

Silver Spring CBD



June 2015



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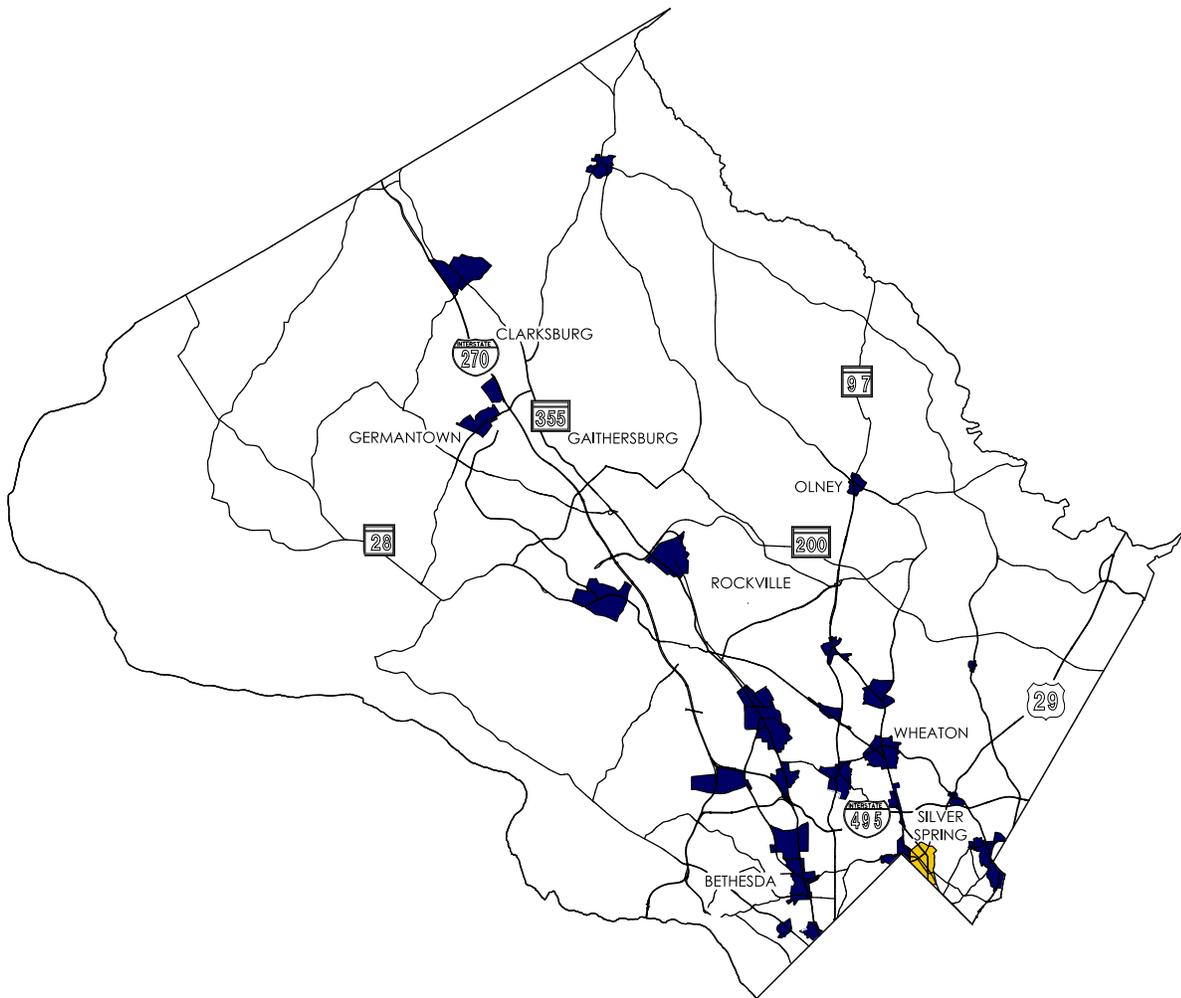
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Silver Spring CBD

Executive Summary





EXECUTIVE SUMMARY

A Bicycle and Pedestrian Priority Area (BiPPA) is a geographical area where the enhancement of bicycle or pedestrian traffic is a priority. The objective of BiPPA is to enhance safe bicycle and pedestrian access to support cohesive neighborhoods, aging infrastructure, and improve long-range connectivity and circulation.

In 2013, the Maryland National Capital Parks and Planning Commission designated twenty-eight bicycle and pedestrian priority areas within Montgomery County. The Montgomery County Department of Transportation (MCDOT), in partnership with the State Highway Administration (SHA) and the Maryland-National Capital Park and Planning Commission (M-NCPPC), identified improvements to be made to five (Glenmont, Grosvenor-Strathmore, Silver Spring CBD, Veirs Mill Road-Randolph Road, Wheaton CBD) of the designated twenty-eight bicycle and pedestrian priority areas. This was done through public workshops, which allowed the department to understand the diverse concerns and opinions of the stakeholders and residents.

