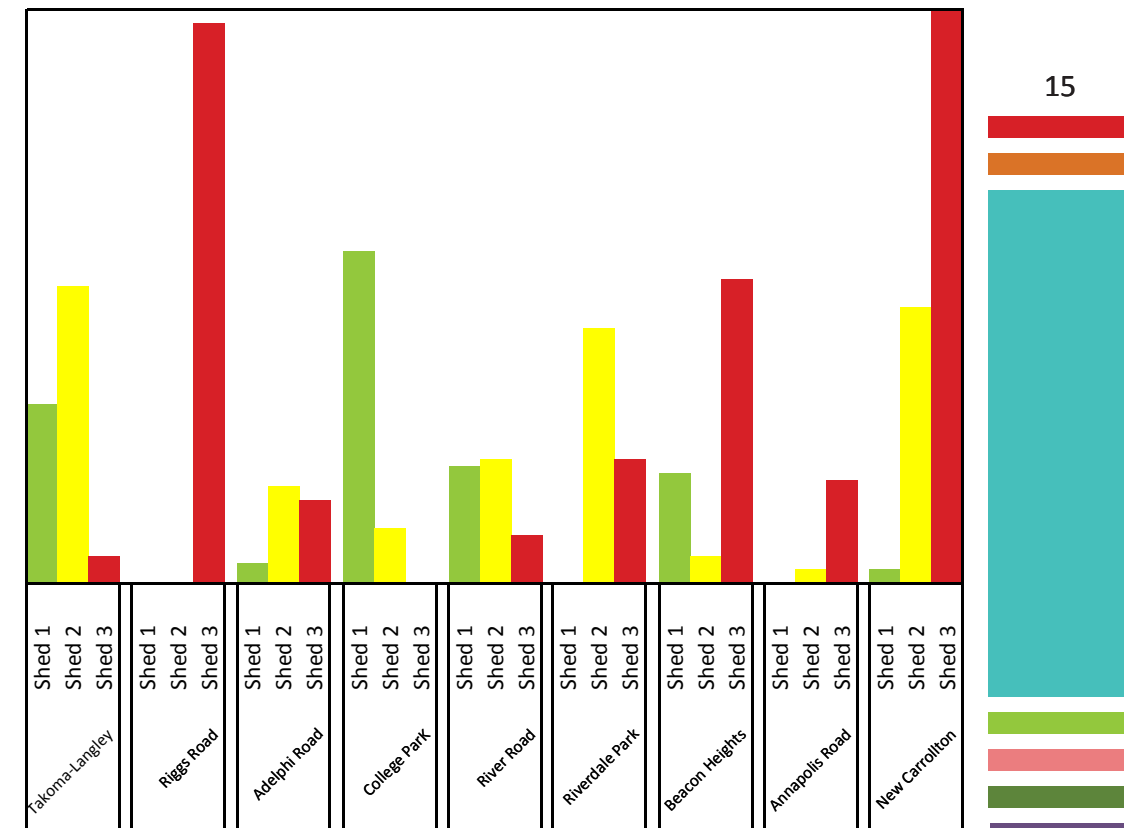
**Table 6. Bicycle Shed Population and Area**

Station Name	Total Bike Shed Population	Total Square Miles
Langley Park	18,159	1.46
Riggs Road	20,230	1.44
Adelphi Road	7,283	1.31
East Campus	4,814	1.11
College Park	9,135	2.11
River Road	10,502	2.11
Riverdale Park	13,699	1.38
Beacon Heights	15,921	2.79
Annapolis Road	8,759	1.23
New Carrollton	31,053	5.4

Graph 1 provides a visual of population within each bicycle access shed type. Light rail users in Type 1 access sheds, shown in green, are more likely to consider access by bicycle, given the readiness of streets and trails in these areas. Those living in Type 2 and Type 3 sheds, shown in yellow and red, may be less likely to consider access by bicycle.

This report does not attempt to determine the number of additional transit riders from Type 2 or Type 3 access sheds, however, the stations with the greatest potential for increasing the number of transit riders bicycling to a Purple Line station are the Type 2 and Type 3 access sheds with the larger population.<sup>4, 5</sup> The four stations with the overall higher residential population are also those with the greatest potential for bicycle access trips: Riggs Road, Riverdale, Beacon Heights, and New Carrollton. Because of their potential, ridership levels at these stations should be tracked as bicycling facilities needs in the Type 2 and Type 3 addressed. At the same time, encouragement and education program that support ridership increases and target bicycle and pedestrian access modes will generate additional riders, resulting in the need for additional bicycle parking. Thus, these stations also need a plan for how to increase and upgrade bicycle parking.

**Graph 1. Population by Bicycle Access Shed Type**



4 - Ridership forecasting is a complex process and the nature of this Transportation Land-Connection (TLC) project does not lend itself to detail ridership forecasting.  
5 - Population levels within all bicycle sheds for all stations except those on the University of Maryland campus.

# 4 STATION AND AREA PLANNING CONSIDERATIONS

Purple Line station planning is in the concept stage and is expected to move to the design stage in the fall 2010. While the ideal location for bicycle parking is on the platform, space limitations will shift bicycle parking to locations adjacent to stations on public or private property. Off-platform bicycle parking locations to consider include space in the right-of-way adjacent to a station, and nearby retail or green space. The module approach described here establishes a minimum footprint for low level bicycle parking needs that can be expanded as demand increases.

Designating and reserving adequate space for bicycle parking will not happen on its own. Prince George's County should revise its zoning regulations to ensure that adequate bicycle parking is incorporated into the development of public and private property abutting the Purple Line. Parking should be located within 100 feet of the entrance to make it attractive to bicyclists.<sup>6</sup>

Branding bicycle parking intended for Purple Line riders will help riders know where the parking is and create an identity for them as bicyclists. The branding should be part of an overall bicyclist and pedestrian access mode effort developed for Purple Line parking and incorporated into TDM programs.

<sup>6</sup> - A recent document published by the Association of Pedestrian and Bicycle Professionals, Bicycle Parking Guidelines, 2nd Edition, provides thorough information on standards and design guidelines for bicycle parking that can be adapted for the Purple Line system, [https://apbp.site-ym.com/store/view\\_product.asp?id=502098](https://apbp.site-ym.com/store/view_product.asp?id=502098).

## BICYCLE PARKING MODULE APPROACH

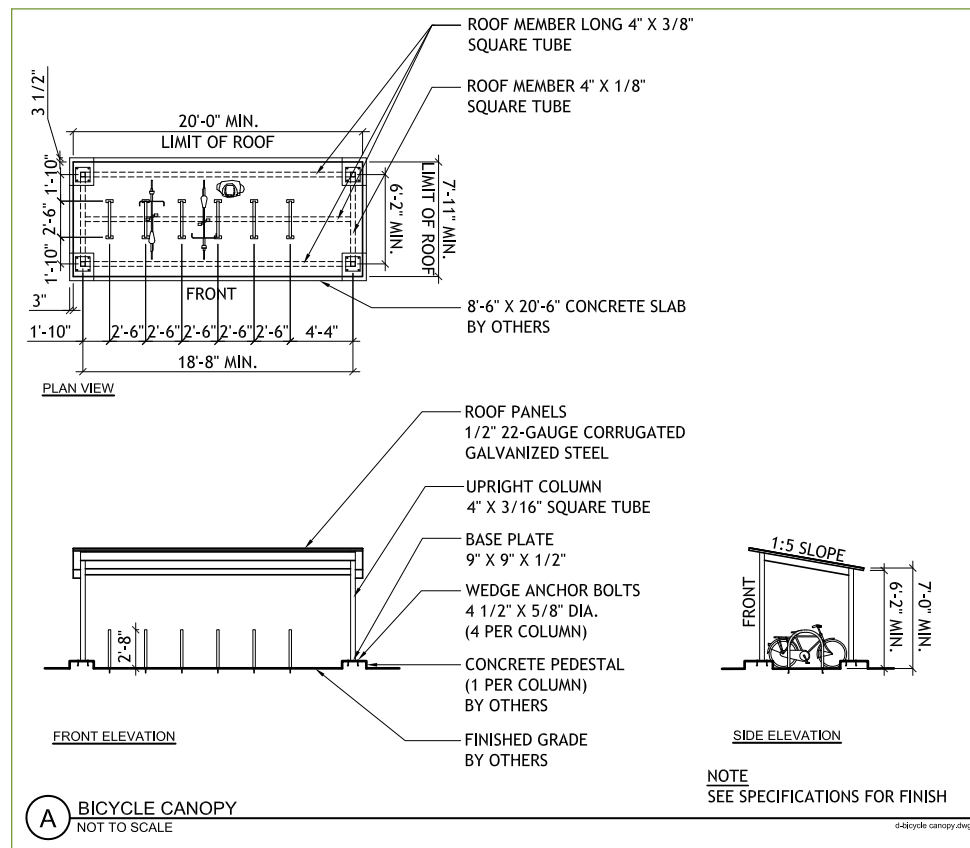
Toole Design Group developed a series of bicycle parking modules for the MBTA in Boston that provide helpful standards for the Purple Line. Two modules were developed: one for racks with a canopy; the other for double-decker bicycle cages<sup>7</sup>. Both types are designed as the minimum footprint, with expandability as demand grows. Boston expects to take advantage of its unique space opportunities and install bicycle parking on light rail and cable car platforms, as well as on property adjacent to stations and stops.

Bicycle parking equipment and technology is improving each year. Thus, the type of parking provided when the Purple Line stations open should be based on current standards that optimize the required footprint and offer the best convenience for bicyclists.

<sup>7</sup> - Bicycle cages are standalone buildings with dense bicycle parking. They do not include amenities associated with bicycle hubs.

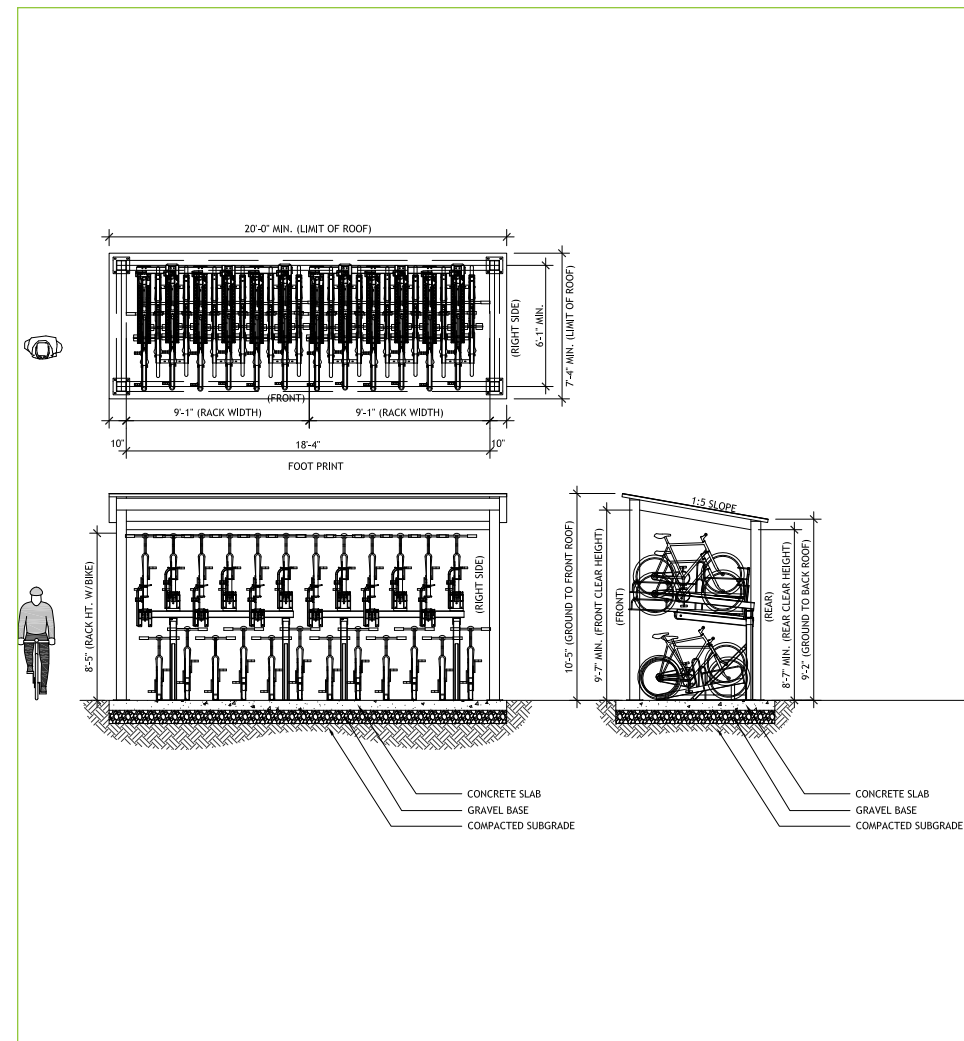
*Racks with canopy.* The footprint of this module is 20' by 8', accommodating 6 racks for 12 bicycles, canopy supporting posts, and room to maneuver bicycles into and out of the racks. One or two of these modules would be appropriate for the Low Level bicycle parking recommendation at the Aldephi Road, Beacon Heights, and Annapolis Road Purple Line stations. Plan 1 shows the layout for the 6-rack canopied module.

