ITEM 7 - Information
May 20, 2015

Briefing on a Study to Identify Pedestrian/Bicycle Access Improvements at Select Rail Stations in the Washington Region

Staff Recommendation: Receive briefing.

Issues: None

Background: The Board will be briefed on the final report, released in March 2015, of a study funded by a grant from the FHWA's Transportation, Community, and Systems Preservation (TCSP) Program. The study developed an inventory of pedestrian and bicycle improvements near 25 rail stations that currently have capacity to accommodate more riders, particularly reverse commuters, and are anticipating ridership growth.

MEMORANDUM

TO: Transportation Planning Board

FROM: John Swanson, Principal Transportation Planner

SUBJECT: TCSP Study: Improving Pedestrian/Bicycle Access at Select Rail Stations

DATE: May 14, 2015

The attached report describes a TPB study that has developed an inventory and map of nearly 3,000 pedestrian and bicycle capital improvements that would improve access to Metro, VRE and MARC rail stations with underutilized ridership capacity. This project was funded under a research grant that the TPB received in 2013 from the Federal Transportation, Community, and Systems Preservation (TCSP) Program. The report was developed by Toole Design, the primary consultant for this study.

This study seeks to better utilize the transportation system by identifying improvements around stations that will encourage rail ridership in reverse commute directions or by selling the same seat twice. The project focused on 25 rail stations that can accommodate additional riders, and are anticipating employment growth over the next decade or have a large concentration of low-income or transit-dependent residents nearby. All 25 stations are in Regional Activity Centers. For the most part, the ped/bike capital improvements in the inventory were derived from existing local plans, although the consultant conducted targeted field work to augment the recommendations for some locations. The 2,992 projects in the database range from simple sidewalk improvements to construction of major trail facilities. The combined price tag for all these projects is estimated at roughly $800 million. The average cost per project is $266,486. The database does not prioritize projects.

In the future, TPB staff intends to use this database to encourage project implementation. In particular, we will encourage our member jurisdictions to use the database as a resource for developing project applications for the federally funded Transportation Alternatives Program (TAP), which funds small capital improvements, and the Transportation Land-Use Connections (TLC) Program, which funds planning and preliminary engineering studies.

In addition, TPB staff looks forward to extending this study's analysis efforts in coordination with WMATA, which is launching the development of a Station Area Improvement Strategic Investment Plan to identify and prioritize access improvements for all Metrorail stations.

An interactive map showing the locations and other details of the access recommendations is available at: http://wikimapping.com/wikimap/Opportune-Rail-Station-Analysis.html.
The database can be downloaded in Excel and GIS format at:
http://www.mwcog.org/transportation/activities/tlc/tcsp/tcsp.html.

NATIONAL CAPITAL REGION
TRANSPORTATION PLANNING BOARD

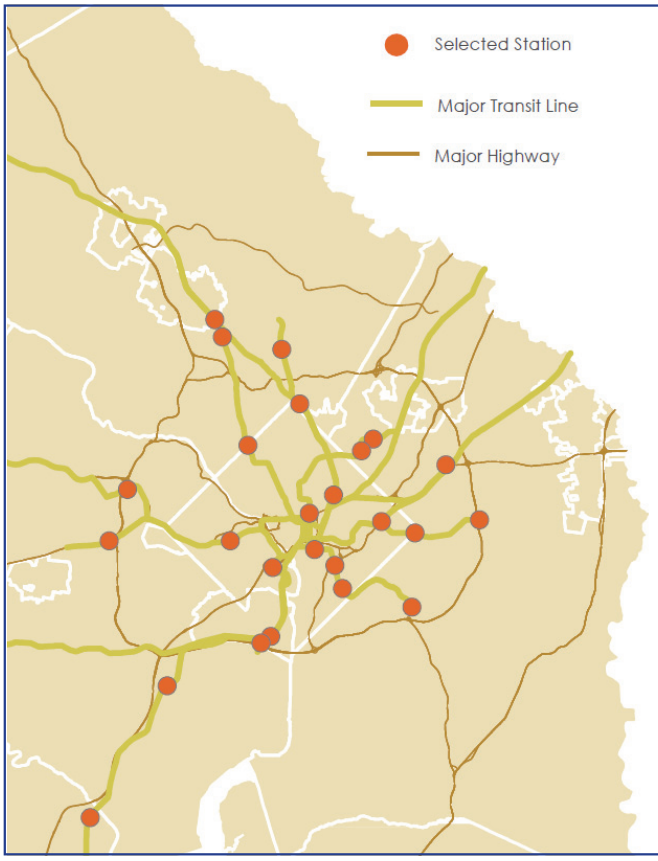
Improving Pedestrian/Bicycle Access at Select Rail Stations