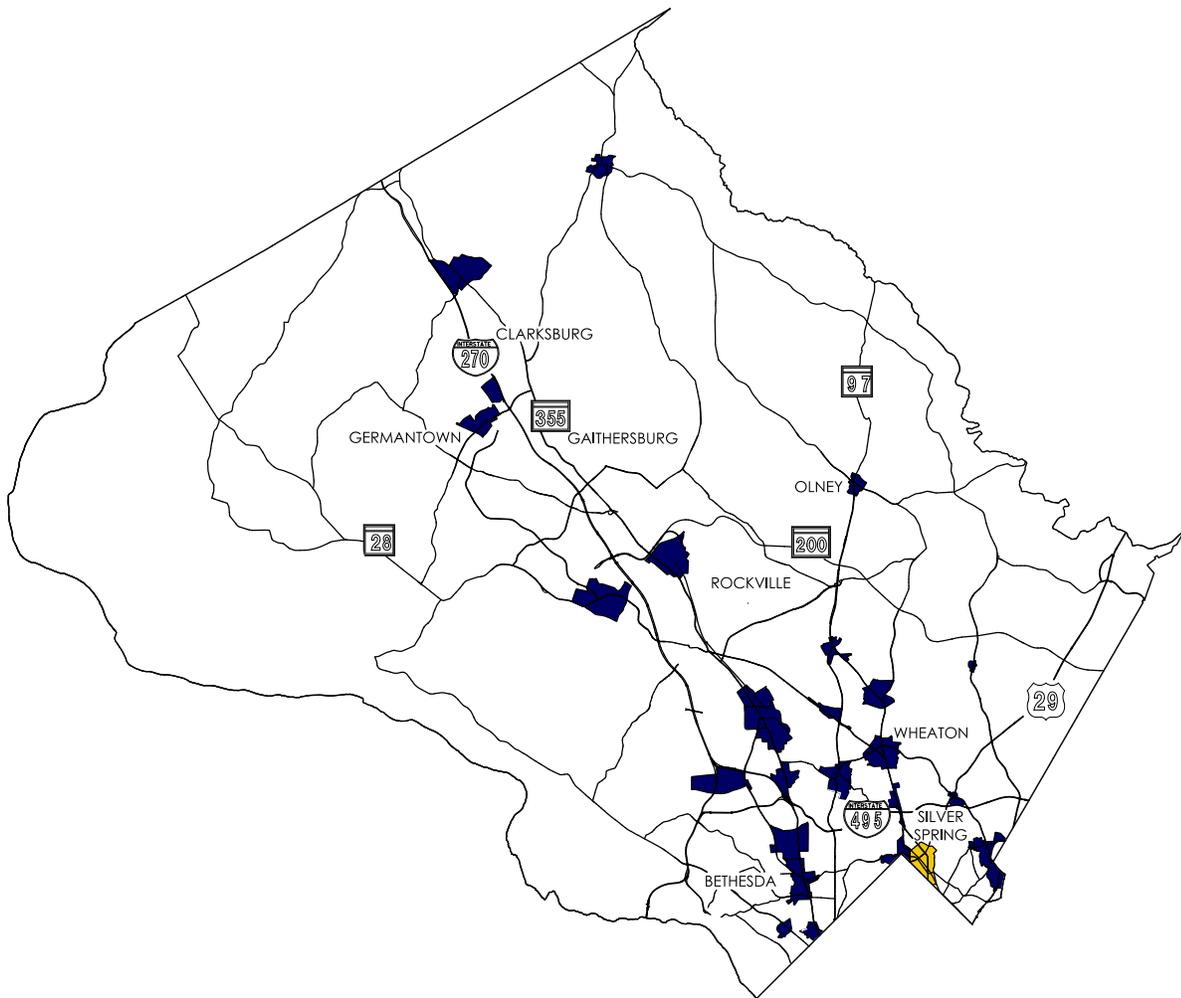
This report was prepared specifically for the Silver Spring Central Business District (CBD) BiPPA based on the collaboration of agency officials, community stakeholders, planners, engineers, and GIS specialists. An initial summary of master plan recommendations was established by the design team, followed by field investigations, and the development of this report. All state, county, and municipal rights of way were included in the study. Recommendations were then prioritized based on benefits, impacts, timeframe, and cost.

Generally, improvements were evaluated based on three primary factors: priority, timeframe, and cost. Priority is based on the ratio of benefits to impacts. Each improvement was assigned to a timeframe category: Short-term (1 – 2 years), Mid-term (2 – 5 years), Long-term (5+ years). Similarly, each improvement was assigned an order of magnitude cost ranging from less than \$10,000 to greater than \$5,000,000.

Please refer to Table 2 for a summary of recommended priority improvements listed.

Silver Spring CBD

Introduction



INTRODUCTION

Montgomery County is the most populous and one of the most diverse counties in Maryland. Its population exceeds one million residents and continues to grow. With such a large population, the Montgomery County Department of Transportation must address the varied transportation needs of all its residents, which is why BiPPA was created. The Montgomery County Department of Transportation considers bicycle and pedestrian facilities a critical component in the County's transportation infrastructure network. Bicycling and walking facilities provide a wide range of benefits to individuals, their communities, and the surrounding environment.

In urban areas, there are traditionally higher percentages of people of color, people with low income, and seniors – all are residents that put a greater share of their budget toward transportation. In such areas, walking and bicycling are among the most affordable forms of transportation. Therefore, providing safe, convenient, and attractive bicycle and pedestrian access – along with modernizing existing aging infrastructure – is essential to ensure equity for all transportation users and their access to jobs, public services, and social network.

Collectively, the development of improved bicycle and pedestrian facilities can help decrease traffic congestion, air pollution, and enhance quality of life.

The goals of bicycle and pedestrian priority improvements are to engage the surrounding community for feedback to identify and develop recommendations for the area. These recommendations include upgrading aging infrastructure, improving safety, and improving long-range connectivity and circulation. This report provides recommendations for the design and construction of bicycle and pedestrian improvements within the bicycle and pedestrian priority areas that enhance and promote accessibility, safety, mobility, and comfort for bicyclists and pedestrians as voiced by the public and county.