**Plan 1. MBTA Bicycle Parking Module with 6 Racks and Canopy**



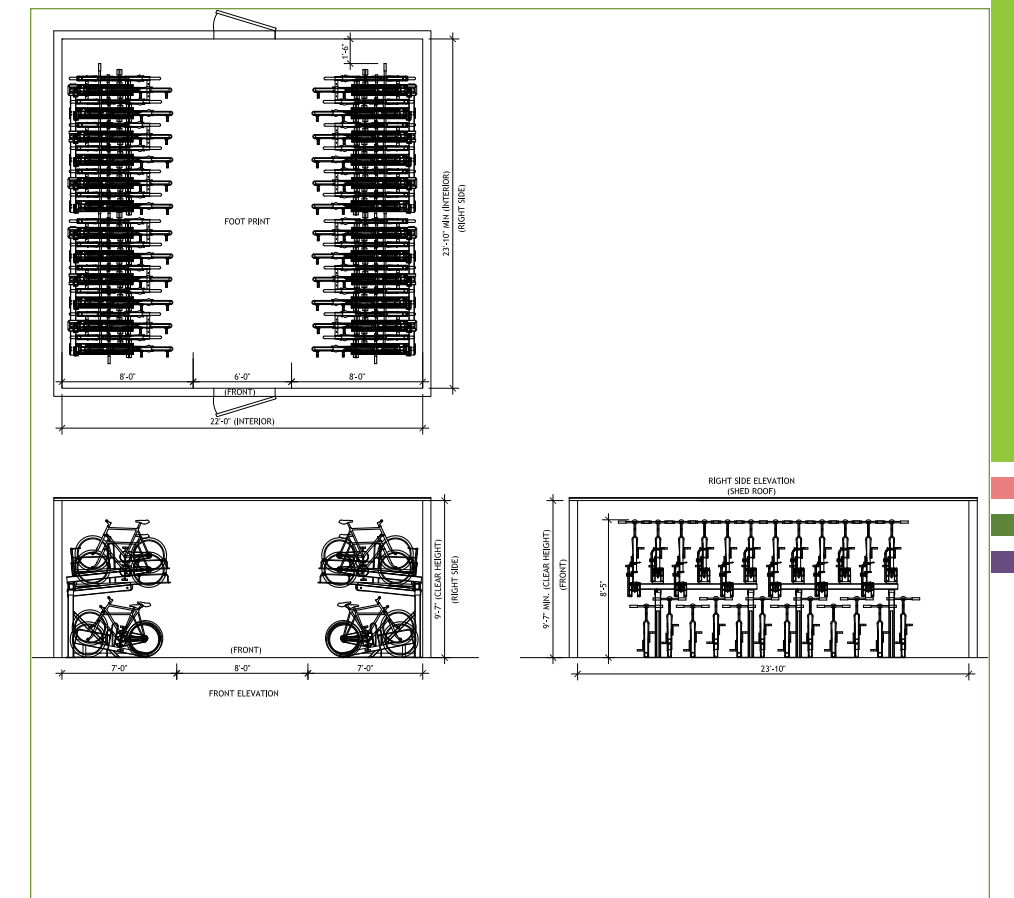
Parking capacity can be doubled within the same footprint with two-level racks, as shown in Plan 2.

**Plan 2. MBTA Bicycle Parking Module with 2-level Racks and Canopy**



*Bicycle cages.* Bicycle cage modules designed for the MBTA can park more bicycles in areas with a limited footprint. The cages include double decker racks with a 6' pedestrian access isle. Each module is 22' wide (two 8' long double decker racks plus the 6' isle). The length is determined by the number of racks needed to meet demand and provide room for growth in demand.

**Plan 3. MBTA Bicycle Cage Module**



## BICYCLE HUBS

Bicycle hubs are locations that provide secure storage and other bicycling-related services. Also called Bike Stations, they are usually located at or adjacent to a transit station or major employment center. Because of their design, bicycle hubs offer a larger number of parking spaces than open air racks or lockers can offer. The best local example of a bicycle hub in the Washington, DC area is at Union Station, which houses up to 100 bicycles within 1,600 square feet.

Local governments are often responsible for building the bicycle hub, with their operation by a third party. Bicycle hubs aim to be self-sustaining through membership sales and retail services fees. This new type of urban architecture can give bicycling a new identify and increase the rate of bicycle commuting. Table 6 lists bicycle hubs/stations in the United States, as of spring 2010.

*Bicycle Hubs Along the Purple Line.* Each bicycle hub should be designed and operated to suit the needs presented by the location and expected users. For example, the New Carrollton end-of-line bicycle hub may need to accommodate transit riders traveling to the Amtrak station or the BWI Airport, or to accommodate bicyclists using the Pink Line. Hubs located close to employment destinations may need a different set of services based on its users. A range of services and operational considerations typically incorporated into existing bicycle hubs in provided in a following section, *Bicycle Hub Services and Operation*.

Initial planning targets bicycle hubs at three stations: Takoma-Langley, College Park, and New Carrollton. Based on the bicycle access shed analysis, this report recommends the bicycle hub targeted for the College Park station be shifted to the UM-East Campus station.

Bicycle hubs should also be considered at one or more of the stations on the University of Maryland campus, customized to fit the needs on campus. The campus population (students, faculty, staff and administrators) should participate in the process for determining how to best develop bicycle hubs. Regardless, these hubs should be ready for operation when Purple Line service begins.

The bicycle access described in this report also shows that as ridership matures and bicycle sheds serving these stations are improved or activated, bicycle hubs should be considered at the Riggs Road and Riverdale Park stations. The size, services and operational characteristics of hubs at these stations should reflect land use and transportation needs at the time the hubs are developed.

Plans for the new transit center currently under designed near the planned Takoma-Langley station do not include bicycle accommodations such as bicycle lanes and bicycle parking. The access mode around which the transit center transit center is being designed is buses. Since all buses are equipped with bicycle

**Table 1. Bike Stations in the United States**<sup>1</sup>

<b>Arizona</b>
Tempe Transportation Center in Tempe - Bicycle Cellar - Located at the Tempe Transportation Center and the light rail station.
<b>California</b>
Downtown Berkeley BART Station in Berkeley - Operated by Alameda Bicycle.
Embarcadero BART Station in San Francisco - Inside the Embarcadero BART Station Operated by Alameda Bicycle.
Fruitvale BART Station in San Francisco - Operated by Alameda Bicycle at the Fruitvale BART station.
Palo Alto (Caltrain station) in Palo Alto - Bikestation-branded operated by Palo Alto Bicycles. Not staffed.
Santa Barbara - Located inside the Granada Garage (auto parking) across from the Santa Barbara County Courthouse.
Long Beach - Bike station near the Metro Blue Line 1st Street station.
<b>Illinois</b>
McDonald's Cycle Center in Chicago - Located at the north end of Millennium Park across from the Illinois Center, a collection of office buildings north of Randolph Street between Michigan Avenue and Columbus Drive.
<b>Pennsylvania</b>
Pittsburgh - Bicycle Commuter Center - Inside two used shipping containers are 26 securely accessed bicycle parking spaces at the Century Building at 130 7th Street.
<b>Texas</b>
Austin - Mellow Johnny's, owned by Lance Armstrong, and near the Austin Music Hall, has Commuter Hub offering free showers, lockers (bring your own lock), and parking.
<b>Washington</b>
Seattle - Bikestation-branded facility operated by Bicycle Alliance of Washington.
<b>Washington, DC</b>
Bikestation-branded facility at Union Station operated by Bike and Roll. The facility offers non-member access during the day, 24/7 access to members, and bike rentals.

<sup>1</sup> - [http://en.wikipedia.org/wiki/List\\_of\\_United\\_States\\_bike\\_stations](http://en.wikipedia.org/wiki/List_of_United_States_bike_stations)

racks, bicyclists can be expected to use the transit center. This project, funded by a TIGER grant, must be completed by February 2012. Thus, current plans should be revised in the near term to include appropriate facilities for bicyclists including way-finding, bikeways, bicycle parking and some bicycle hub services.

*Siting Considerations.* Bicycle hubs are part of the transportation system, generating non-motorized traffic. Thus, travel lanes, traffic signals and intersection designs at bicycle hub locations should be designed to accommodate bicyclists along with motor vehicles. These facilities should also be designed to manage potential bicyclist-pedestrian conflicts. Bicyclist-oriented way-finding is also part of the planning.

Bicycle hubs located in retail/commercial area at or adjacent to station should be branded to create an identity and be part of an overall marketing program.

*Bicycle Hub Services and Operation.* Because light rail stations rely on bicycle, pedestrian and bus systems (not parking garages) to generate riders they become neighborhood activity hubs which enrich the fabric of local communities. The bicycle hubs located at Purple Line stations in Prince George's County should become part of the community fabric, designed and equipped with best and emerging practices found in the United States and abroad. While the process for identifying stations well-suited for bicycle hubs is driven by anticipated Purple Line ridership, hubs should be designed for use by Pink Line bicyclists who may or may not be transit riders.

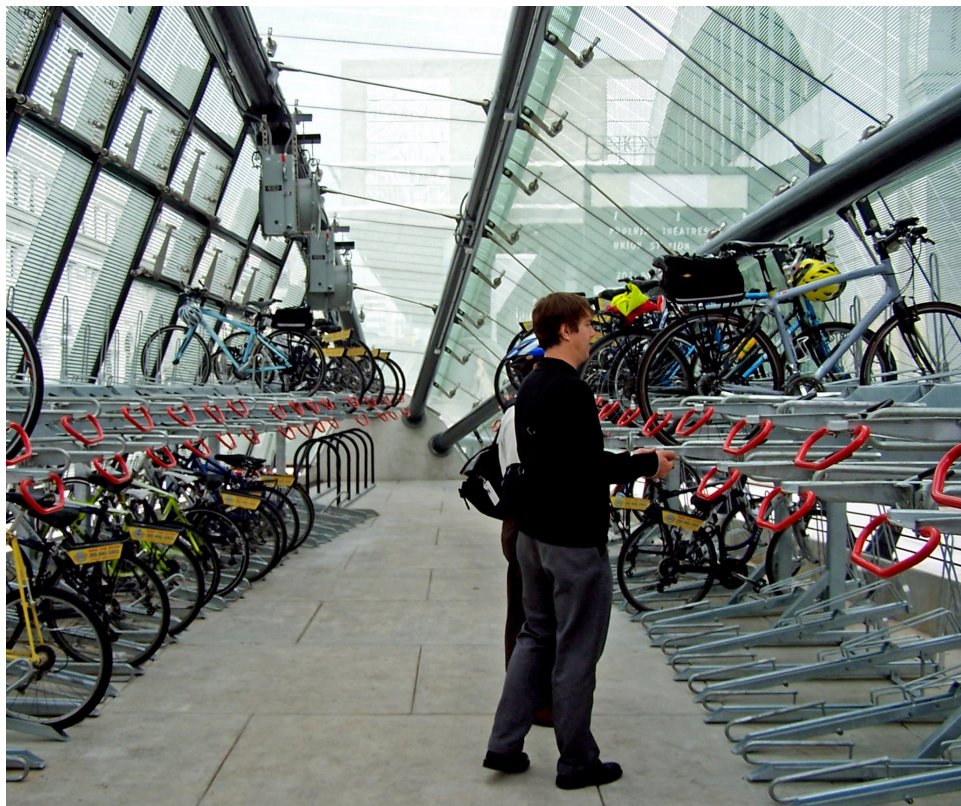
The light rail bicycle hubs should include a range of bicycling-supporting services such as:

- Indoor and outdoor parking
- Attendant
- Rest rooms, showers, day and long term lockers
- Food (vending or café)
- Bicycle rentals and shared bicycles
- Bicycle accessories and repair
- Accommodations for police bicycle patrol

Criteria for triggering extended operation hours and free valet parking (e.g., during special events) should be included in each hubs operating plan.



Bike Station at Union Station in Washington, DC.



## OTHER ISSUES FOR CONSIDERATION

Corollary issues for bicycle access to the Purple Line include bicycle parking requirements for on-board policies, rail car design, new residential and commercial development, promoting bicycle access to transit through TDM programs, and bicycle sharing.

*On-board policies.* Current trends in on-board policies for light rail are to allow bicycles during all service periods. RTD Denver and the Hiawatha Line in Minneapolis are two light rail services allowing bicycle on-board at all times.

*Rail car design.* Car interior may be designed with specific locations for bicycles. Alternately, universal design principals may be applied to the interior design resulting in flexible spaces.

*Bicycle parking requirements for new residential and commercial development.* As development takes place along the Purple Line corridor, bicycle parking should be added as a requirement for new residential and commercial buildings.

*Bicycle access/parking in TDM programs.* Transportation Demand Management Programs provide an effective way to promote bicycle access to the Purple Line.

*Bicycle sharing.* Bicycle sharing programs are gaining in popularity and use. They satisfy a specific transportation need, much as car sharing programs do. However, bicycle sharing is not intended to meet the core Purple Line bicycle access needs. They play a supportive and supplemental role, or offer a specialty service. Possible areas appropriate for Shared Bicycle Program include on the University of Maryland campus, the M2 area, and the New Carrollton office and industrial park, encompassing six Purple Line stations. Bicycle sharing stations can be sited at a station with or without a bicycle hub.