Project Summary, March 2015

Project Overview

In August 2012, the Transportation Planning Board (TPB) received grant funding through the Federal Highway Administration's Transportation, Community and System Preservation (TCSP) Grant Program to identify strategic recommendations for bicycle and pedestrian access improvements at rail stations. The grant is focused on access improvements close to rail stations with underutilized capacity. This project seeks to better utilize the transportation system by identifying improvements around stations that will encourage rail ridership in reverse-commute directions or by selling the same seat twice. The final product of the project is an inventory of pedestrian and bicycle capital projects that can be quickly implemented in the vicinity of 25 opportune rail stations.

The 25 rail stations were identified by TPB staff with input from WMATA and the local jurisdictions. TPB began the selection process by first limiting their analysis to stations that are located in Activity Centers and have existing ridership capacity (based on vertical station capacity data provided by WMATA, as well as VRE and MARC ridership data). Next, TPB analyzed a range of metrics for each station area, including current and planned employment, low-income populations, subsidized housing, car ownership, demographic information and "walkability," as measured by the website www.walkscore.com. TPB also conducted meetings with staff in individual jurisdictions, to gather feedback and qualitative information about the rail stations in that jurisdiction. Ultimately, the final 25 stations identified for inclusion in this study are those that demonstrate regionally and/or locally significant characteristics in terms of employment and/or demographics.



TPB Project Selected Stations

Pentagon City, Arlington County
Virginia Square, Arlington County
Eisenhower Avenue, City of Alexandria
King Street, City of Alexandria
Anacostia, District of Columbia
Capitol Heights, District of Columbia and Prince George's County
Congress Heights, District of Columbia
Friendship Heights, District of Columbia and Montgomery County
Minnesota Avenue, District of Columbia
Mt. Vernon Square/7th St Convention Cntr, DC
Rhode Island Avenue, District of Columbia
Waterfront SEU, District of Columbia
Dunn Loring/Merrifield Avenue, Fairfax County
Franconia/Springfield, Fairfax County
McLean, Fairfax County
Silver Spring, Montgomery County
Twinbrook, Montgomery County
Wheaton, Montgomery County
White Flint, Montgomery County
Branch Ave, Prince George's County
Largo Town Center, Prince George's County
New Carrollton, Prince George's County
Prince George's Plaza, Prince George's County
West Hyattsville, Prince George's County
Woodbridge, Prince William County

Plan Review

The focus of the project was an extensive review of existing local plans and studies, conducted in order to identify existing pedestrian and bicycle facility recommendations located near one of the 25 priority rail stations. Project consultants (Toole Design Group with support from KFH Group), reviewed over 55 plans including pedestrian and bicycle master plans, county comprehensive plans, small area/sector plans, MWCOG Transportation/Land-Use Connections studies, WMATA station area plans, and other relevant planning documents. The reviewed plans were developed during the past ten years (no earlier than 2004) and the evaluation focused on pedestrian recommendations within one mile and bicycle improvements within three miles of stations.

Through the plan review, the project team developed a database of existing recommendations for each station, capturing attributes such as the improvement type, location, extents, cost estimate (if available), source (plan title and year), and the level of priority identified in the plan. The types of recommendations fit into two general categories as shown below:

<u>Linear recommendations</u>

- Bike Lanes
- Sharrows
- Separated Bike Lanes
- Sidewalks
- Trails/Paths

<u>Spot recommendations</u>

- Wayfinding
- Lighting
- Intersection Treatments
- Bus Stop Improvements
- Bicycle Parking
- Stairs

All recommendations were digitized in ArcGIS and the following additional data was incorporated into the database:

- Pedestrian and bicycle fatality data (2012 NHTSA Fatality Analysis Reporting System data) for the one mile area around each station
- WMATA Opportune Station Analysis data (a parallel effort led by WMATA Office of Long-Range Planning)
- Station area employment and demographic data

Field Work

To supplement the plan review process, the project team carried out field work at a subset of the 25 select stations. Field work stations were identified because they had either a low number of plans or recommendations related to the station area, and/or based on input from local jurisdictional staff who felt that the area would benefit from a more focused assessment in terms of pedestrian and bicycle access. The field work stations are shown in the table below.

Rail Station	Field Work Date
Wheaton	August 19, 2014
Congress Heights	August 20, 2014
Woodbridge	August 22, 2014
Dunn Loring-Merrifield	October 1, 2014
Largo Town Center	October 13, 2014

Field work focused on identifying potential access improvements (i.e. sidewalks, bicycle facilities, trails and intersection investments) that would improve connections between the rail station and areas of concentrated housing or employment. Field work recommendations were added to the master database and a short “station profile” was developed for each location. The station profiles identified key themes related to station access and provided photographs and maps of the station area recommendations (including both plan review and field work recommendations).