STUDY AREA – SILVER SPRING CBD

In 2013, the Silver Spring CBD Bicycle and Pedestrian Priority Area (BiPPA) was designated by the M-NCPPC in accordance with Section 2-604 of the Annotated Code of Maryland which delegates this responsibility to local jurisdictions. The 1.7 square mile area is centered on the Silver Spring Metro-Rail station and is enclosed by Eastern Avenue to the south; Spring Street (CO 598) and Cedar Street to the north; Fenton Street (CO 629) to the east; and MD 390 (16th Street) to the west. The major roadways that bisect the area are MD 384/US 29 (Colesville Road), MD 97/US 29 (Georgia Avenue) and MD 410 (East-West Highway).

The broader Silver Spring area is an unincorporated community in Montgomery County, Maryland, typically associated with Washington Metro-Rail System's Red Line Silver Spring Station. The Silver Spring rail station/bus terminal is the busiest in the entire Washington Metro Area serving nearly 60,000 passengers a day. Based on the 2010 census, Silver Spring's population is estimated at 71,452 within a 7.92 square mile land area. The Silver Spring CBD is a major business hub for the state of Maryland. The area is characterized by its commercial and residential areas. The commercial areas consist of high-rise office buildings, entertainment, shopping, and dining. The residential areas consist of urban row housing, low-rise high-density housing, and mixed use high density housing.

Some of the major attractions to the Silver Spring CBD are The Fillmore Silver Spring, AFI Silver Theatre and Cultural Center, Silver Spring Outdoor Ice Skating Rink, and Downtown Silver Spring located on Georgia Avenue. Downtown Silver Spring consists of several restaurants and upscale retailers. There are also year round activities including concerts, arts & crafts, cultural festivals, and a farmers market. The Silver Spring Transit Center, MARC Service, and proposed Purple Line are also located in the Silver Spring BiPPA. The newly constructed Silver Spring Library had its grand opening on June 20, 2015 and is located at the corner of Wayne Avenue and Fenton Street. A portion of the Montgomery College Takoma Park/Silver Spring campus also lies in the eastern section of the BiPPA boundary.

Sidewalk connectivity throughout the area is relatively good. From the field investigation there were no roadways observed without sidewalks but it was found that some of the minor roadways had narrow sidewalks with utility poles obstructing the walkway. On-street parking is common along the roadways and the majority of parking in the Silver Spring BiPPA is metered. Parking on the major roadways is only allowed during off-peak hours. There are a total of nine public parking garages and seven public parking lots in the Silver Spring BiPPA with over 10,000 parking spaces.

There are heavy traffic volumes in the peak hour and direction along MD 97, MD 384, MD 390, MD 410, US 29, 2nd/Wayne Avenue, and Fenton Street. MD 410 is a heavily traveled roadway that connects Silver Spring to Bethesda, Maryland. MD 97 starts in Silver Spring, MD and runs 55.27 miles north to the Pennsylvania border. US 29 connects Silver Spring to Baltimore, MD and runs parallel to I-95 from I-495 (Capital Beltway) to I-70. From Georgia Avenue to Sligo Creek Parkway, US 29 has reversible lanes to accommodate rush hour traffic. During peak hours there are four available lanes in the peak direction and two lanes available in the non-peak direction.



- Metro Station
- BiPPA Boundary

Figure 1 – Silver Spring CBD Bicycle and Pedestrian Priority Area





2ND/WAYNE AVENUE CORRIDOR

2nd/Wayne Avenue is a MCDOT-maintained roadway through the Silver Spring CBD BiPPA, oriented primarily in an east-west direction with a posted speed limit of 30 MPH. 2nd Avenue is a three-lane undivided roadway from Spring Street to Fenwick Road with on-street parking on both sides. 2nd Avenue is a four-lane undivided roadway from Fenwick Lane to Cameron Street/Apple Avenue with sharrow markings on both sides of the roadway. 2nd Avenue is a 4-lane divided roadway from Cameron Street/Apple Avenue to MD 384 with sharrow markings on both sides of the roadway. There is also a shared-use path, Silver Spring Green Trail, along this section of 2nd Avenue on the westbound side that is part of the Georgetown Branch of the Capital Crescent Trail. Wayne Avenue is a 4-lane divided roadway from MD 384 to approximately 290-feet east of Georgia Avenue. There is a shared-use path along the westbound side of Wayne Avenue that is part of the Silver Spring Green Trail. Wayne Avenue is a 4-lane undivided roadway from approximately 290-feet east of Georgia Avenue to Fenton Street. There is a shared-use path along the westbound side of Wayne Avenue that is part of the Silver Spring Green Trail. Overhead utilities are along the both sides of 2nd Avenue from Spring Street to Fenwick Lane. Street lighting is provided by cobra-head luminaires mounted existing utility poles where utility poles exist and luminaires mounted on pendant poles elsewhere.

16TH STREET (MD 390) CORRIDOR

16th Street (MD 390) is a SHA-maintained, north-south roadway through the Silver Spring CBD BiPPA. MD 390 has a posted speed limit of 30 MPH and is a 6-lane divided roadway from Eastern Avenue to Spring Street. MD 390 is a closed section and is classified by the SHA as an Urban Other Principal Arterial on the primary state system. There are existing sidewalks on the both sides of the roadway and the median is also planted with trees and grass. From Eastern Avenue to MD 410 there are poor accessibility and ADA issues for the sidewalks. There is a steep elevation change from the roadway to the residential units on both sides of the roadway which require stairs instead of ramps to go from the on-street parking spaces to the adjacent sidewalks. Also, at the Southeastern corner of the intersection there is a stair case instead of a curb ramp to enter the crosswalk. There are overhead utilities along both sides of MD 390. Street lighting is provided by cobra-head luminaires mounted to existing utility poles. The AADT on 16th Street at Eastern Avenue is 39,220.