# 5

# CROSS-COUNTY MULTI-USE TRAIL

This study confirms the need for a high quality bicycle and pedestrian facility to run generally along the Purple Line rail alignment. In short, it is justified both by the need for a cross-county bicycle and pedestrian linkage among the communities to be served by the Purple Line, as well as the need for high quality bicycle and pedestrian access to Purple Line stations, which initially are spaced at intervals of up to 1.25 miles.

For the purposes of this study the proposed shared use path parallel to the Purple Line has been branded the Pink Line, and is shown with this color on maps in the report.

As proposed in this report, the Pink Line would use public right-of-way along the Purple Line alignment, portions of existing park trails in the greater Purple Line corridor, some neighborhood streets, and other connections. It would take many forms including cycle tracks and sidewalks, bicycle lanes and sidewalks, sidepaths, shared use park trails, and signed/shared roadways on low volume/low speed residential streets. Most of the trail would consist of newly constructed facilities; however some segments would use existing trails and streets.

## THE NEED FOR A MULTI-MODAL USE TRAIL

While the communities around the Purple Line in Prince George's County have some of the County's most well developed trail system, most of the current trails run north-south. East-west trail linkages are needed in the overall corridor, and specific east-west connections are very critical, including: a) crossing the University of Maryland campus, b) linking College Park and Hyattsville with unincorporated Riverdale and New Carrollton, and c) linking the New Carrollton area to the south end of the WB&A Trail. The Pink Line would completely or partially meet each of these needs.

## POTENTIAL IMPACTS ON PURPLE LINE DESIGN AND ENGINEERING

Implications of the Pink Line for light rail track, station and corridor design are called out in this section. In select areas, this report recommends a reallocation of public right-of-way in order to build adequate facilities for the Pink Line, such as bicycle lanes, cycle tracks, wide sidewalks, and/or sidepaths. The report also recommends improving conditions for bicyclists and pedestrians to across a number of very wide streets with high traffic volume.

Immediate design issues and Purple Line project impacts include the following:

- revising proposed Purple Line cross-sections;
- acquiring adequate right-of-way; and
- planning for adequate sidewalks, buffers and bicycle facilities concurrently with design and construction of the Purple Line so that the access infrastructure is in place when the Purple Line opens.

Portions of the route can be developed as park trails by the M-NCPPC, however, much of the Pink Line should be designed and constructed in conjunction with the light rail. While the strategic value of planned or anticipated development is a factor that is considered in how the Pink Line should be manifested throughout the corridor, only select portions should be constructed through developer participation.

Appendix E includes a detailed assessment of the proposed Pink Line Route. The route has been divided into 14 sections. Within each section the following aspects of the Pink Line area addressed:

- Existing bicycle and/or pedestrian accommodations.
- Planned bicycle and/or pedestrian accommodations and the appropriate plan reference.

- New recommendations resulting from this study or confirmation of existing plans. For some sections of the Pink Line, more than one alignment or facility option is provided, and may be identified with or without preference.
- Impacts to the Purple Line project, in terms of design, engineering, alignment, ROW acquisition and/or costs.
- Ongoing issues that will need to be addressed by stakeholder agencies, planners, designers and project managers.
- A discussion of the bicycle and pedestrian travel and transit access needs in the respective segment of the Pink Line and why the recommended facilities are most appropriate to meet those needs.
- A more detailed discussion of technical analysis or additional background information that supports the recommendation.

The following is a list of Pink Line facilities that should be designed, funded and constructed in conjunction with the Purple Line light rail Project.

*Sections 1 and 2 from Piney Branch Road to and through the Adelphi Road Station. This section of the Pink Line is critical to upgrade or activate pedestrian and bicycle trips from the access sheds surrounding the Takoma/Langley and Riggs Road stations.*

*Section 4 from the Campus Circle to Rhode Island Avenue Trolley Trail.*

- This section is critical for a) campus access and circulation in the area between Route 1 and the Campus Circle, b) passage to and through the East Campus station and surrounding development and c) to facilitate high quality access for the College Park-North Bicycle Access Shed and connectivity to the Rhode Island Avenue Trolley Trail.
- The portions of this section in the East Campus redevelopment area could also be constructed in conjunction with the build-out of that development, if it takes place prior to construction of the Purple Line.

*Sections 5 and 6: the area around the College Park Metro Station from Paint Branch Parkway at River Road to the River Road Bridge over the Northeast Branch.* This section is important to Metrorail access and two Purple Line stations. It will facilitate both trips into the stations from the surrounding community but also trips away from the station in this soon to be dense employment center.

*Section 8 West of the Riverdale Park Station*

- Option D if selected
- Portion of Option C, if selected. From Patterson Road, across Kenilworth Avenue to the crossing location that is selected for entering the station.
- In this area the key part of the Pink Line is the crossings of MD 410 and Kenilworth Avenue (MD 201) and the design of the entrance into the station. Additionally, sidewalk width and buffer is critical along MD 201 north of MD 410, to ensure good local pedestrian access to the station from Quintana Street and Quesada Road.

*Sections 8 and 9 at and East of the Riverdale Park Station*

- The proposed sidepath on the north side of MD 410.
- Option A, if selected.
- Option D, if selected.
- The Pink Line is key to creating good access for residents living between the Riverdale Park and Beacon Heights stations. Those living on the west side of the Parkway will be faced with a long walk or short bicycle ride to Riverdale Park station, or crossing all the Parkway entrance and exit ramps to the closer Beacon Heights Station. Both routes should be made as safe and attractive as possible and bicycle and pedestrian facilities should be provided on both sides of MD 410 so that transit customers on the North side of MD 410 can choose where they would like to cross this heavily trafficked street.

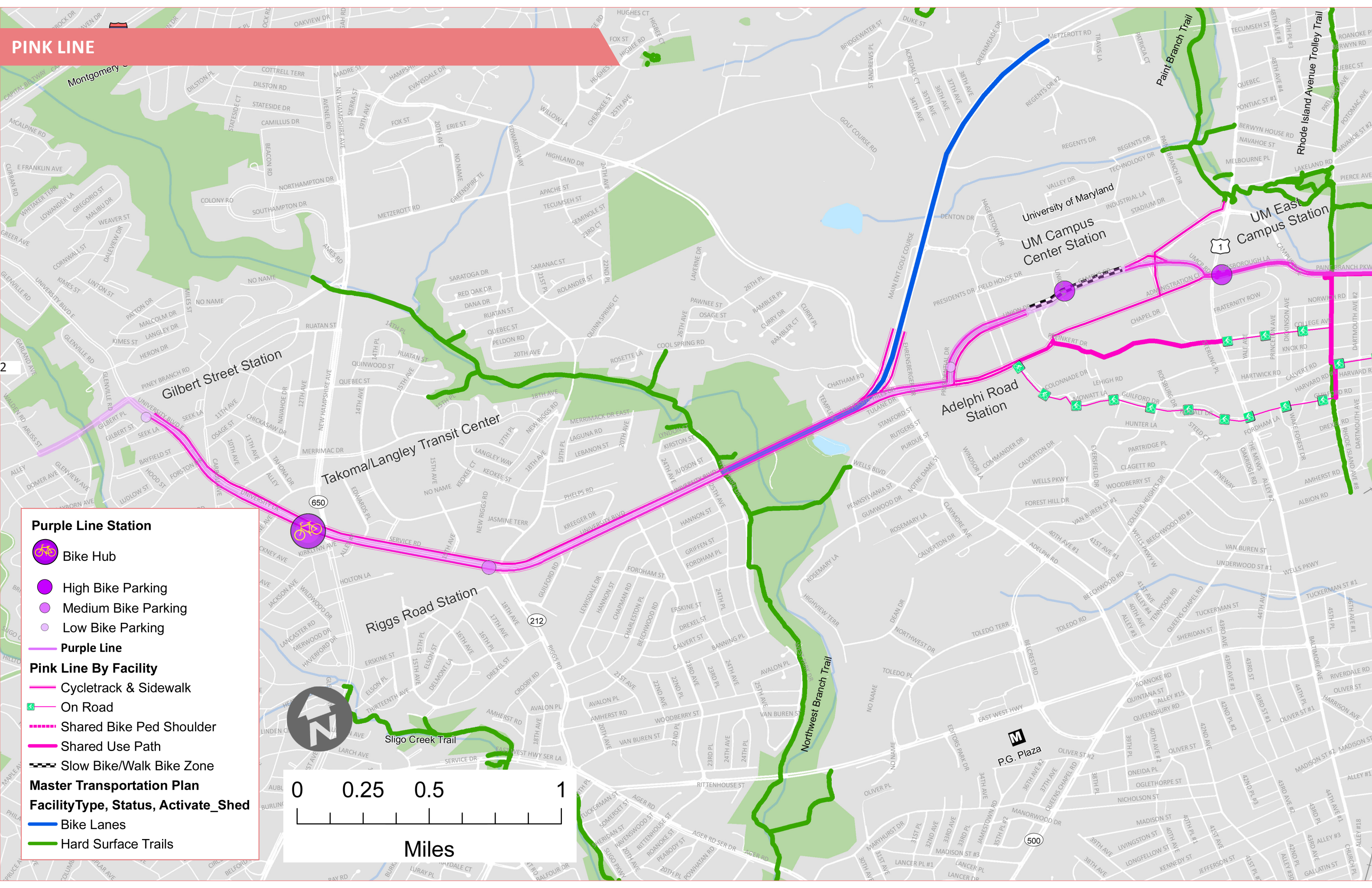
*Section 10 on each side and through the Beacon Heights Station; also the sidepath along Riverdale Road as far as Auburn Avenue.* In the vicinity of the station the Pink Line will be used by almost all bicyclists and pedestrians using the station. The extension to Auburn Avenue is important for those living immediately east of the station due to the poor existing conditions (narrow sidewalks and no on-street bicycle facilities) for bicycling and walking along Riverdale Road.

*Section 11, only the recommended facilities on MD 410. These should likely be funded by SHA.* The recommended park trail in Section 11 is a section of the Pink Line that largely can be designed and constructed independently of the Purple Line. However, it may make sense to develop the southern portion of this trail (from the maintenance yard to the Annapolis Road Station) in conjunction with the project.

*Sections 12 and 13 from the proposed light rail maintenance yard to the New Carrollton Station*

- Option A, if selected.
- The portions of Option B along Ellin Road.
- The Pink Line segments in Sections 12 and 13 are not key to providing bicycle and pedestrian access to the Purple Line. However improvements along Ellin Road would improve access to the Metrorail system at New Carrollton for neighborhoods that currently have no formal access and low-functioning conditions along informal routes. Other segments would upgrade the access experience but are not essential to attracting bicyclists and pedestrians.

# PINK LINE



**Purple Line Station**

- Bike Hub
- High Bike Parking
- Medium Bike Parking
- Low Bike Parking

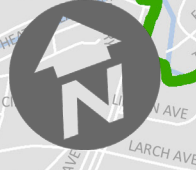
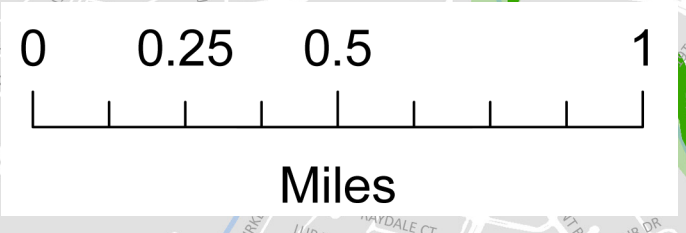
**Purple Line**

**Pink Line By Facility**

- Cycletrack & Sidewalk
- On Road
- Shared Bike Ped Shoulder
- Shared Use Path
- Slow Bike/Walk Bike Zone