Project Completion Status

As a next step, the project team sought information on whether the recommended facilities in the database had been completed. This task was accomplished using a combination of methods, including: an online map and survey filled out by municipal staff; meetings with local jurisdictions to discuss recent investments near rail stations; and a review of websites or other city/county data from local jurisdictions. The categories used to document the status of each recommendation in the database were:

- Completed: Construction is underway or the project has been completed
- Planned, Designed, NOT Funded: Planning and design are completed (or not needed) and the project could be implemented if funding were identified.
- Planned, Designed & Funding Identified: Planning and design are underway or completed and a funding source has been identified.
- Partially Complete/Partially Funded: Planning and design are underway or completed, some elements may have been constructed or funded, but the project is not considered complete.
- Needs More Study: More planning, design, right-of-way acquisition, environmental review, or public process is needed before this project can advance.
- No Longer Under Consideration: City/County thinking has changed since the plan was adopted; or the City/County decided to install the facility elsewhere instead; or political opposition stopped the project; etc.

Given the volume of information in the database, this effort focused on linear records (i.e. recommended sidewalks, trails and on-street bicycle facilities) and information was only captured for a subset of the database records. TPB plans to update this information periodically with the support of local jurisdictions.

Cost Estimates

The project team developed cost estimates for all of the recommendations in the database. An order of magnitude cost estimate was developed for the recommended improvements based on an aerial and street-level review of each location. Cost estimates for linear improvements were developed by establishing a cost per linear foot for the recommended facility type and applying it to the length of the improvement. Cost estimates for individual spot improvements were developed by identifying anticipated quantities for significant construction items (e.g. asphalt, sidewalk, concrete curb, pavement markings, etc.). Unit prices for construction items were established based on regional historical bid pricing and the estimator's experience and judgment. Not included in this estimate are the costs for engineering, permitting, utility impacts, grading, right-of-way, survey, mobilization, insurance, and inspection. Although quantities and unit prices were developed for each estimate, a fluctuation in quantities and bid prices can be expected as project design progresses. Actual construction costs can only be determined following final design; as such, the costs at this level of review are budgetary in nature and are typically accurate within +/- 30 percent.

Final Products

The final deliverable for the project is a comprehensive database delivered in three formats: Excel, ArcGIS and an interactive web map (http://wikimapping.com/wikimap/Opportune-Rail-Station-Analysis.html). The three formats are designed to maximize the accessibility of the database for regional agencies, local jurisdictions and the public, allowing staff and stakeholders to easily view, search and sort recommendations by a range of attributes.

Summary of Database Findings

The database includes a total of 2,992 recommended facility improvements (or "records"). Of this total, 18.1 percent were pedestrian recommendations, 69.7 percent were recommended bicycle facilities, and 12.1 percent were a combination (bike and pedestrian). The high percentage of bicycle improvements is partly due to the larger access area considered for bicycle recommendations compared to pedestrian recommendations. The types of projects that appear most frequently in the database include recommended bike lanes and sharrows, though many other types of improvements were also common (see Figures 1 and 2 below). Interestingly, 71.7 percent of the records were recommendations for new facilities versus recommended changes to existing facilities (25.4 percent). Other key statistics from the database are presented below and on the subsequent page.