COLESVILLE ROAD (MD 384/US 29) CORRIDOR

Colesville Road (MD 384/US 29) is an SHA-maintained, north-south roadway through the Silver Spring CBD BiPPA. A small portion of Colesville Rd is designated as MD 384. This section is a 6-lane, divided roadway with a posted speed limit of 30 MPH from Eastern Avenue to Georgia Avenue (MD 97/US 29). At Georgia Avenue, Colesville Rd is designated as US 29, a 6 lane undivided roadway, with 2 reversible lanes during the peak hours and a posted speed limit of 30 MPH from Georgia Avenue to Spring Street. MD 384/US 29 is a closed section and is classified by the SHA as an Urban Other Principal Arterial on the primary state system. There are existing

sidewalks with tree panels along both sides of the roadway. The median is also planted with trees and grass from MD 410 to Eastern Avenue. Utility lines are underground from MD 410 to Spring Street and there are overhead utilities on both sides of the street from Eastern Avenue to MD 410. Lighting is provided for the roadway and sidewalk teardrop luminaries mounted on pendant poles. The AADT for the section of US 29 in the BiPPA boundary ranges from 15,000 at eastern avenue to 33,000 at MD 97.

EAST-WEST HIGHWAY (MD 410) CORRIDOR

East-West Highway (MD 410) is a SHA-maintained, east-west roadway through the Silver Spring CBD BiPPA. MD 410 has a posted speed limit of 30 MPH and is a 6-lane divided roadway from MD 390 to Draper Lane and is a 4-lane undivided roadway from Draper Lane to Fenton Street. MD 410 has a closed section and is classified by the SHA as an Urban Other Principal Arterial on the secondary state system. There are existing sidewalks on both sides of the roadway; the median is also planted with trees and grass. There is also an existing shared-use path on the westbound side of MD 410 from US 29 to approximately 150 feet west of the intersection with MD 384. There are overhead utilities along the westbound side of MD 410 from MD 384 to MD 390 and on the eastbound side from MD 384 to Fenton Street. Street lighting is provided by cobra-head luminaries mounted to existing utility poles where utility poles exist and teardrop luminaries mounted on pendant poles elsewhere. The AADT on MD 410 at MD 390 is 24,202.

FENTON STREET CORRIDOR

Fenton Street is a MCDOT-maintained roadway through the Silver Spring CBD BiPPA, oriented primarily in a north-south direction with a posted speed limit of 25 MPH. Fenton Street is a three-lane roadway with two through lanes and one center turn lane. It is an undivided closed section roadway from the southern BiPPA Boundary to Wayne Avenue with on-street parking on both sides that is enhanced by bulb-outs at the intersections. From Wayne Avenue to Cameron Street, Fenton Street is a 4 lane, undivided closed section roadway. There are overhead utilities on Fenton Street from the BiPPA boundary to King Street along the northbound side, from Sligo Avenue to Bonifant Street along the southbound side, and from Bonifant Street to Wayne Avenue on the northbound side. Existing street lighting is provided by teardrop luminaries mounted on pedant poles on both sides of Fenton Street.

GEORGIA AVENUE (MD 97/US 29) CORRIDOR

Georgia Avenue (MD 97/US 29) is a SHA-maintained, north-south roadway through the Silver Spring CBD BiPPA. From Eastern Avenue to Colesville Road, Georgia Avenue is US 29. It has a posted speed limit of 30 MPH and is a 6-lane undivided roadway from Eastern Avenue to MD 410 is a 6 lane divided roadway from MD 410 to Colesville Road. From Colesville Road to Spring Street, Georgia Avenue is designated as MD 97. It has a posted speed limit of 30 MPH and is a 6-lane divided roadway. Georgia Avenue (MD 97/US 29) is a closed section and is classified by the SHA as an Urban Other Principal Arterial on the secondary state system. There are existing



sidewalks on both sides of the roadway; the median is also planted with trees and grass from Fidler Lane to Wayne Avenue and also where sufficient median width is provided. Utilities are located underground from Eastern Avenue to Sligo Avenue and from Silver Spring Avenue to Spring Street. There are overhead utilities from Sligo Avenue to Silver Spring Avenue along the southbound side of Georgia Avenue. Street lighting is provided by teardrop luminaries mounted on pendant poles along both sides of Georgia Avenue. The AADT for this corridor is 33,360 at Colesville Road.

SPRING/CEDAR STREET CORRIDOR

Spring/Cedar Street is a MCDOT-maintained roadway through the Silver Spring CBD BiPPA, oriented primarily in an east-west direction with a posted speed limit of 30 MPH. Spring Street is a two lane divided roadway from MD 390 to Fairview Rd with on-street parking on both sides. Spring Street is a two-lane undivided roadway from Fairview Road to Cameron Street with on-street parking on both sides. Spring Street is a 4-lane undivided roadway from Cameroon Street to Roeder Road. Spring Street is a 4-lane divided roadway from Roeder Road to Ellsworth Drive. Cedar Street is a 4-lane undivided roadway from Ellsworth Drive to Pershing Drive. Cedar Street is a two-lane undivided roadway from Pershing Drive to Wayne Avenue with on-street parking on both sides. Overhead utilities are along the westbound side on Spring/Cedar Street from Wayne Avenue to Roeder Street and both sides of Spring Street from Alton Parkway to MD 390.