**Master Transportation Plan FacilityType, Status, Activate\_Shed**

- Bike Lanes
- Hard Surface Trails



22

Gilbert Street Station

Takoma/Langley Transit Center

Riggs Road Station

Sligo Creek Trail

Northwest Branch Trail

University of Maryland  
UM Campus Center Station

Adelphi Road Station

UM East Campus Station

Paint Branch Trail

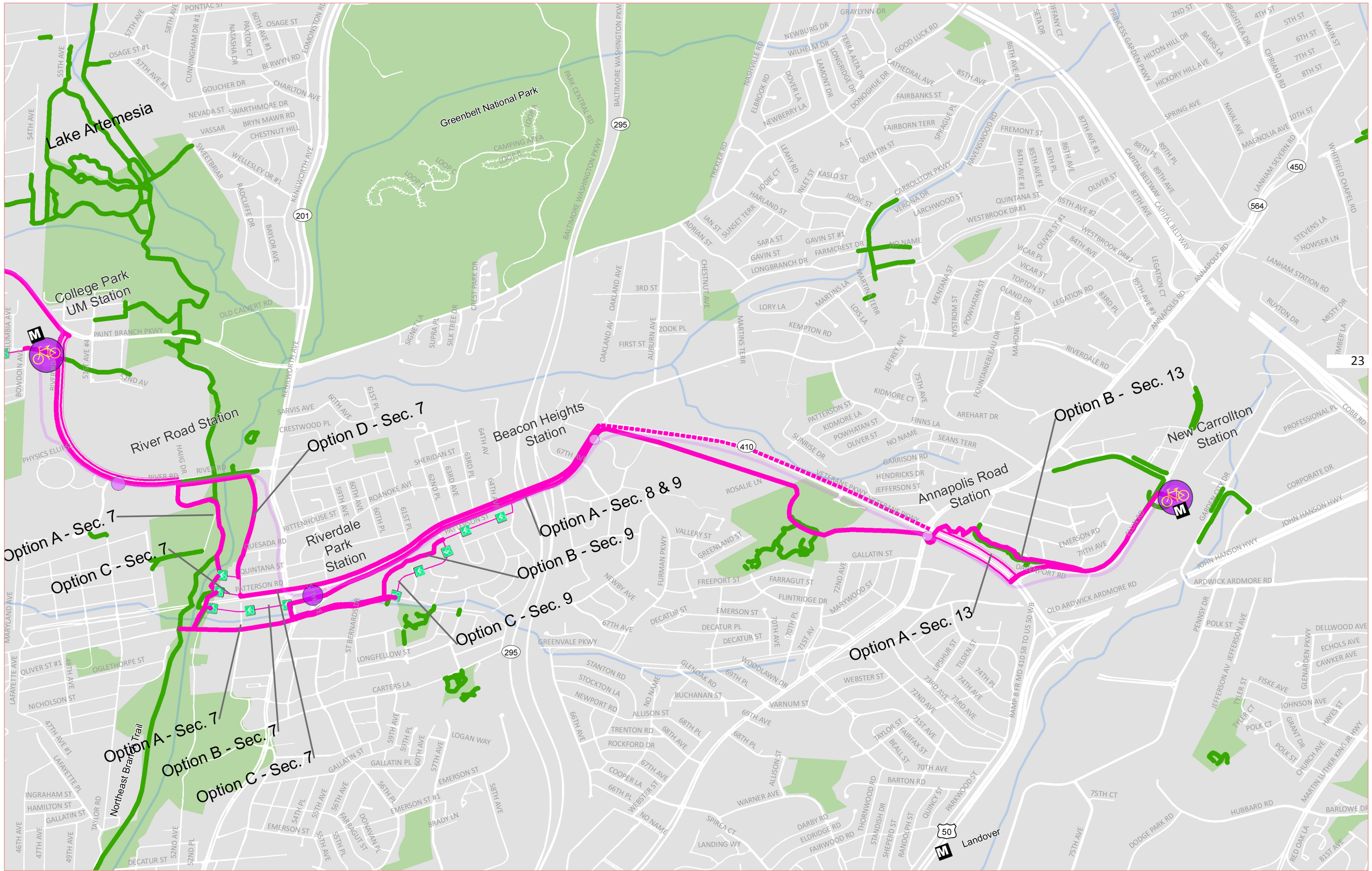
Rhode Island Avenue Trolley Trail

P.G. Plaza

650

212

500



Lake Artemesia

Greenbelt National Park

College Park UM Station

River Road Station

Option D - Sec. 7

Beacon Heights Station

Option A - Sec. 8 & 9

Annapolis Road Station

Option B - Sec. 13

New Carrollton Station

Option A - Sec. 7

Option C - Sec. 7

Riverdale Park Station

Option B - Sec. 9

Option C - Sec. 9

Option A - Sec. 13

Option A - Sec. 7

Option B - Sec. 7

Option C - Sec. 7

Northeast Branch Trail

23

50 Landover

# 6 SUMMARY OF RECOMMENDATIONS

**Key Recommendation:** Use the access shed approach to identifying and prioritizing pedestrian and bicyclist station access and commit to a 10-year program to plan, design, and fund bicycle and pedestrian improvements that are necessary to fully develop each bicycle and pedestrian access shed to reach desired non-motorized access mode share goals.

**Key Recommendation:** Establish bicycle parking standards for each station, with the capacity to adjust parking levels and facilities as demand increases.

**Supporting Recommendations:**

1. Determine bicycle parking levels (high, medium, low, and hub) at stations based on the most current ridership forecasts, a bicycle access mode share of 1% to 5% and parking demand of 75%.
2. Update bicycle parking demand estimates when additional ridership forecasting is completed. Two years prior to the opening of the Purple Line conduct a more detailed needs assessment to make a final determination of the parking levels and facilities needed for opening day.
3. Target the following stations for bicycle hubs to be ready when Purple Line service begins: Takoma-Langley and New Carrollton. Consider a bicycle hub for the UM-East Campus station instead of the College Park station.
4. Track ridership levels at stations with greater potential for increasing bicycle access as Type 2 and Type 3 sheds are improved.
5. Establish a plan for increasing and upgrading bicycle parking in anticipation of demand.
6. Incorporate a bicycle hub and associated roadway design needs into the

Takoma-Langley Transit Center.

7. Design transportation facilities leading to and into bicycle hubs as an integral part of the transportation system.
8. Brand bicycle hubs located in retail/commercial areas or adjacent to stations to create an identity and to be part of an overall marketing program.
9. Use encouragement and education program that support ridership increases and target bicycle and pedestrian access modes
10. Encourage the University of Maryland to develop a bicycle hub program on campus, each customized to fit its needs. These hubs should be ready for operation when Purple Line service begins.
11. Consider bicycle sharing programs only as supportive and supplemental to Purple Line bicycle access needs.

**Key Recommendation:** Develop a parallel multi-use trail system and, where it is adjacent to the light rail alignment or within the same roadway corridor include facility design and costs as an essential component of the Purple Line project.

**Supporting Recommendations:**

1. Request that MDOT, MTA and SHA design, fund, and construct portions of the Pink Line identified within the Purple Line project boundary.
2. Develop a coordinated 10-year plan among state and local agencies to design, fund and construct portions of the Pink Line that are outside the Purple Line project boundary.
3. Recommend to MDOT, MTA, SHA, the University of Maryland, WMATA and various developers that design of the Purple Line and its associated

roadways include development of Pink Line Facilities as outlined in this report, and highlighted below:

- Recommend that University Boulevard be designed as a four lane arterial roadway, and that Cycle Tracks, vegetated buffers and minimum 8-foot sidewalks be constructed on both sides of the road as part of the Purple Line construction.
- Recommend that the University of Maryland develop its cross campus routes (Green, Red, Blue and Yellow)
- Recommend changes to the ROW width set aside for Rossborough Drive in the East Campus Development to ensure that Purple Line and Pink Line facility design can fully and safely accommodate bicyclists and pedestrians in large volumes.
- Recommend that as part of Transit Oriented Development at the College Park Station, the developer partner with local and state governments and WMATA to modify the existing railroad underpass to better facilitate grade separated bicycle passage under the rail lines.
- Conduct an area study of the commercial and residential properties around the proposed Riverdale Park station, and determine how to best align the Purple Line, the Pink Line, and organize redevelopment to create a Transit Oriented Development framework that will facilitate and enhance bicyclist and pedestrian access from the neighborhood all around the station.

***Other Recommendation:***

1. Adopt a policy that Light Rail transit shall allow bicycles on board and ensure that car design includes the latest and best technology for accommodating bicycles on board.
2. Encourage development of Bicycle Sharing programs in the Purple Line Service area, especially a) on the University of Maryland Campus and surrounding community in College Park, at the M Square development and National Archives, and b) in the New Carrollton office and industrial park.



# APPENDICES

## APPENDIX A

Bicycle and pedestrian access sheds, and corresponding residential population estimates for campus residential areas, were not defined for the University of Maryland (UMD) Campus Area for reasons relating to the character of the University community. In general, access trips to the Purple Line stations that serve the campus will be predominantly on-foot. A relatively high volume of bicyclists is expected due to the sheer numbers of people on campus.

The recommendations of this plan are at the planning level, thus specific residential population numbers (or employment numbers) are not needed to conclude that the UMD campus stations will generate bicycle access trips and parking demand at the high end of the ranges discussed in Chapter 4, Bicycle Parking. Determining the specific numbers, their distribution among the three stations, providing adequate routes and way-finding and finding space for location of the bicycle parking, are all decisions that the University will need to make in the context of their existing bicycle transportation study and its *Facilities Master Plan 2011-2030* transportation component, as well as based on the ultimate decision regarding the alignment of the Purple Line through campus.

On-going coordination among stakeholders in decisions regarding the Facilities Master Plan, Purple Line and the Pink Line is recommended.

## Appendix C

Appendix D -- Access shed improvements table

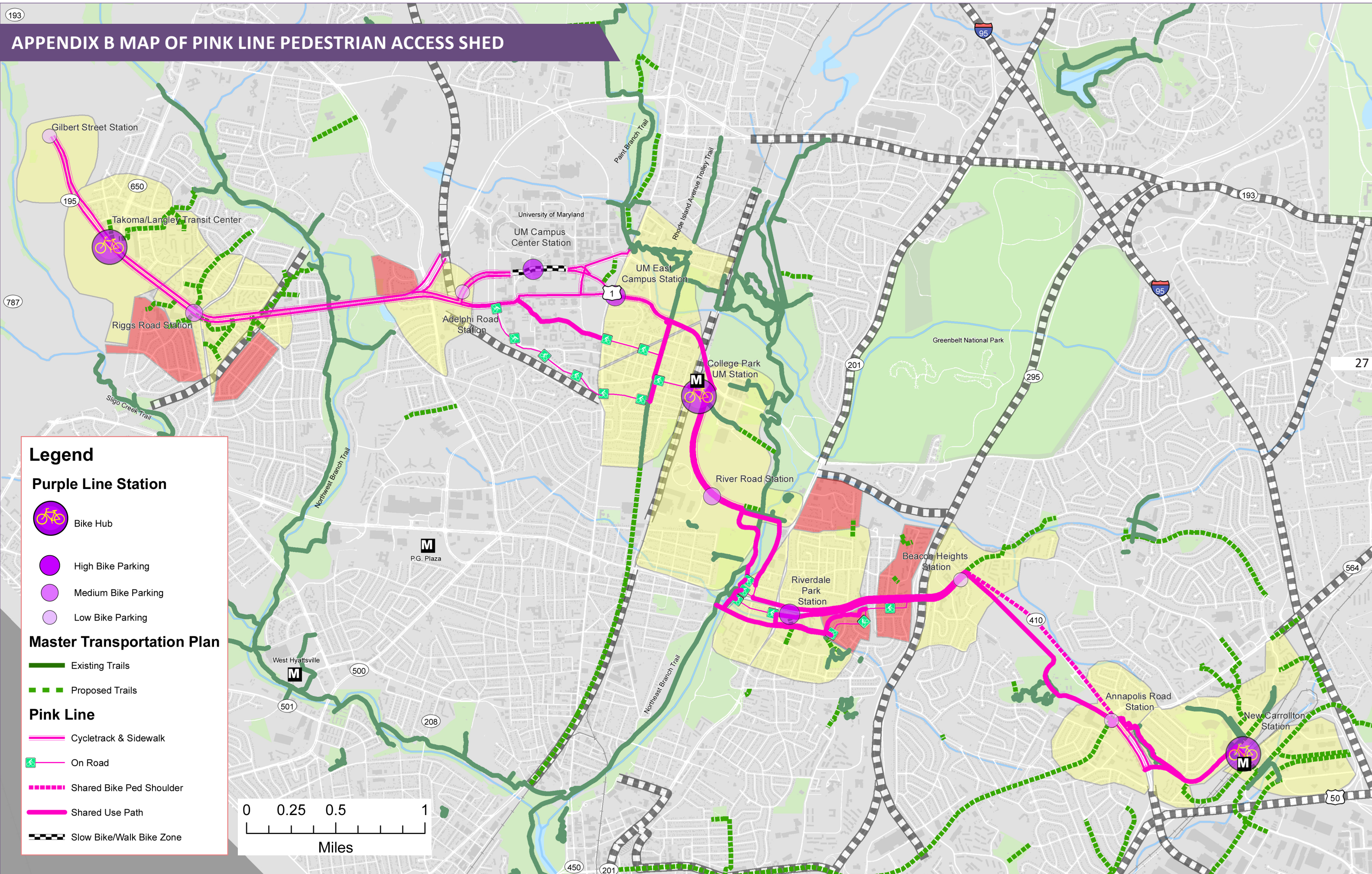
Appendix E -- Pink Line table

From file.