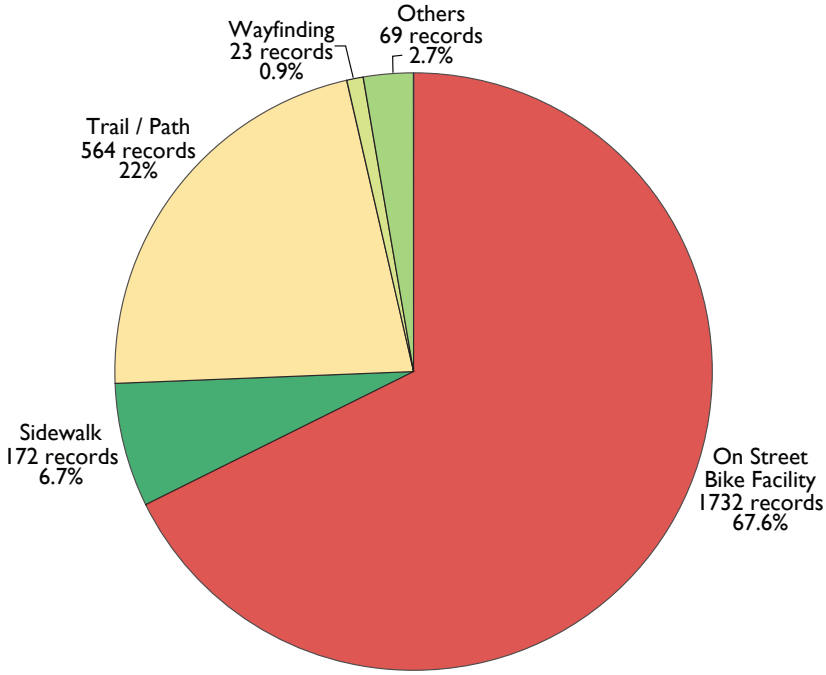


Figure 1. Linear Recommendations

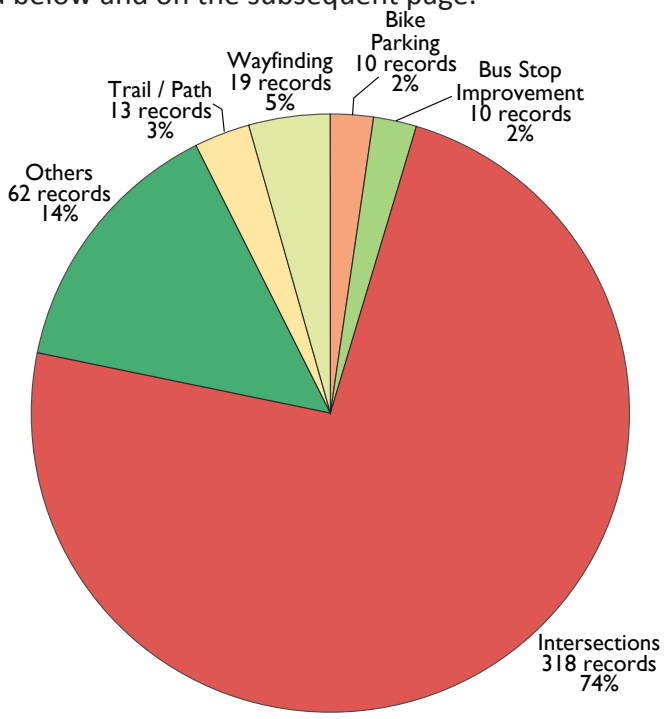


Figure 2. Spot Recommendations

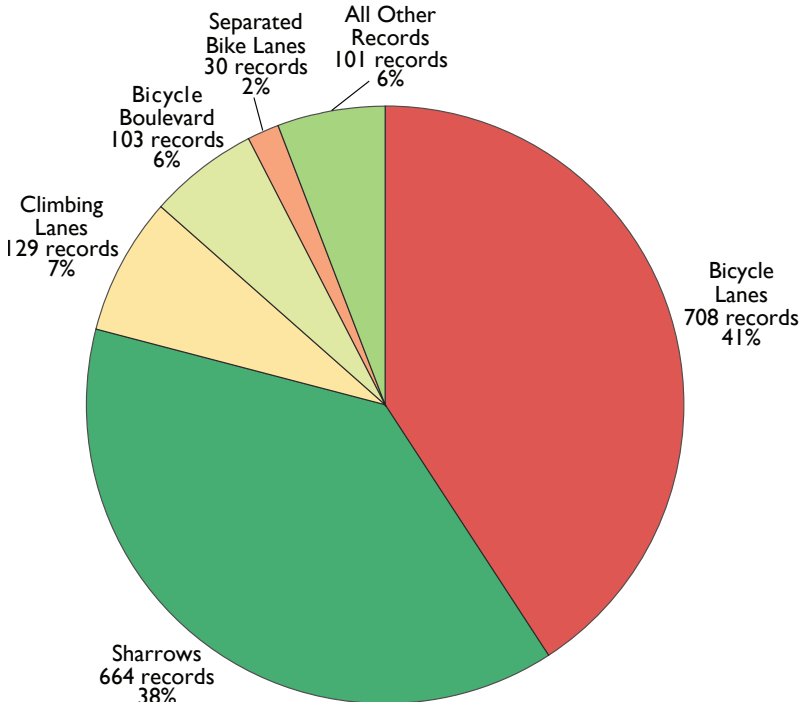


Figure 3. On Street Bicycle Facility Recommendations

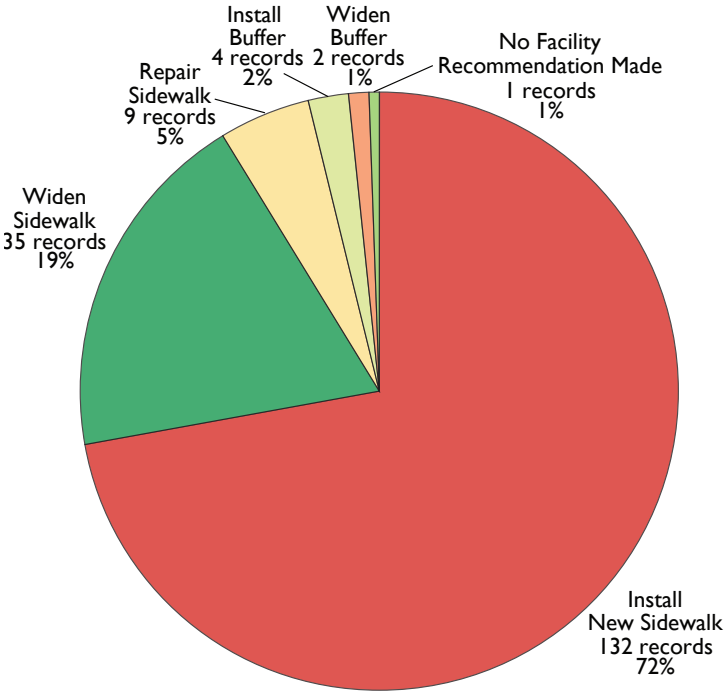


Figure 4. Sidewalk Recommendations

STATION	NUMBER OF RECORDS
King Street	661
McLean	377
Dunn Loring-Merrifield	301
Eisenhower Avenue	174
Largo Town Center	160

Table 1. Top Five Stations by Number of Records

STATION	NUMBER OF PED/BIKE FATALITIES
Mt. Vernon Square/ 7th St Convention Center	3
Woodbridge	2
Eisenhower Avenue	1

Table 2. Stations with Greatest Number of Ped/Bike Fatalities within one mile (2012 data)

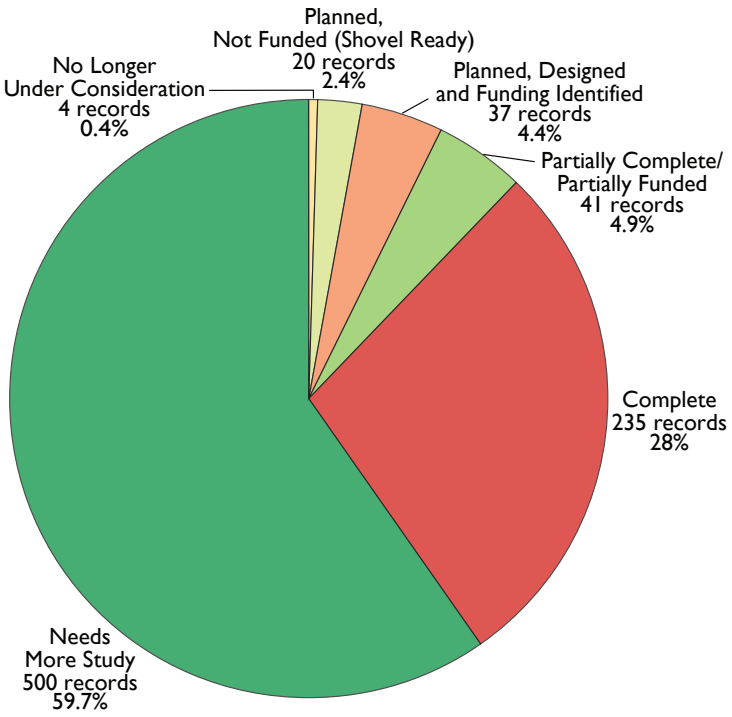


Figure 5. Completion Status of Recommendations
(Data available for 33% of linear records)

STATION	NUMBER OF JOBS IN STATION AREA
Pentagon City	49,330
Virginia Square	34,656
Silver Spring	30,931
Mt. Vernon Square / 7th St Convention Center	29,773
Twinbrook	24,859

Table 3. Top Five Stations by Current Local Employment

STATION	PERCENTAGE OF HOUSEHOLDS WITHOUT VEHICLES
Congress Heights	35.1%
Anacostia	33.6%
Mt. Vernon Square / 7th St Convention Center	33.2%
Waterfront / SEU	32.9%
Minnesota Avenue	27.4%

Table 4. Top Five Stations with Lowest Percentage Car Ownership

COST INFORMATION	
AVERAGE TOTAL COST PER STATION:	$31,892,989
Station with Lowest Total Improvement Cost	Virginia Square: $4,613,087
Station with Highest Total Improvement Cost	Largo Town Center: $90,275,755