The following is summary of existing major roadways within the Silver Spring CBD BiPPA:

Roadway	From	To	AADT as of 2013	Posted Speed Limit	Classification	Owner
16 th Street (MD 390)	Eastern Avenue (South)	Spring Street (North)	31,930 @ Eastern Avenue 39,220 @ MD 410	350 MPH	Urban Other Principal Arterial	SHA
2 nd Avenue (CO1300)	Spring Street (West)	MD 384 (East)	-	30 MPH	Urban Arterial Road (MC-2004.03)	MCDOT
Bonifant Street (CO 668/7683)	Silver Spring Transit Center (West)	CBD Boundary (East)	-	25 MPH	Primary Residential (Mod 2002.3Business District Street (MC-2005.02)	MCDOT
Cameron Street (CO 600)	2 nd Avenue (West)	Spring Street (East)	-	25 MPH	Secondary Residential Street (MC-2002.03)	MCDOT

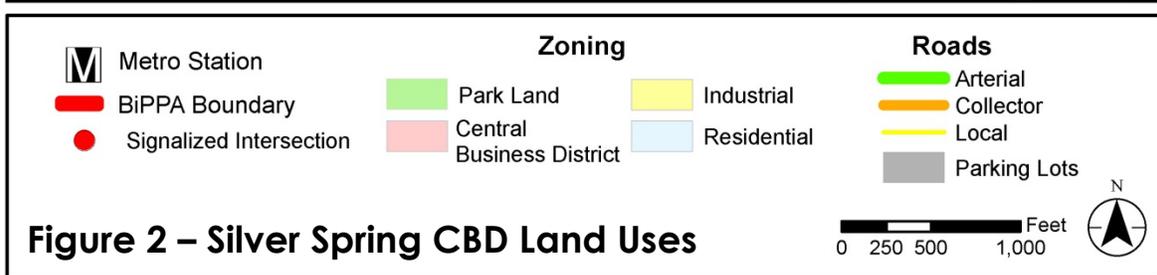
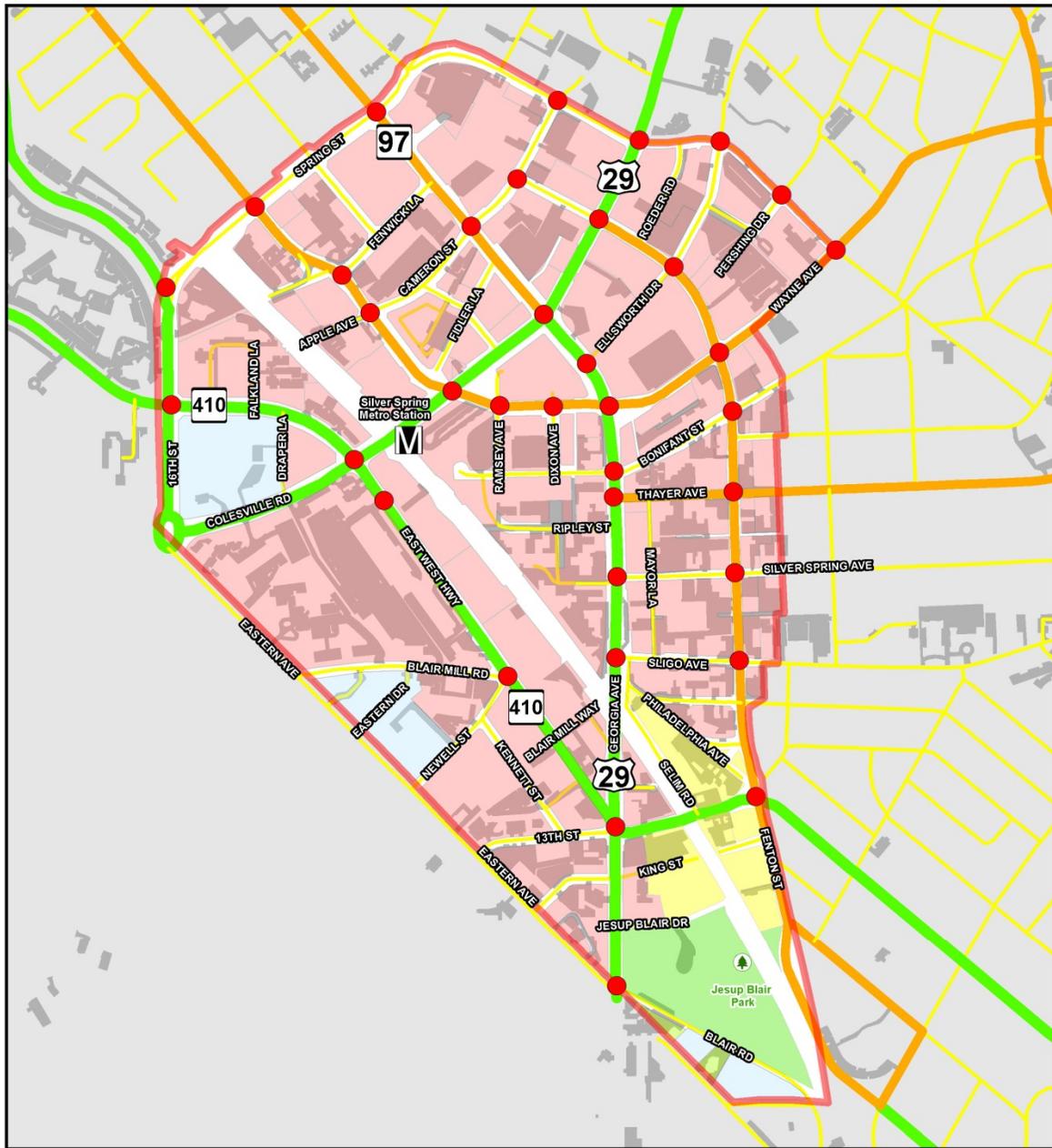
Table 1 – Existing Roadway Summary