(Footnotes)





1 [http://en.wikipedia.org/wiki/List\\_of\\_United\\_States\\_bike\\_stations](http://en.wikipedia.org/wiki/List_of_United_States_bike_stations)

# APPENDIX B MAP OF PINK LINE PEDESTRIAN ACCESS SHED





## Legend






### Purple Line Station

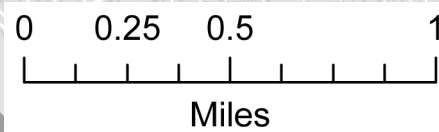
-  Bike Hub
-  High Bike Parking
-  Medium Bike Parking
-  Low Bike Parking

### Master Transportation Plan

-  Existing Trails
-  Proposed Trails

### Pink Line

-  Cycletrack & Sidewalk
-  On Road
-  Shared Bike Ped Shoulder
-  Shared Use Path
-  Slow Bike/Walk Bike Zone



## APPENDIX C STATION SUMMARY TABLE

Bicycle Access Shed Name	Shed ID Number	Station Name	Status	Estimated Population	Total Square Miles
Lanham Heights	B-1	New Carrollton	Non-Functional	4,839	1.3
Ardwick-Springdale	B-2	New Carrollton	Needs Improvement	3,564	1.1
Glenarden	B-3	New Carrollton	Non-Functional	6,033	0.9
Kentland	B-4	New Carrollton	Non-Functional	5,958	0.6
New Carrollton-South	B-5	New Carrollton	Needs Improvement	5,421	0.8
Heritage Square	B-6	New Carrollton	Non-Functional	3,906	0.2
Finns Lane	B-7	New Carrollton	Needs Improvement	878	0.2
Landover Hills	B-8	Annapolis Road	Needs Improvement	3,000	0.6
Landover Hills-South	B-9	Annapolis Road	Non-Functional	3,725	0.3
Woodlawn	B-10	Annapolis Road	Needs Improvement	345	0.1
Glenridge	B-11	Annapolis Road	Needs Improvement	1,689	0.3
Defense Heights	B-12	Beacon Heights	Non-Functional	920	0.2
Beacon Heights	B-13	Beacon Heights	Functional	3,938	0.5
Martins Woods	B-14	Beacon Heights	Non-Functional	701	0.1
New Carrollton-Central	B-15	Beacon Heights	Non-Functional	2,453	0.4
New Carrollton-North	B-16	Beacon Heights	Non-Functional	1,111	0.3
East Greenbelt	B-17	Beacon Heights	Non-Functional	5,677	1.0
Wildercroft	B-18	Beacon Heights	Needs Improvement	1,121	0.2
Riverdale Hills	B-19	Riverdale	Non-Functional	630	0.1
Riverdale Heights-North	B-20	Riverdale	Non-Functional	577	0.1
Riverdale Heights	B-21	Riverdale	Needs Improvement	1,700	0.2
East Pines	B-22	Riverdale	Needs Improvement	1,799	0.2
Mattaponi Manor	B-23	Riverdale	Non-Functional	1,999	0.2
Rogers Heights	B-24	Riverdale	Needs Improvement	5,671	0.5
Edmonston Road	B-25	Riverdale	Non-Functional	1,323	0.1
Bladensburg-South	B-26	River Road	Needs Improvement	2,634	0.4
Riverdale Park	B-27	River Road	Functional	4,134	1.2
Hyattsville-South	B-28	River Road	Non-Functional	1,861	0.3
Hyattsville-North	B-29	River Road	Needs Improvement	1,739	0.2
Berwyn Heights	B-31	College Park	Functional	5,199	1.4
University Pk / College Pk-South	B-32	College Park	Functional	3,936	0.7
College Park-North	B-33	East Campus	Functional	2,697	0.7
College Park Woods	B-34	East Campus	Needs Improvement	2,117	0.5
Archives	B-35	Adelphi Road	Non-Functional	683	0.3
Chatham	B-36	Adelphi Road	Non-Functional	128	0.0
Cool Spring	B-37	Adelphi Road	Functional	777	0.2
University Park-North	B-38	Adelphi Road	Needs Improvement	3,425	0.6
Toledo Terrace	B-39	Adelphi Road	Non-Functional	2,270	0.2
Lewisdale-South	B-40	Riggs Road	Non-Functional	3,582	0.4
Lewisdale-North	B-41	Riggs Road	Non-Functional	4,269	0.4
Adelphi Manor	B-42	Riggs Road	Non-Functional	2,704	0.2
Carole Highlands	B-43	Riggs Road	Non-Functional	2,673	0.2
Lanley Park-East	B-44	Riggs Road	Non-Functional	7,002	0.3
Adelphi Mill	B-45	Takoma Langley	Non-Functional	471	0.1
Adelphi	B-46	Takoma Langley	Non-Functional	591	0.2
Langley Park-West	B-47	Takoma Langley	Needs Improvement	10,750	0.4
Takoma Park	B-48	Takoma Langley	Functional	6,347	0.7
West Lanham Hills	B-49	New Carrollton	Functional	454	0.2

## APPENDIX D ACCESS SHED IMPROVEMENTS TABLE

Facility Name	Status	Facility Type
Mowatt Road	Future	Bike Lanes
Paint Branch Parkway	Planned	Bike Lanes
Toledo Terrace	Future	Bike Lanes
Belcrest Avenue	Future	Bike Lanes
Adelphi Road	Planned	Bike Lanes
Ellin Road	Planned	Bike Lanes
Whitfield Chapel Road	Planned	Bike Lanes
Metzerott Road	Planned	Bike Lanes
Greenbelt Road	Planned	Bike Lanes
Good Luck Road	Planned	Bike Lanes
Edmonston Road	Future	Bike Lanes
14th Avenue	Planned	Bike Lanes
Riggs Road (MD212)	Planned	Bike Lanes
Toledo Road	Future	Bike Lanes
Princess Garden Parkway	Planned	Bike Lanes
Riggs Road (MD212)	Planned	Bike Lanes
Edmonston Road	Future	Bike Lanes
Kent Village Drive	Planned	Bike Lanes
Garden City Drive	Planned	Bike Lanes
Riggs Road Split (MD212)	Planned	Bike Lanes
Ardmore Road	Planned	Bike Lanes
Adelphi Road	Planned	Bike Lanes
Ardwick Ardmore Road	Planned	Bike Lanes
Brightseat Road	Planned	Bike Lanes
Paint Branch Parkway	Planned	Bike Lanes
Paint Branch Parkway	Planned	Bike Lanes
Corporate Drive	Planned	Bike Lanes
Professional Place	Planned	Bike Lanes
Dodge Park Road	Planned	Bike Lanes
Kanawha Street	Planned	Bike Lanes
River Road Bike Lane	Future	Bike Lanes
Veteran's Parkway (MD 410)	Future	Bike Lanes
Veteran's Parkway (MD 410)	Planned	Bike Lanes
Garden City Drive	Planned	Bike Lanes
Ardwick Ardmore Road	Planned	Bike Lanes
Unnamed	Planned	Shared Use Path
Unnamed	Planned	Shared Use Path
Rhode Island Trolley Trail	Planned	Shared Use Path
Nevada Street Spur	Planned	Shared Use Path
Barlowe Road Extended	Planned	Shared Use Path
Rhode Island Avenue Trolley Trail	Planned	Shared Use Path
Mazza Connector	Planned	Shared Use Path
55th Avenue	Planned	Shared Use Path
Kenmoor Elem. School Trail	Planned	Shared Use Path
Annapolis Road (MD450 MD 202)	Planned	Shared Use Path
Westbrook Drive Median Trail	Planned	Shared Use Path
Unnamed	Planned	Shared Use Path
Trolley Trail	Planned	Shared Use Path
Unnamed	Planned	Shared Use Path
Unnamed	Planned	Shared Use Path
Unnamed	Planned	Shared Use Path
Unnamed	Planned	Shared Use Path
Crandall Road Connector	Planned	Shared Use Path
Unnamed	Planned	Shared Use Path

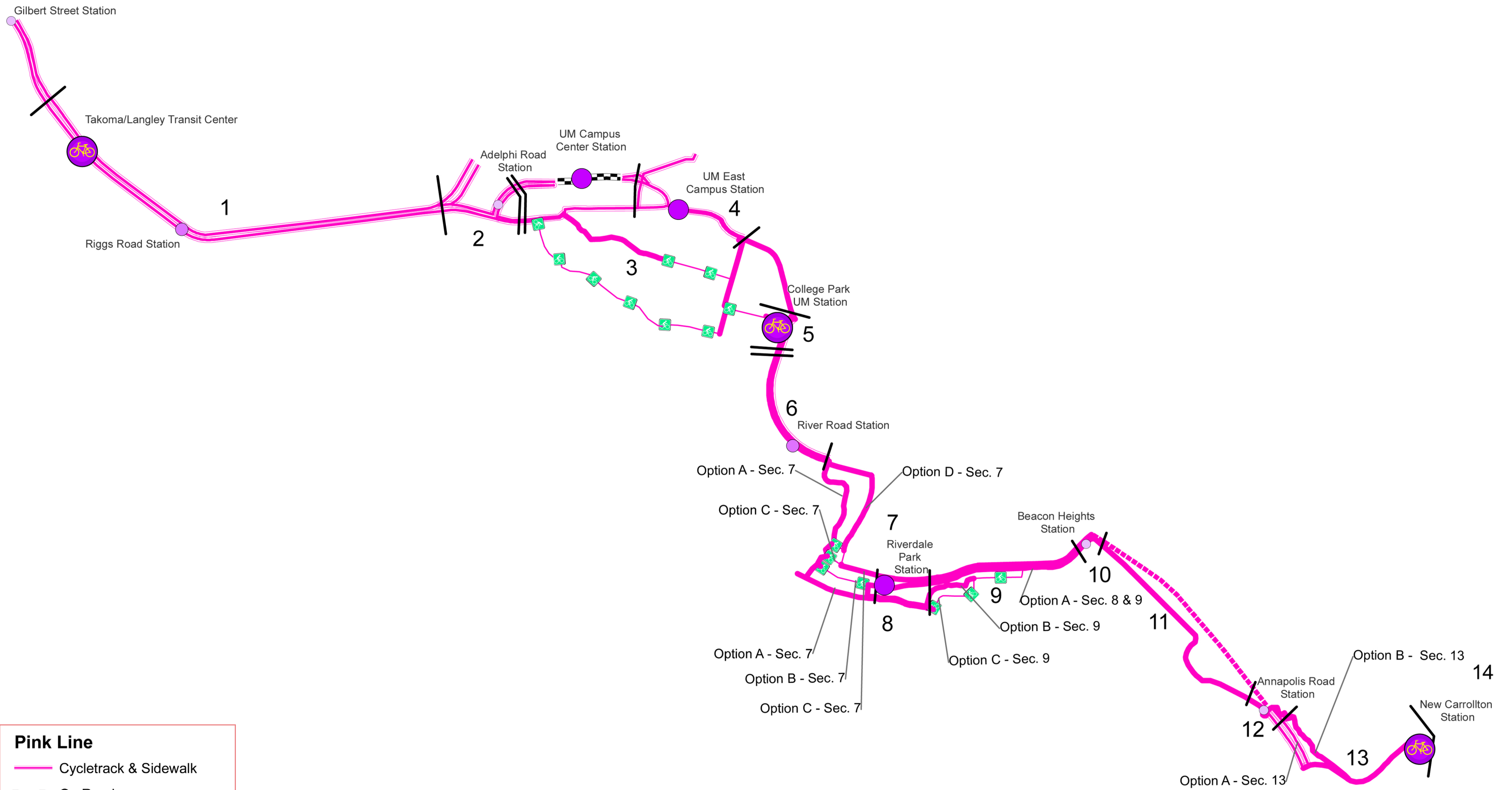
Facility Name	Status	Facility Type
Master Plan Road	Planned	Shared Use Path
Master Plan Road	Planned	Shared Use Path
Templeton ES Connector	Planned	Shared Use Path
New Carrollton Access Bridge	Planned	Shared Use Path
Kenmoor Elem. School Trail	Planned	Shared Use Path
Garden City Drive	Planned	Shared Use Path
Pennsy Drive	Planned	Shared Use Path
Paint Branch Trail Connector	Planned	Shared Use Path
Ellen Road to New Road	Planned	Shared Use Path
73rd Avenue	Planned	Shared Use Path
Pedestrian Bicyclist Connection	Planned	Shared Use Path
Ellin Road	Planned	Shared Use Path
Whitfield Chapel Community Park Trail	Planned	Shared Use Path
Glenarden Woods Connector	Future	Shared Use Path
Parkwood Street Trail	Planned	Shared Use Path
De Pauw Place Connector	Planned	Shared Use Path
Barlowe Road	Planned	Shared Use Path
Hubbard Road	Planned	Shared Use Path
Hubbard Road	Planned	Shared Use Path
Martins Lane Connector and Bridge	Planned	Shared Use Path
Westbrook Drive Trail Bridge	Planned	Shared Use Path
New Carrollton Metro Station	Planned	Shared Use Path
Boston Connector Trail	Planned	Shared Use Path
Dodge Park Connector	Future	Shared Use Path
Glenridge Park Connector	Future	Shared Use Path
Bald Hill Branch Trail	Planned	Shared Use Path
Ellin Road	Planned	Shared Use Path
Bridge at Martins Lane	Future	Shared Use Path
Templeton Elementary School Connector	Planned	Shared Use Path
Unnamed	Planned	Shared Use Path
Templeton Elementary School Connector	Planned	Shared Use Path
Cattail Branch	Planned	Shared Use Path
M2-NE Branch Connector	Planned	Shared Use Path
M2-Northeast Br Connector	Planned	Shared Use Path
Power Line Crossing UB South	Future	Shared Use Path
Power Line Connector UB South2	Future	Shared Use Path
Power Line Xing UB North1	Future	Shared Use Path
Power Line Xing UB North2	Future	Shared Use Path
Power Line Xing UB North3	Future	Shared Use Path
Riggs Road Connector	Future	Shared Use Path
Hannon St Connector	Future	Shared Use Path
18th Ave Connector	Future	Shared Use Path
18th Ave Connector	Future	Shared Use Path
Riggs Rd Stn Connector North	Future	Shared Use Path
Riggs Rd Stn Connector North	Future	Shared Use Path
Langley Park Stn-NW Br Connector	Future	Shared Use Path
CASA Connector	Future	Shared Use Path
15th St Connector	Future	Shared Use Path
Langley Park Stn Connector	Future	Shared Use Path
Northwest HS Connector	Future	Shared Use Path
61st Place Connector	Planned	Shared Use Path
Templeton ES Connector	Future	Shared Use Path
Templeton ES Connector	Future	Shared Use Path
Brownings Grove Pk Connector	Future	Shared Use Path