Table 5. Cost Information

PROJECT TYPE	TOTAL COST ESTIMATE (PLANNING LEVEL)
Trail/Path	$442,806,254
On Street Bike Facility	$197,084,175
Other (New streets, lighting, combination improvements)	$84,558,162
Sidewalk	$37,117,965
Intersection	$34,625,849
Bike Parking	$756,684
Bus Stop Improvements	$317,761
Wayfinding	$60,380

Table 6. Improvement Cost Estimates by Project Type

Conclusion and Next Steps

Improving pedestrian and bicycle access to existing rail stations has the potential to benefit the region in a number of ways. For individuals, it can support lower transportation expenses and help counteract the high cost of living associated with many transit-adjacent locations. For governments and taxpayers, it can help maximize the efficiency of the existing transportation system, supporting increased transit ridership without adding more vehicles to roads near stations. Last, bicycle and pedestrian improvements can be part of a broader strategy to beautify streets, support active living and promote economic development in neighborhoods and districts. For these reasons, the Transportation Planning Board (TPB) recognizes that individual, local investments in pedestrian and bicycle infrastructure can have regional benefits, including fostering accessible, connected Activity Centers and a more efficient regional transit system.

This project provides TPB and local jurisdictions an inventory of the planned recommendations from throughout the region related to pedestrian and bicycle access near select rail stations. It also presents information on the completion status and cost of infrastructure investments that could improve access to regional transit. There are a number of ways this database can be used. TPB staff can consult the database when pursuing or distributing grant funding and identifying important inter-jurisdictional pedestrian/bicycle connections. Likewise, jurisdictions may use the database in local project/funding prioritization efforts, when working through development applications near stations, to identify sub-areas that need additional planning focus, or when planning pedestrian/bicycle improvements that cross jurisdictional lines.

TPB staff have identified a number of next steps to support the success of this project:

- Completion status has been identified for 33 percent of the linear records in the database. Following release of the database, staff will work with jurisdiction staff to identify completion status for a larger number of records. To monitor progress on completion status, staff plans to update the database yearly for the next five years.
- To increase awareness of the database and potential uses, staff will do additional outreach to member agencies and other regional partners over the coming months.
- Future TLC solicitations will encourage TLC applications focused on the 25 stations in this project, and emphasize this database as a resource for identifying possible TLC projects for more focused planning or design. Staff will also explore ways to use the TCSP database to enhance the Transportation Alternatives Program.
- TPB staff will coordinate with WMATA on its Opportune Station Analysis project, a complementary and parallel effort led by the WMATA Office of Long Range Planning to identify and prioritize access improvements for select Metro stations. The TCSP database does not include any prioritization of projects. A second phase to this project could include prioritizing recommendations at the station-level and jurisdiction-level, with input from jurisdiction staff, to provide guidance on high-impact access improvements.

For more information contact:

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Project completed by:

Toole Design Group
with support from KFH Group

Improving Pedestrian/Bicycle Access at Select Rail Stations

Federal Grant Project from the Transportation, Community and Systems Preservation Program (TCSP)

Transportation Planning Board
John Swanson, Principal Transportation Planner
May 20, 2015

NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD

Overview

- Thesis: If we improve pedestrian and bicycle access to select rail stations, we can tap underutilized capacity on our transit system.
- This project identified:
  - 25 "opportune" stations that can accommodate new riders.
  - An inventory of approximately 3,000 capital improvements for ped/bike access.

25 Opportune Stations

TPB Project Selected Stations

Pentagon City, Arlington County
Virginia Square, Arlington County
Eisenhower Avenue, City of Alexandria
King Street, City of Alexandria
Anacostia, District of Columbia
Capitol Heights, District of Columbia and Prince George's County
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Friendship Heights, District of Columbia and Montgomery County
Minnesota Avenue, District of Columbia
Mt. Vernon Square/7th St Convention Cntr, DC
Rhode Island Avenue, District of Columbia
Waterfront SEU, District of Columbia
Dunn Loring/Merrifield Avenue, Fairfax County
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Silver Spring, Montgomery County
Twinbrook, Montgomery County
Wheaton, Montgomery County
White Flint, Montgomery County
Branch Ave, Prince George's County
Largo Town Center, Prince George's County
New Carrollton, Prince George's County
Prince George's Plaza, Prince George's County
West Hyattsville, Prince George's County
Woodbridge, Prince William County

Improving Pedestrian/Bicycle Access at Select Rail Stations

This map contains planned pedestrian/bicycle improvements and recommendations for 25 "opportune stations" in the Metropolitan Washington Council of Governments region. For more information about "opportune stations" or about this project, use the menu below to click: About & Help > Instructions.