Roadway	From	To	AADT as of 2013	Posted Speed Limit	Classification	Owner
Cedar Street	Ellsworth Drive (West)	Wayne Avenue (East)	-	30 MPH	Suburban Divided Arterial Road (MC-2004.09SB)	MCDOT
Colesville Road (MD 384/US 29)	Eastern Avenue (South)	Spring Street (North)	15,032 @ Eastern Avenue 29,012 @ MD 410 33,360 @ MD 97	30 MPH	Urban Other Principal Arterial	SHA
East -West Highway (MD 410)	MD 390 (West)	Fenton Street (East)	24,202 @ MD 390 24,202 @ W. Falkland Lane 12,832 @ US 29 12,832 @ Selim Road	30 MPH	Urban Other Principal Arterial	SHA
Ellsworth Drive (CO 684)	US 29 (South)	Spring/Cedar Street (North)	-	25 MPH	Primary Residential (Mod 2002.3) Urban Minor Arterial (MC-2004.19)	MCDOT
Fenton Street (CO 629)	CBD Boundary (South)	Cameron Street (North)	-	25 MPH	Secondary Residential Street (MC-2002.03)	MCDOT
Georgia Avenue (MD 97/US 29)	Eastern Avenue (South)	Spring Street (North)	30,480 @ Eastern Avenue 37,560 @ MD 410 37,560 @ Bonifant Street 33,360 @ MD 384 34,071 @ Spring Street	30 MPH	Urban Other Principal Arterial	SHA



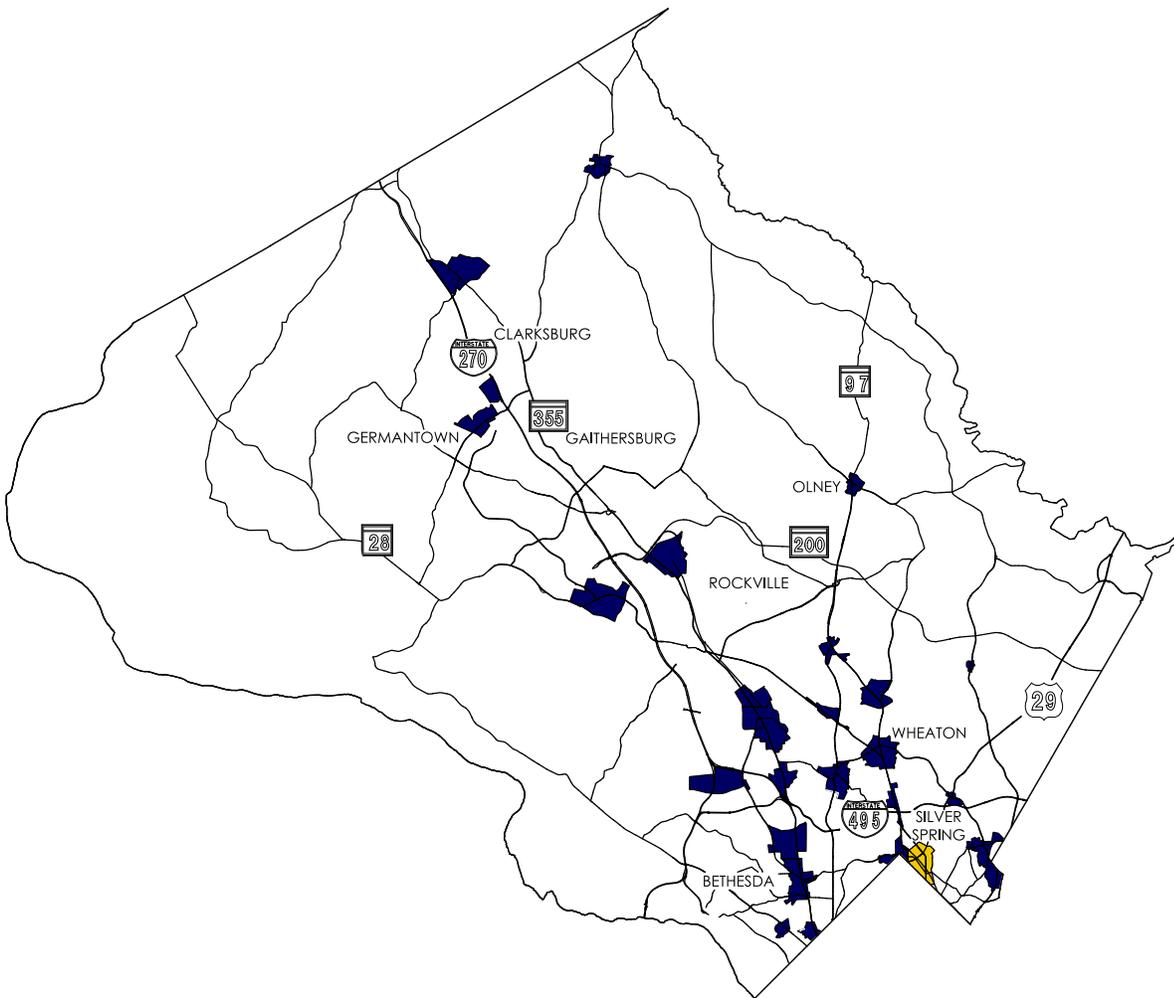
Table 1 – Existing Roadway Summary

Roadway	From	To	AADT as of 2013	Posted Speed Limit	Classification	Owner
Silver Spring Avenue (CO 637)	US 29 (West)	CBD Boundary (East)	-	25 MPH	Business District Street (MC-2005.02)	MCDOT
Sligo Avenue (CO 4592)	US 29 (West)	CBD Boundary (East)	-	25 MPH	Business District Street (MC-2005.02)	MCDOT
Spring Street (CO 598)	MD 390 (West)	Ellsworth Drive (East)	-	30 MPH	Suburban Divided Arterial Road (MC-2004.09AB)	MCDOT
Thayer Avenue (CO 636)	US 29 (West)	CBD Boundary (East)	-	25 MPH	Business District Street (MC-2005.02)	MCDOT
Wayne Avenue (CO 668)	MD 384 (West)	Cedar Street (East)	-	30 MPH	Urban Arterial Road (MC-2004.03)	MCDOT