Facility Name	Status	Facility Type
Edmonston Road Connector	Future	Shared Use Path
Riverdale Park Stn Connector	Future	Shared Use Path
Riverdale Heights Connector	Future	Shared Use Path
Riverdale Heights Connector	Future	Shared Use Path
Roanoke Connector	Future	Shared Use Path
Brier Ditch Connector	Future	Shared Use Path
Landover Hills Park Connector	Future	Shared Use Path
Greenvale Park Connector	Future	Shared Use Path
Heritage Square Connector	Future	Shared Use Path
Heritage Square Connector	Future	Shared Use Path
New Carrollton Mall Connector	Future	Shared Use Path
Campus Connector	Future	Shared Use Path
Ardwick-Garden City Sidepath	Future	Shared Use Path
Calvert Road	Planned	Shared Use Roadway
72nd Street	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Buchanan	Planned	Shared Use Roadway
75th Avenue	Planned	Shared Use Roadway
Hartwick Road	Planned	Shared Use Roadway
Ballew Road	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Crandall Road	Planned	Shared Use Roadway
Quebec Street	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Merrimac Drive	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Lebanon Street	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
23rd Street	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Queensbury Road	Planned	Shared Use Roadway
Oliver Street	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Oglethorpe Street	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
85th Avenue	Planned	Shared Use Roadway
Jefferson Street	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Finns Lane	Planned	Shared Use Roadway
Gallatin Street	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Alcona Street	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway

Facility Name	Status	Facility Type
Unnamed	Planned	Shared Use Roadway
Decatur Street	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Drexel	Planned	Shared Use Roadway
Gallatin	Planned	Shared Use Roadway
Harkins Road	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Buchanan	Planned	Shared Use Roadway
Varnum Street	Planned	Shared Use Roadway
Varnum Street	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
71st & 70st Streets	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Cooper Lane	Planned	Shared Use Roadway
Berwyn Road	Planned	Shared Use Roadway
58th Avenue	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
73rd Avenue	Planned	Shared Use Roadway
Knox Road	Planned	Shared Use Roadway
College Avenue	Planned	Shared Use Roadway
Berwyn Road	Planned	Shared Use Roadway
Lakeland Road	Planned	Shared Use Roadway
Pierce Avenue	Planned	Shared Use Roadway
Berwyn House Road	Planned	Shared Use Roadway
75th Avenue	Planned	Shared Use Roadway
Warner Avenue	Planned	Shared Use Roadway
St. Andrews Place	Planned	Shared Use Roadway
De Pauw Place	Planned	Shared Use Roadway
Rhode Island Avenue	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Knox Road	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
51st Avenue	Planned	Shared Use Roadway
Unnamed	Planned	Shared Use Roadway
Riggs Road Split (MD212)	Planned	Shared Use Roadway
Unnamed	Future	Shared Use Roadway
East West Highway (MD 410)	Existing	Shared Use Roadway
Riverdale Road	Future	Shared Use Roadway
Long Branch Drive	Future	Shared Use Roadway
Jefferson Avenue	Future	Shared Use Roadway

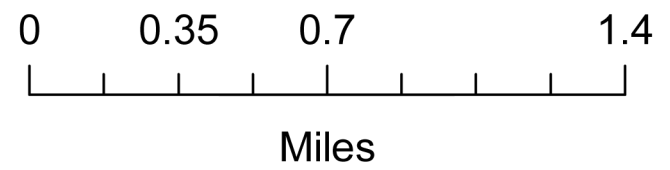


# APPENDIX E PINK LINE SCHEMATIC



**Pink Line**

- Cycletrack & Sidewalk
- On Road
- Shared Bike Ped Shoulder
- Shared Use Path
- Slow Bike/Walk Bike Zone



30

University Boulevard Langley Park & Riggs Road Stations	
	Potential Future Station at Adelphi Plaza
<b>Planned Bicycle Accommodations:</b>	a) 5-6-foot Bike Lanes on University Boulevard; b) 6-foot cycle track, 2-foot buffer adjacent to motor vehicles
<b>Source:</b>	a) SHA bicyclist accommodation policy; b) Takoma/ Langley Crossroads Preliminary Sector Plan.
<b>Planned Pedestrian Accommodations:</b>	a) 6-8 foot sidewalks with no buffer from roadway; b) 8-foot sidewalks, 5-foot tree buffer,
<b>Source:</b>	a) MTA design directive to engineering consultants; b) Takoma/Langley Crossroads Preliminary Sector Plan.
<b>New Recommendations:</b>	<b>Cycle Tracks for Bicyclists, Sidewalks for Pedestrians; Vegetated Buffer.</b> Reduce number of vehicular travel lanes by 1 in each direction. Reallocate resulting 22 feet (11' outside travel lane, 5' bike lane & 6' sidewalk) on each side of the street as follows: 8' Sidewalks; 7' Vegetated Buffer and 6' Cycle Tracks (in the TL Sector Plan area the sidewalks can be 10'). The cycle tracks should be adjacent to vehicular travel at intersections, but can be adjacent to the sidewalks between intersections. Contra-flow cycling can be tolerated on the 8-10' sidewalks. With redevelopment of adjacent sidewalks the pedestrian and vegetated areas can be further expanded to meet pedestrian circulation and context needs of the development.
<b>Impacts to Purple Line Project:</b>	Allows for provision of adequate bicycle and pedestrian accommodations without expanding the Purple Line footprint beyond its current project boundaries. Additional ROW acquisition will not be needed. Would however, increase project costs by inclusion of upgraded bicycle, pedestrian and streetscape features in the core project.
<b>Ongoing Issues:</b>	Cost of ROW acquisition to Purple Line project, requirement by SHA to provide a LOS standard for predicted future traffic volumes. Recently completed Sector Plan calls for sidepaths in addition to bike lanes. County Bicycle Master Plan calls for Cycle Tracks, which are a new facility type, not addressed by SHA policy. Sector Plan calls for sidepaths, pedestrian realm and vegetated buffers to be provided by developers as properties redevelop.
<b>Access Needs:</b>	Adequate and attractive bicycle and pedestrian access along University Blvd. providing access to the Purple Line stations. Until new street connections are built and commercial properties are redeveloped, the Pink Line will be essential to create access to the stations from the neighborhoods in the entire Langley Park area.
	Due to the heavy traffic volumes on University, high speeds, and multiple turning movements at intersections, cyclists need the greater separation from traffic offered by Cycle Tracks. Due to existing and expected high pedestrian volumes, cyclists need separation from pedestrian traffic as well. Pedestrians need a human scale environment and adequate traffic safety accommodations to ensure that LRT usage becomes the first choice of travel options for a large percentage of the population.
<b>Analysis:</b>	Providing a 5-foot striped bike lane on a road such as University Blvd. is not adequate to maximize bicycle use for access to transit. Likewise, a 6' sidewalk with no buffer from traffic is insufficient for transit access and adjacent land uses/densities. Finally, adding 16 feet to the cross section of University Blvd. to accommodate LRT in the center of the road will result in a road that will be a major disincentive for pedestrians to cross due to sheer distance, intolerable exposure to traffic, and extreme summer temperatures. Moreover, providing basic bicycle and pedestrian access to Purple Line stations cannot be left subject to unpredictable and likely incomplete redevelopment efforts.

Adelphi Station Area Adelphi Road Station	
<b>Proposed Bicycle Accommodations:</b>	Short Term: Intersection Improvement at Adelphi and Campus Drive; Bike Lanes along Campus Drive; Long Term: Grand tree-lined entrance with Shared Use Trail
<b>Source:</b>	UMD Campus Bicycle Study
<b>Planned Pedestrian Accommodations:</b>	6-foot Sidewalks with no buffer from roadway
<b>Source:</b>	MTA design directive to engineering consultants
<b>New Recommendations:</b>	<b>Cycle Tracks for Bicyclists, Sidewalks for Pedestrians; Vegetated Buffer.</b> 8' Sidewalks; 7' Vegetated Buffer and 6' Cycle Tracks. The cycle tracks should be adjacent to vehicular travel at intersections, but can be adjacent to the sidewalks between intersections. The Cycle Track on the south side of Campus Drive should be two way. This can be achieved by reducing the 7' buffer to 5' and increasing the Cycle Track to 8'. The bicycle track crossings on the north side of Campus Drive should ensure bicyclists cross the tracks with a perpendicular (or close to perpendicular movement).
<b>Impacts to Purple Line Project:</b>	Additional ROW acquisition may be needed. Would increase project costs by inclusion of upgraded bicycle, pedestrian and streetscape features in the core project. However, because this is a campus gateway entrance and the LRT will be entering/exiting a tunnel in this location, overall aesthetics and streetscape is likely to be a high priority for UMD.
<b>Ongoing Issues:</b>	Tunnel design and grade transitions; potential new development at this end of the campus (see Domain Project concepts)
<b>Access Needs:</b>	Improved bicycle and pedestrian crossings on all legs of the dual intersections of Adelphi Road (Campus Drive and University Blvd.) is essential as the LRT station will increase bicycle and pedestrian demand to use this area. As a major campus entrance today, this area already has a high volume of pedestrian and bicycle traffic; and inadequate facilities.
<b>Analysis:</b>	While this area has SHARE THE ROAD signs encouraging respect for cyclists, and bikeable shoulders on University Blvd. with a signed Bike Route, it is otherwise very inhospitable for cyclists and pedestrians. The intersections do not have crosswalks on all legs or pedestrian signal heads on all legs. Sidewalks and curb ramps are not complete. There are no pocket bike lanes at Campus Drive/Adelphi Road intersection. The large volumes of turning movements, presence of service roads at the intersection, uneven pavement and geometric complexities make it a very difficult area for bicyclists, pedestrians and motorists alike.
	Alternative 3 in the Domain Project Area Charrette presentation (April 2010) would greatly increase the grid of streets south of Campus Drive. As proposed, this would be of great benefit for bicycle and pedestrian access to the Adelphi Station as well as the campus, especially from the neighborhoods southwest and south of this area.

**University of MD to Campus Center Station, East Campus Station, College Park Metro College Park LRT/Metro Station**

**Planned & Proposed Bicycle Accommodations:** Four cross campus routes: The Red Route; the Blue Route, the Orange Route and the Green Route. A largely overlapping set of shared use roadways proposed in the CMPT  
**Source:** UMD Campus Bicycle Study, Countywide Master Plan of Transportation

**Existing Pedestrian Accommodations:** A complex web of existing campus walkways.  
**Source:** Observations

**Recommendations:** Consider the Red Route only as a campus access route not as a through bicycle route.

Consider the Blue, Orange and Green routes as preferred through campus bicycle routes; as well as campus and Purple Line station access routes. The facilities proposed for these routes in the Campus Bicycle Study are likely to be sufficient (and frequently are an upgrade to the CMPT) to also provide through bicycle movements on the Pink Line trail.

For cross campus movements to North College park consider the western portion of the Blue Route the Yellow Route and the eastern portion of the Red Route as a through route. There may need to be some alignment and facility modifications along Regents Drive and around the campus traffic circle. These facility needs are in the area of the proposed Purple Line impacts and should be included as a part of the Purple Line project.

Other cross campus components of the Pink Line trail should be developed separate from the Purple Line Project by the University, City of College Park and Prince George’s County.

**Impacts to the Purple Line Project:** Minimal

**Ongoing Issues:** Settling on a preferred alignment through the university campus that is agreeable to all stakeholders.

**Access Needs:** Pedestrian access needs to the on-campus stations will be sufficient through use of existing sidewalks and pathways. Pedestrian access along each side of the Purple Line should be 10’ or greater due to the high volumes of pedestrians. Through bicycle movements along the Purple Line alignment (Campus Drive) should be discouraged by a “WALK BIKE/SLOW BIKE” zone around the Campus Center Station.

Bike access needs are predominantly to cross the campus to/from the Adelphi Road entrance to various College Park neighborhoods or destinations beyond: East to/from Riverdale or Northeast to/from Berwyn Heights and Greenbelt.

**Analysis:** In general, the recommendations in the Campus Bicycle Study will support access to the Purple Line stations on the campus, and present good options for maintaining Pink Line continuity through the UMD.

**East Campus Station Area East Campus Station**

**Planned/Proposed Bicycle Accommodations:** Enhanced crossing of Route 1, bicycle lanes on new streets, bicycle and pedestrian connections to nearby trails, bicycle parking throughout the area. Also parallel bicycle facilities along the Purple Line through this part of the Campus. Completion of the Rhode Island Avenue Trolley Trail.  
**Source:** UMD Campus Bicycle Study; City of College Park

**Planned/Proposed Pedestrian Accommodations:** Enhanced crossing of Route 1; improved trail crossing of Paint Branch Parkway; sidewalks in new development.  
**Source:** City of College Park, UMD Campus Bicycle Study; East Campus Plan

**Recommendations:** Beginning on the West side of Route 1 and extending to Rhode Island Avenue east of the station, **7’ Cycle Tracks should be provided on each side of the Purple Line. Separate wide sidewalks/paths should be provided as well, sufficient to carry typical university pedestrian volumes.** Depending on how the East Campus Plan adds street grid, portions of the Cycle Tracks east of the Station may need to be two-way Cycle Tracks, or converted to 12-14’ Shared Use Paths. These facilities will accommodate bicycle and pedestrian movements to and from both the station and adjacent development in the East Campus area. Depending on the urban design of the East Campus Development two-way cycle tracks and sidewalks may be appropriate.