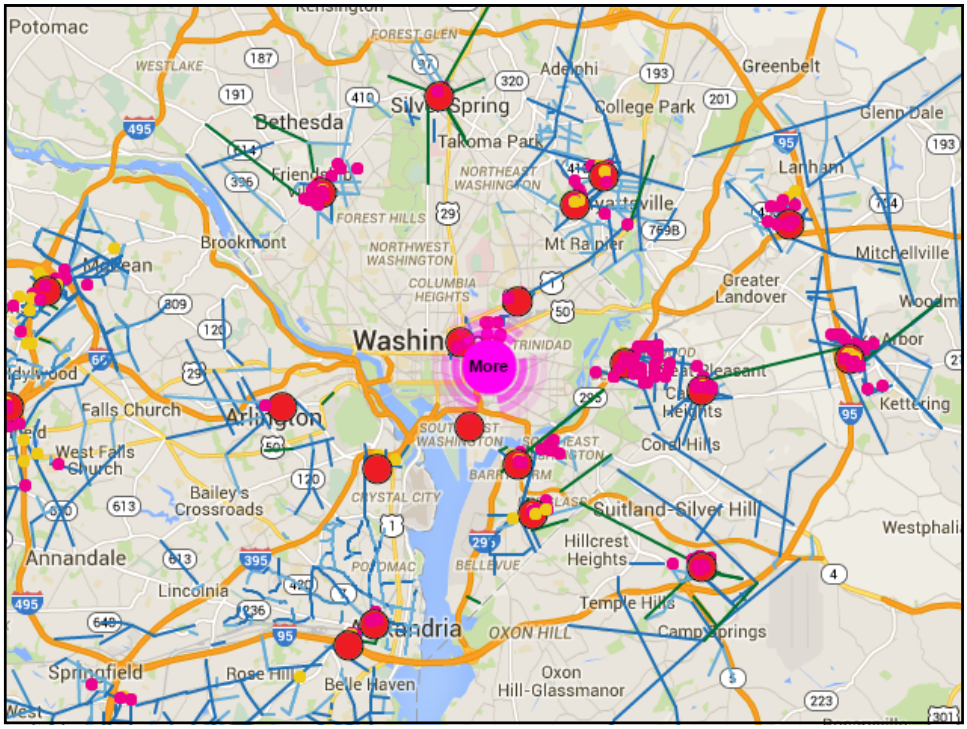
BASEMAP
- Opportune Station
- 1-Mile Buffer
- 3-Mile Buffer

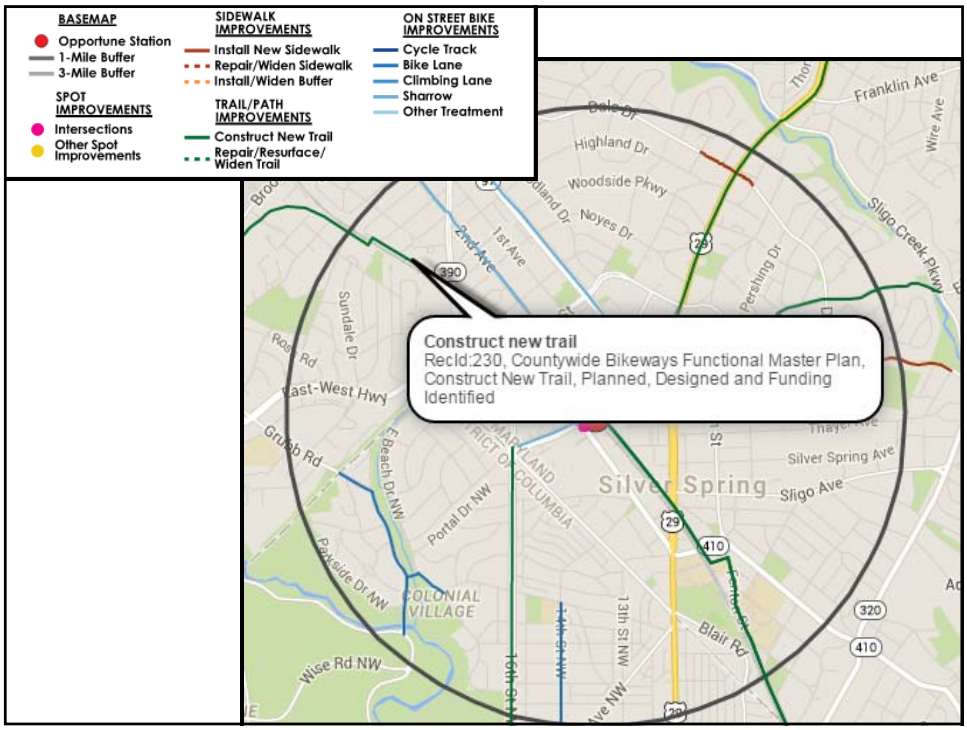
SPOT IMPROVEMENTS
- Intersections
- Other Spot Improvements