Silver Spring CBD

Master Plan Recommendations, Other Studies, and Planned Projects





MASTER PLAN RECOMMENDATIONS, OTHER STUDIES, AND PLANNED PROJECTS

MASTER PLAN RECOMMENDATIONS

Countywide Transit Corridors Functional Master Plan (December 2013)

The Countywide Transit Corridors Functional Master Plan recommends implementation of a Bus Rapid Transit (BRT) system, with dedicated transit lanes and signal priority, throughout Montgomery County. The proposed Georgia Avenue South and US 29 corridors would pass through the Silver Spring CBD BiPPA. The proposed Georgia Avenue South corridor would run through the Silver Spring CBD BiPPA and terminate when Georgia Avenue meets Eastern Avenue (see figure 3 below). Stations are proposed for MD 97/Cameron Street; the Silver Spring Transit Center; MD 97/East-West Highway; and MD 97 and Eastern Avenue/Burlington Avenue/Montgomery College – Silver Spring/Takoma Park Campus. The US 29 corridor would run through Silver Spring along Colesville Road and terminate where Colesville Road meets Eastern Avenue (see figure 3 below). Stations are proposed for US 29/Fenton Street and the Silver Spring Transit Center. The master plan also recommends overall pedestrian safety, accessibility, and mobility recommendations along the proposed BRT routes. The recommendations from the master plan are listed in Table 2 below.

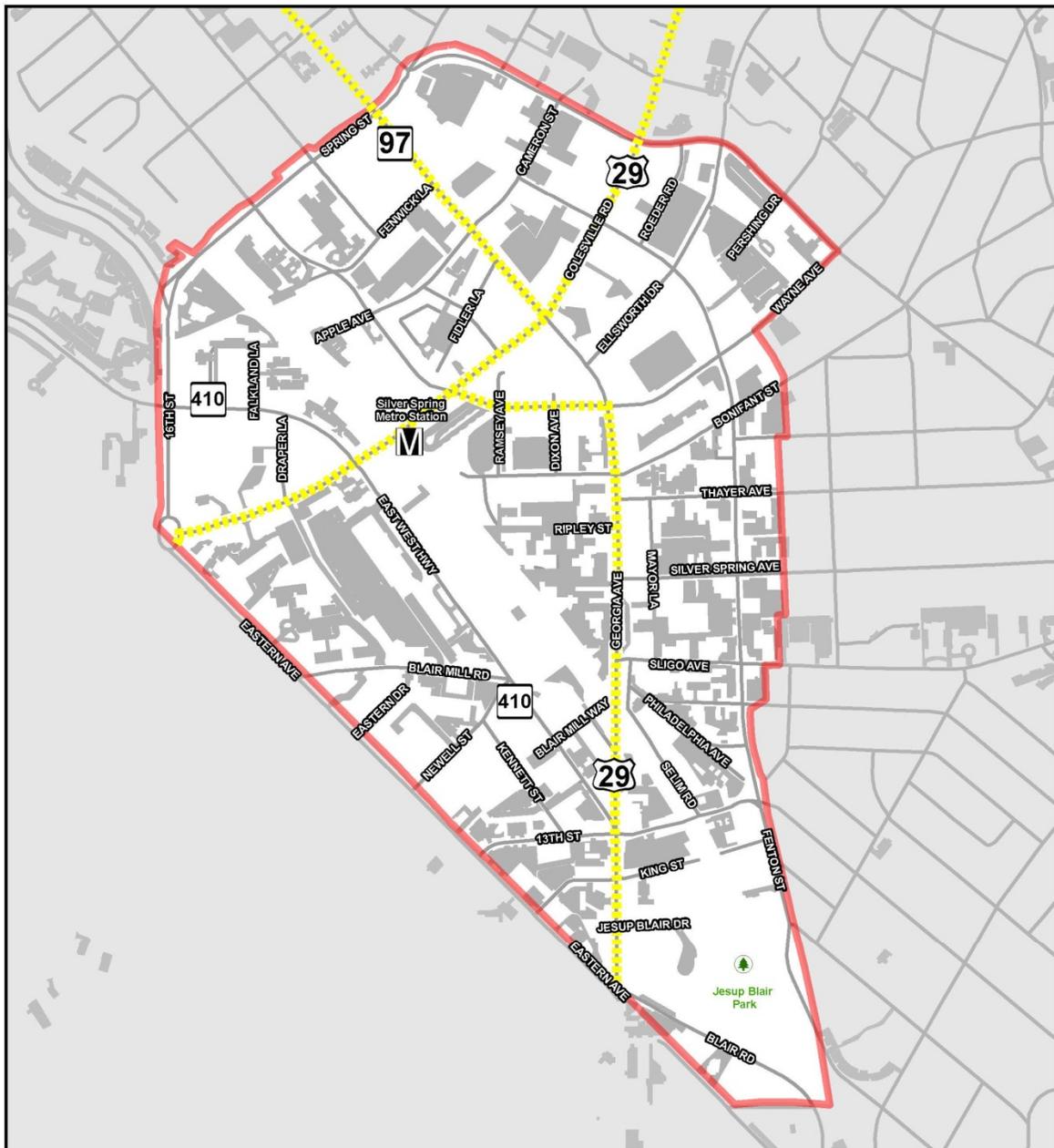
Countywide Bikeways Functional Master Plan (March 2005)

According to the Countywide Bikeways Functional Master Plan (March 2005), the following routes are either designated as existing or proposed bicycle facilities through the Silver Spring CBD BiPPA:

1. WMATA Tracks (MD 97) – Construct Shared Use Path, Proposed
2. East-West Highway (MD 410) – Construct Shared Use Path, Existing
3. Wayne/2nd Avenue – Shared Use Path, Existing

Silver Spring CBD and Vicinity Sector Plan (March 2001)

The M-NCPPC Silver Spring and Vicinity Sector Plan recommended designating the Silver Spring area as a bicycle and pedestrian priority area. The plan provides recommendations for pedestrian circulation and the bikeway network. Table 2, below, provides a summary of these recommendations.