**Impacts to the Purple Line Project:** Will enlarge project footprint, however due to open space available and presumed redevelopment of East Campus Area ROW may not be an issue. The width of Rossborough Drive should be established to include 14-feet for the Cycle Tracks, and potentially more buffer space. Coordination with East Campus Plan is critical.

**Ongoing Issues:** There will be a tight spot for through bicycle and pedestrian movements on the south side of the station stop, due to its proximity to Ritchie Coliseum. This deficiency can easily be tolerated by designing the station with trail crossings at both the east and west ends of the station, thus enabling those making through movements to cross to an uncompromised path on the north side of the alignment.

**Access Needs:** The East Campus station, as opposed to the College Park or Campus Center stations is likely to be the most heavily used by cyclists and pedestrians coming to and from neighborhoods to the north of the Purple Line, and somewhat those to the immediate south. It may be heavily used by those going to/from the northeastern part of the campus near the Paint Branch. Due to the layout of trails and origins and destinations, it is likely that bicyclists will want to travel to and from the station on the same side of Paint Branch Parkway as their approach; avoiding a crossing of this high speed roadway.

**Analysis:** Because separating bicycle traffic from pedestrian traffic is the desired norm for the heavily traveled bike routes on the Campus, it seems logical to carry this operational framework through on the east side of the Campus and into the redeveloped East Campus area. However, providing shared bicycle and pedestrian trails on each side of the Purple Line might be more space efficient. Additionally, due to the layout of origins and destinations at each end of this section there may be a high demand for bi-directional travel on each side of Rossborough, especially if cyclists feel that crossing Rossborough is not worth the hassle just for the short distance into or out of campus.

College Park Station Area	College Park Metro/LRT Station
<b>Planned Bicycle Accommodations:</b>	Retention of the sidepath on the south side of Paint Branch Parkway; completion of the Rhode Island Avenue Trolley Trail in College Park;
<b>Source:</b>	Purple Line Preliminary Engineering Report; UMD Campus Bicycle Study, City of College Park
<b>Planned Pedestrian Accommodations:</b>	See above
<b>Source:</b>	See above
<b>Recommendations:</b>	As a supplementary Pink Line route, retain the sidepath on the south side of Paint Branch Parkway and enhance the facility with public art and lighting.  For the primary Pink Line route, <b>modify the railroad under passage way adjacent to the fare gate area to better accommodate bicycles and other wheeled vehicles needing to cross the Metro and freight rail lines.</b> (Alternately, widen and enhance the underpass of the Metro rail line that crosses CSX at grade at the MARC station.  <b>Improve the Paint Branch Parkway intersections at River Road and 51<sup>st</sup> Avenue</b> to provide bicycle and pedestrian safety for those using the Indian Creek and Northeast Branch Trails to access the station.
<b>Impacts to the Purple Line Project:</b>	None expected.
<b>Ongoing Issues:</b>	Redevelopment of the WMATA station site including the closed kiss and ride area and large surface parking lot is in the planning stages. Initial concept designs have been developed.  It is critical for this development to provide a safe, direct and efficient through bicycle movement on the Pink Line route. It should be a part of the at grade pedestrian crossing area planned to cross Purple Line tracks in front of the Metro Station. Yet it should be distinct from pedestrian areas. It is also important that a crossing of River Road be planned to connect the Pink Line with an existing trail crossing the north part of the M <sup>2</sup> development.
<b>Access Needs:</b>	The Pink Line route will be one among a variety of bicycle and pedestrian routes that converge on the College Park station from a variety of directions. However, due to the close proximity of the adjacent Purple Line Stations, the Pink Line route to and through the College Park Metro/LRT station area will be a key route for those bound for metro, or those making a through movement across the major barrier created by the rail lines.
<b>Analysis:</b>	Proposed redevelopment plans were not able to be reviewed in detail.

M2 / River Road	River Road Station
<b>Planned Bicycle Accommodations:</b>	Shared Use Path along River Road; Shared Use Path connection on the north side of River Road between Haig Street and Northeast Branch Trail
<b>Source:</b>	CMPT; M-NCPPC Staff
<b>Existing Pedestrian Accommodations:</b>	Sidewalks along River Road (in poor condition)
<b>Source:</b>	Observations
<b>Recommendations:</b>	<b>Provide a 10' Shared Use Path on the south side of River Road and a Cycle Track and Sidewalk on the north side.</b>  <b>At the bridge over Paint Branch, provide bike lanes across to Kenilworth Ave.</b> and retain the sidewalk on the south side of River Road. This can be accomplished by narrowing travel lane widths and using existing roadway shoulder.  If the proposed Casey Foundation development is built along Route 1, a bridge or tunnel link should be considered across the CSX railroad line to the Pink Line route along River Road.  An alternative for River Road would be to narrow it by one travel lane in each direction and install buffered bike lanes.
<b>Impacts to the Purple Line Project:</b>	The project foot print should be enlarged to provide the Pink Line route shared use path along the south side of River Road. The sidewalk on this side can be removed. The new sidepath could be located on either side of the LRT line, with crossings where needed for continuity at either end where the alignments diverge.  To defray the added project cost, developers in the M <sup>2</sup> area and at the College Park Metro Station should be asked to fund it.  Developers should fund the Cycle Track on the north side of River Road, and a wider sidewalk and tree buffer.
<b>Ongoing Issues:</b>	Alignment of tracks relative to the road at the River Road Station. Developer's request to minimize the Purple Line Project footprint on the front of the developer's property adjacent to River Road.
<b>Access Needs:</b>	In addition to providing local pedestrian access to and from each of the rail stations in the M <sup>2</sup> development, the Pink Line route through the M <sup>2</sup> development area will serve Riverdale Park residents seeking access to the College Park Metro/LRT station area. It will also serve as a key link in the greater cross county bicycle route; currently bicycling conditions along River Road create a weak link in the chain.
<b>Analysis:</b>	None

**Haig Drive to Riverdale Between Stations**

<b>Proposed Accommodations:</b>	Bike Lanes on Kenilworth Avenue; Bike Lanes on Riverdale Road; 5-6 foot sidewalks on Kenilworth Avenue
<b>Source:</b>	Countywide Master Plan of Transportation; Purple Line Project.
<b>Existing Accommodations:</b>	Northeast Branch Trail and related spur and connector trails.
<b>Source:</b>	Countywide Master Plan of Transportation
<b>Recommendations:</b>	<b>Select Option A, B or C from the following set of options (Option D is not recommended):</b>  Option A: Use existing paths along Haig Drive and Northeast Branch Trail. Install a new bridge over Northeast Branch to existing connector paths on the east bank of the stream; construct a Sidepath (or Cycle Tracks) along Riverdale Road and continue on east side of Kenilworth along Greenvale Branch.  Option B: Use existing paths along Haig Drive and Northeast Branch Trail. Install a new bridge over Northeast Branch to existing connector paths on the east bank of the stream; use Powhatan Road to Kenilworth Avenue and continue on east side of Kenilworth along Greenvale Branch.  Option C: Use existing paths along Haig Drive and Northeast Branch Trail. Install a new bridge over Northeast Branch to Quintana Street; use Quintana, 54 <sup>th</sup> and Patterson Road to Kenilworth crossing and proposed sidepath along north side of East-West Highway.  Option D. Construct a dual LRT and trail bridge across the Paint Branch at Haig Drive; continue trail along east edge of forested park land adjacent to properties fronting on Kenilworth Avenue, to 54 <sup>th</sup> and Quesada; use 54 <sup>th</sup> and Patterson Road to Kenilworth crossing and proposed sidepath along north side of East-West Highway.
<b>Impacts to the Purple Line Project:</b>	Option D would have significant impact on the cost and design of the planned new LRT bridge over the Paint Branch. The other options would have minimal or no impact on the Purple Line project.
<b>Ongoing Issues:</b>	Need to consult with the community regarding these options and consider the options in the context of a sector plan for the Riverdale park commercial area southeast of the MD 410 MD 201 intersection.
<b>Access Needs:</b>	The Pink Line in this section will serve mainly as a link in the cross county trail. However, it could also serve as a component of greenway trail linking the Riverdale Park Plaza commercial area with the Northeast Branch Trail and the historic center of Riverdale Park. Selection of Option A would provide an upgraded access route for Riverdale Park residents to access the Purple Line at the Riverdale Park Station. The new bridge in Options A-C would provide a much improved and more direct bicycle and pedestrian link for east of the stream residents to the extensive recreation facilities at the Riverdale Community Park and Ball fields.  Bike access needs are predominantly to cross the campus to/from the Adelphi Road entrance to various College Park neighborhoods or destinations beyond: East to/from Riverdale or Northeast to/from Berwyn Heights and Greenbelt.
<b>Analysis:</b>	Options A and B avoid an at-grade crossing of MD 410. Options A and B also locate the MD 201 crossing at Riverdale Road, rather than at MD 410, which may be preferable.

**Riverdale Park Station Area Riverdale Park Station**

<b>Planned Accommodations:</b>	Bike Lanes on Kenilworth Avenue; Bike Lanes on Riverdale Road; 5-6 foot sidewalks on Kenilworth Avenue; Maintain or add new 5-6 foot sidewalks on East West Highway.
<b>Source:</b>	Countywide Master Plan of Transportation; Purple Line Preliminary Engineering Report
<b>Existing Accommodations:</b>	5-6 foot sidewalks along MD 410 and MD 201; no vegetated buffers.
<b>Source:</b>	Observations
<b>Recommendations:</b>	Provide an 8-foot Sidepath with a 5-foot vegetated buffer on the north side of MD410 between Kenilworth Ave. and the B-W Parkway to provide bicycle and pedestrian access to the station.  From among the options described in Section 7 and 9, select one or more Pink Line Routes on the south side of MD 410.  In a sector plan study of the area around this station consider the following:  <ul style="list-style-type: none"> <li>Relocating the station one block to the south, away from MD 410 and adjacent to Riverdale Road, which would create an opportunity to relocate the LRT alignment so that it came through the middle of a proposed new development on the undeveloped forested land adjacent to MD 410.</li> <li>Establish an urban street grid upon which the LRT would run. It would provide circulation in the commercial center and a framework around which redeveloped commercial establishments can be organized. Additionally, provide for mixed use development.</li> <li>Create a greenway trail along each bank of the Greenvale Branch; and restore the stream to natural shorelines.</li> </ul>
<b>Impacts to Purple Line Project:</b>	Realignment here would significantly impact the Purple Line Project. However, holding off on further preliminary engineering work in this area would allow a sector plan to be considered that would locate the LRT in a more central location within an urban village setting, making it a central feature of the streetscape.
<b>Ongoing Issues:</b>	Need to consult with the community and developers regarding these considerations and consider all options in the context of a sector plan for the Riverdale park commercial area southeast of the MD 410 MD 201 intersection.
<b>Access Needs:</b>	The Pink Line in this area will serve as the primary east/west feeder to the Purple Line Station in this community. Because MD 410 will remain a difficult road to cross, going east of the station, bicycle and pedestrian facilities are needed along both sides of the roadway. The Pink Line will also serve as link in the cross county chain, providing east-west bicycle and pedestrian access through a commercial area where now there is none, and which is highly pedestrian-bicycle unfriendly.
<b>Analysis:</b>	Due to their role in regional transportation, MD 410 and MD 201 need to carry large volumes of vehicular traffic. Retaining their regional transportation role and making them into community main streets are fundamentally opposing goals. However a community main street is needed in this area for a successful Purple Line, livability and future economic and environmental sustainability. Riverdale Road should be modified to play this role, and additional supporting street grid should be created to both disperse and organize movements and development. The Pink Line/Greenvale Greenway should be a non-motorized travel way and linear urban park within the new grid.