SIDEWALK IMPROVEMENTS
- Install New Sidewalk
- Repair/Widen Sidewalk
- Install/Widen Buffer

TRAIL/PATH IMPROVEMENTS
- Construct New Trail
- Repair/Resurface/ Widen Trail

ON STREET BIKE IMPROVEMENTS
- Cycle Track
- Bike Lane
- Climbing Lane
- Sharrow
- Other Treatment


Potomac
Bethesda
Silver Spring
Takoma Park
Adelphi
College Park
Greenbelt
Glenn Dale
Lanham
Mitchellville
Greater Landover
Brookmont
Mt Rainier
Falls Church
Arlington
West Falls Church
Bailey's Crossroads
Annandale
Lincolnia
Springfield
Rose Hill
Belle Haven
Oxon Hill-Glassmanor
Suitland-Silver Hill
Hillcrest Heights
Temple Hills
Camp Springs
Coral Hills
Kettering
Westphali
More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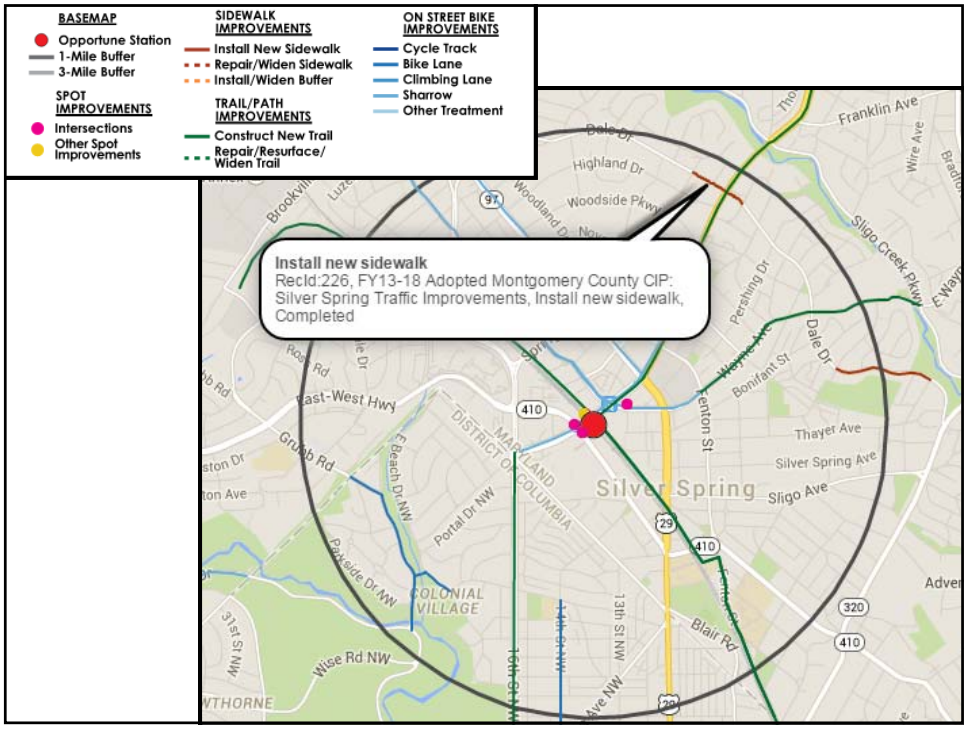
ON STREET BIKE IMPROVEMENTS
Cycle Track
Bike Lane
Climbing Lane
Sharrow
Other Treatment
Construct new trail
RecId:230, Countywide Bikeways Functional Master Plan, Construct New Trail, Planned, Designed and Funding Identified
Silver Spring
Franklin Ave
Highland Dr
Woodside Pkwy
Noyes Dr
Sligo Creek Pkwy
Sligo Ave
Silver Spring Ave
East-West Hwy
Grubb Rd
Portal Dr NW
Colonial Village
Blair Rd
Wise Rd NW



Next Steps

- Wrap-up the grant
- Additional outreach
- Establish a system to track implementation
- Coordinate with WMATA on station access strategic investment planning
- Integrate with other TPB/COG programs including TLC and TAP