Riverdale Park to Beacon Heights Between Stations	
<b>Planned Accommodations:</b>	Bike Lanes on MD 410; Potential Sidepath on south side of MD 410 adjacent to the Purple Line.
<b>Source:</b>	Countywide Master Plan of Transportation; Purple Line Preliminary Engineering Report
<b>Existing Accommodations:</b>	5-6 foot sidewalks along MD 410 no vegetated buffers. Major segment of sidewalk missing on south side of MD410, adjacent to forested area. In some areas the shoulder provides bicycling space, however it is not continuous or striped for bike use; i.e. right turning vehicles appear to have priority.
<b>Source:</b>	Observations
<b>Recommendations:</b>	Provide an <b>8-foot Sidepath with a 5-foot vegetated buffer</b> on the north side of MD 410 between Kenilworth Ave. and the Beacon Heights Station to provide bicycle and pedestrian access to each station. Provide the same cross section on the south side of MD 410 from East Pine Drive to Beacon Heights Station (i.e. under the B-W Parkway).
<b>Select from the following set of four options:</b>	<ul style="list-style-type: none"> <li>Option A: Include a 10' Shared Use Path between the LRT tracks and development on the south side of MD 410.</li> <li>Option B: Use the proposed dual pathway Greenvale Greenway trail to the new development. Provide a trail in the new development to Mustang Drive and Patterson Street; then a shared roadway on Patterson Street to East Pine Drive and MD 410.</li> <li>Option C: Use the proposed dual pathway Greenvale Greenway trail to Mustang Drive. Use a shared use street along Mustang Drive and Patterson Street and East Pine Drive to MD 410.</li> <li>Option D: Include a 10' Shared Use Path along the south edge of the LRT tracks from East Pine Drive to Mustang Drive, then use Option A or B above to continue the route into the Riverdale Park Station.</li> </ul>
<b>Impacts to Purple Line Project:</b>	Options B and C would have no impact on the Purple Line project. Option A would have impacts to the design of the LRT along MD 410; however it appears that if residential properties are purchased to provide sufficient space for the LRT tracks from Mustang to East Pine Drive, there will be remaining space that can be used for a shared use path and linear greenway. It is not clear if sufficient ROW will be available to continue this trail from Mustang Drive to the Riverdale Park Station, and how the presence of the trail would affect the urban design and layout of the proposed development along this segment. Option D may present a way to eliminate any issues presented by the western portion of Option A.
<b>Ongoing Issues:</b>	Continued coordination with Purple Line engineering team and MTA. Need to consult with the community regarding these options and consider the options in the context of a sector plan for the Riverdale park commercial area southeast of the MD 410 MD 201 intersection, and the proposed development for the forested area.
<b>Access Needs:</b>	The Pink Line in this area will serve as the primary east/west feeder to the Purple Line Station in this community. Because MD 410 will remain a difficult road to cross between the Riverdale Park and Beacon Heights stations, bicycle and pedestrian facilities are needed along both sides of the roadway. The Pink Line will also serve as link in the cross county chain, providing east-west bicycle and pedestrian access through the area, where conditions are currently pedestrian and bicycle unfriendly.
<b>Analysis:</b>	See previous section.

Beacon Heights Station Area Beacon Heights Station	
<b>Planned Bicycle Accommodations:</b>	Bike Lanes on Riverdale Road and the Veterans Parkway (MD 410).
<b>Source:</b>	Countywide Master Plan of Transportation
<b>Planned Pedestrian Accommodations:</b>	6-foot sidewalks and 4-foot vegetated buffers along each side of Riverdale Road.
<b>Source:</b>	Purple Line Preliminary Engineering Report
<b>Recommendations:</b>	Provide an <b>8-foot Sidepath with a 5-foot vegetated buffer on each side of Riverdale Road.</b> Continue this cross section on the North side from Veterans Parkway to Auburn Avenue. It should be noted that the design of the ramp crossings at the B-W Parkway need to be undertaken with great care.
	Immediately adjacent to the station, the planned 6-foot sidewalk adjacent to the edge of the south-side platform will be sufficient for bicycle and pedestrian passage through this tight area. Trail users can cross the LRT tracks at the station to a continuation of the trail on the north side of the tracks.
	To the west of the station platform, provide an <b>8-foot wide Shared Use Path between the LRT tracks and edge of River Road to connect to the crossing of Veterans Parkway, and to continue south to Glenridge Park.</b> Due to the topography, this trail will need to cross the LRT tracks as it curves south to merge with the Veterans Parkway ROW. This trail will need to be engineered into the hillside on a shelf running parallel to Veterans Parkway, but climbing in elevation above the Purple Line/Veterans Parkway grade.
<b>Impacts to Purple Line Project:</b>	Additional ROW may need to be acquired to provide the recommended trail cross sections on each side of Riverdale Road. However, space may also be gained through a lane diet or lane reduction. At the time of this report it was hard to determine how many and how wide the planned travel lanes are. Additionally, a trail crossing of the LRT tracks will be added just east of the station; because this is on a curve of the LRT line, crossing safety will need special consideration.
<b>Ongoing Issues:</b>	ROW acquisition of MNCPPC land north of the station; roadway design and engineering.
<b>Access Needs:</b>	The Pink Line in this area will serve as a primary feeder to the Purple Line Station in this community. Because MD 410 will remain a difficult road to cross in this area, bicycle and pedestrian facilities are needed along both sides of the roadway. The Pink Line will also serve as link in the cross county chain, providing east-west bicycle and pedestrian access through the area, where none now exist and conditions are currently pedestrian and bicycle unfriendly.
<b>Analysis:</b>	As along University Blvd., for comfort and safety pedestrians and bicyclists should have a minimum 5-foot buffer from motor vehicles, and they should be vegetated with trees where feasible. Providing an 8-foot sidepath on each side of the road is the most space efficient way to accommodate both bicycle and pedestrian access to the station. It offers the traveler the option to cross Riverdale Road at the most desirable location for access and egress trips in all directions. Bicycle volumes are not expected to be high, especially west of the station.

Beacon Heights to Annapolis Road Between Stations	
<b>Planned Bicycle Accommodations:</b>	Bike Lanes on the Veterans Parkway (MD 410).
<b>Source:</b>	Countywide Master Plan of Transportation
<b>Planned Pedestrian Accommodations:</b>	None
<b>Source:</b>	Purple Line Preliminary Engineering Report
<b>Recommendations:</b>	Provide a <b>10-foot wide Shared Use Path linking the Beacon Heights Station and the Annapolis Road Station</b> by way of Glenridge Park.  Provide <b>8-10 foot shared bicycle and pedestrian shoulders on both sides of the Veterans Parkway</b> . 10-foot shoulders are present today, but they are not continuous on both sides between Riverdale Road and Annapolis Road (MD 450).
<b>Impacts to Purple Line Project</b>	Providing continuous shoulders along Veterans Parkway may impact the design of the Purple Line, realignment of Veterans Parkway and the drainage systems that serve both ROWs
<b>Ongoing Issues:</b>	LRT and roadway design and engineering.
<b>Access Needs:</b>	The Pink Line in this area will primarily serve as link in the cross county trail, providing east-west bicycle and pedestrian access through the area, where none now exists and conditions are pedestrian and bicycle unfriendly. For a number of neighborhoods around Glenridge Park, the shared use path alignment will provided increased access to both the Beacon Heights and Annapolis Road stations; primarily offering a traffic free route and one that graduates the climb/descent as compared to existing neighborhood streets. Today, bicyclists and pedestrians, especially youth can be seen riding and walking on Veterans Parkway; the shared bicycle/pedestrian shoulder will provide a direct on-street route for those who may prefer the fastest and most direct way to make this movement.
<b>Analysis:</b>	Trail construction will require significant engineering regarding and removal of some forest cover. It appears from limited field investigation that there is an existing bench on the hillside upon which the trail can be aligned.  Along Veterans Parkway, due to the presence of wide grass median, wide travel lanes and existing shoulders, it appears that the roadway can be re-aligned to accommodate both the LRT and continuous shoulders that can provide a minimum level of serves for bicyclists and pedestrians.

Annapolis Road Station Area Annapolis Road Station	
<b>Planned Bicycle Accommodations:</b>	Bike Lanes on Veterans Parkway (MD 410) and a sidepath along Annapolis Road (MD 450).
<b>Source:</b>	Countywide Master Plan of Transportation
<b>Planned Pedestrian Accommodations:</b>	Elevator and Stairs to provide station to grade access at the Southwest corner of MD 410 and MD 450.
<b>Recommendations:</b>	This station is planned to be located under the western Annapolis Road leg of the MD 410/MD 450 intersection. This will be accomplished by a cut and cover with a bridge structure.  A minimum <b>15-foot wide bicycle/pedestrian travel way</b> should be provided adjacent to station platforms for bicyclists and pedestrians to make a through movement under MD 450. Additionally, at either end of this travel way, ADA compliant bicycle and pedestrian routes should be provided for direct access to the MD 410/MD 450 intersection. These routes should be 10-12 feet wide. If it would be more desirable for the non-stair access to the street to be provided as a part of property redevelopment, then the stairway provided by the Purple Line project should be at least 15 feet wide and provide bicycle rolling trays.  The above accommodations will enable the Pink Line movement to continue from the Annapolis Road Station to the New Carrollton Station. The route will avoid an at-grade crossing of MD 450, and utilize an improved at-grade crossing of MD 410.  If feasible, initial engineering and infrastructure should be provided for a future bicycle and pedestrian tunnel under MD 410. The actual construction of such a tunnel could be funded as a part of commercial redevelopment of properties near the MD 410/MD 450 intersection.  Improve the conditions for bicycle and pedestrian crossings of all four legs of the MD 410/MD 450 intersection.
<b>Impacts to Purple Line Project:</b>	The recommendations above must be integrated into the Purple Line project and as result will impact the project. However, it is unclear if providing the recommended passageway above, and related access paths would actually add to engineering difficulties or costs because presumably the same type and amount of access would need to be created for customers to access the station. Due to the under-bridge nature of the station location it is presumed that a relatively wide space will be highly desirable from an architectural and public safety point of view (even if it does require a larger bridge. Lighting as well will be key to creating a space that is both inviting and comfortable and attracts transit use.
<b>Ongoing Issues:</b>	LRT engineering.
<b>Access Needs:</b>	The Pink Line in this area will serve primarily as link in the cross county trail, providing east-west bicycle and pedestrian access through the area, where none now exists and conditions are pedestrian and bicycle unfriendly. For a number of neighborhoods around the Annapolis Road station it will provide some improvement to end of trip accommodations.
<b>Analysis:</b>	See Impacts to Purple Line Project Above

Annapolis Road to New Carrollton Between Stations	
<b>Planned Bicycle Accommodations:</b>	Bike Lanes on the Veterans Parkway (MD 410) and Ellin Road.
<b>Source:</b>	Countywide Master Plan of Transportation
<b>Planned Pedestrian Accommodations:</b>	None on MD 410. The existing 6-foot sidewalk on the south side of Ellin Road will be replaced by the Purple Line Project
<b>Source:</b>	Purple Line Preliminary Engineering Report
<b>Recommendations:</b>	Option A: Provide <b>Cycle Tracks and Sidewalks on both sides of the Veterans Parkway</b> from Annapolis Road to Ellin Road and continue them across US 50 to Pennsy Drive. 10-foot shoulders are present today between MD 450 and Ellin Road.  Provide a <b>Shared Use Path on the north side of Ellin Road</b> from MD 410 to the New Carrollton Station Entrance just north of Emerson Place; provide a mid-block trail crossing of Ellin Road and appropriate facilities for bicycles to traverse station property to bicycle parking.  Option B: Provide a <b>10-foot wide Shared Use Path linking the Annapolis Road Station and the New Carrollton Station</b> by constructing a new trail from the MD 410 / MD 450 intersection to the existing park trail in West Lanham Hills Neighborhood Park. This trail can be continued along Decatur Road, and connected to the sidepath described above along Ellin Road.  Improve the crossing of both legs of MD 410 at Ellin Road  Implement a short bicycle and pedestrian trail between the end of Ardmore-Ardwick Road and the MD 410/Ellin Road intersection, to improve LRT/Metro access for the Landover Hills neighborhood.
<b>Impacts to Purple Line Project:</b>	Option A would impact the Purple Line and should be implemented in conjunction with Purple Line construction. Depending on how much of the Veterans Parkway shoulder ROW will be used by the LRT, Option A may require some or a large amount of realignment of Veterans Parkway. Option B would have little or no impact on the Purple Line
<b>Ongoing Issues:</b>	LRT and roadway design and engineering.
<b>Access Needs:</b>	The Pink Line in this area will primarily serve as link in the cross county trail, providing east-west bicycle and pedestrian access through the area, where none now exists and conditions are pedestrian and bicycle unfriendly. For a portion of the West Lanham Hills neighborhood and for the Landover Hills neighborhood, the Pink Line will improve the quality of bicycle and pedestrian access to the New Carrollton Station.
<b>Analysis:</b>	Trail construction will require engineering and regrading at the western end of the segment.  Along Veterans Parkway, due to the presence of wide grass median, wide travel lanes and existing shoulders, it appears that the roadway can be re-aligned to accommodate both the LRT and cycle tracks and sidewalks for bicyclists and pedestrians. Use of lane diets, or lane reductions may be required.

New Carrollton Station and West New Carrollton LRT/Metro Rail Station	
<b>Currently Planned Bicycle Accommodations:</b>	Bike Lanes on Ellin Road; a trail crossing of the Beltway parallel to a US 50 exit ramp into the New Carrollton Station's south entrance area; bike lanes on Ardmore-Ardwick Road southeast of the station; and other facilities in the area.
<b>Source:</b>	Countywide Master Plan of Transportation
<b>Currently Planned Pedestrian Accommodations:</b>	See above.
<b>Recommendations:</b>	<b>Continue the Pink Line Trail on the proposed Garden City Drive sidepath and flyover of the Beltway to Whitfield Chapel Park in Lanham Heights.</b> This link will enable the Pink Line to connect to the WB&A Trail through Lanham Forest Park.
<b>Impacts to Purple Line Project:</b>	None
<b>Ongoing Issues:</b>	Planning and funding of such a trail.
<b>Access Needs:</b>	The Pink Line route described above would link a new service area, Lanham Heights to the New Carrollton LRT/Metro rail station, as well as provide through access to additional County destinations to the east. It would also enable the Pink Line to serve as one of the East Coast Greenway routes into Washington, DC.
<b>Analysis:</b>	Assessment of the feasibility of a trail on the alignment described was not studied as part of this project.