- Metro Station
- BiPPA Boundary
- BRT Route



Figure 3 – Planned Bus Rapid Transit Routes

OTHER STUDIES

WMATA Capital Improvement Plan 2012-2017

The WMATA Capital Improvement Plan 2012-2017 is focused on improving access, safety, and mobility around the Silver Spring Metro station. The recommendations from this report are listed in the table below.

Georgia Avenue (MD 97) Pedestrian Road Safety Audit (May 2011)

The Georgia Avenue Pedestrian Road Safety Audit is focused on improving pedestrian access, safety, and mobility along the MD 97/US 29 roadways. The recommendations from this report are listed in the table below.

Colesville Road Pedestrian Road Safety Audit (October 2012)

The Colesville Road Pedestrian Road Safety Audit is focused on improving pedestrian access, safety, mobility along the MD 384/US 29 roadway. The recommendations from this report are listed in the table below.

PLANNED PROJECTS

Fenton Street

The Montgomery County Department of Transportation is currently progressing design for improvements along Fenton Street from Cameron Street to Wayne Street. This project will include pavement resurfacing, ADA upgrades, and pedestrian safety enhancements.

East-West Highway (MD 410)

The State Highway Administration is currently constructing improvements along East-West Highway from Colesville Road to Blair Mill Road. This project includes resurfacing, ADA upgrades, and mid-block crossings with median refuge.

Purple Line

The proposed purple line would be a light rail transit system that connects Bethesda with New Carrollton. The proposed purple line is along the existing CSX tracks from Spring Street to the Silver Spring transit center and would be on-road from the Silver Spring Transit Center to the CBD boundary. The on road section would be on Bonifant Street from the Silver Spring Transit Center to Fenton Street and on Wayne Avenue from Fenton Street to the CBD boundary.

Metro Branch Trail

The proposed Metro Trail, part of the Capital Crescent Trail, will follow Fenton Street from the CBD boundary to King Street; King Street from Fenton Street to the CSX tracks; and the CSX tracks from King Street to the northern CBD boundary. This trail would be a 10 foot wide shared use path.

Table 2 – Summary of Master Plan Recommendations					
Item No	Corridor	Jurisdiction	Improvement Type	Description	Reference
1	13th Street/ Burlington Avenue	MdSHA/Montgomery County	Bicycle	Off road/class I bikeway from Eastern Avenue to Fenton Street	Silver Spring CBD and Vicinity Sector Plan (March 2001)
2	2 nd Avenue	Montgomery County	Bicycle	On road bikeway from northern CBD boundary to Fenwick Lane	Silver Spring CBD and Vicinity Sector Plan (March 2001)
3	2 nd /Wayne Avenue	Montgomery County	Bicycle	Create a sharrow on 2 nd /Wayne Avenue between Spring Street to Fenton Street	2012-2017 WMATA CIP
4	2 nd /Wayne Avenue	Montgomery County	Shared Use Path	Construct a shared use path 2 nd /Wayne Avenue from Spring Street to Cedar Street (Part of larger system)	Countywide Bikeways Functional Master Plan
5	Area Wide	MdSHA/Montgomery County	Sidewalk	Improve sidewalks to have a minimum width of 6' along BRT's	Countywide Transit Corridors Functional Master Plan
6	Area Wide	MdSHA/Montgomery County	Curb Ramp; Sidewalk	Construct landscape buffers of sufficient width to achieve sidewalks and handicap ramps that meet ADA best practices along BRT's	Countywide Transit Corridors Functional Master Plan
7	Area Wide	MdSHA/Montgomery County	Bicycle	Construct 5.5' wide bike lanes along Colesville Road (US 29/MD 384), 16th Street (MD 390), Georgia Avenue (US 29/MD 97), East West Highway (MD 410) and 2 nd /Wayne Avenue	Countywide Transit Corridors Functional Master Plan
8	Bonifant Street	Montgomery County	Bicycle	On road bikeway from Cedar Street to Capital Crescent/Metro Branch Trail	Silver Spring CBD and Vicinity Sector Plan (March 2001)
9	Cameron Street/ Apple Street	Montgomery County	Bicycle	On road bikeway from Capital Crescent/Metro Branch Trail to Spring Street	Silver Spring CBD and Vicinity Sector Plan (March 2001)
10	Capital Crescent Trail/Metro Branch	Montgomery County	Shared Use Path	Construct a shared use path along the WMATA tracks (Part of larger system), Metro Branch Trail	Countywide Bikeways Functional Master Plan
11	Capital Crescent Trail/Metro Branch	Montgomery County	Bicycle	Off road/class I bikeway Spring Street to King Street, on King Street from Rail line to Fenton Street, and on Fenton Street from King Street to CBD boundary	Silver Spring CBD and Vicinity Sector Plan (March 2001)
12	Colesville Road (MD 384)	MdSHA	Bicycle	Construct on demand bicycle lockers on the NE corner of Colesville Road (MD 384) and Wayne Avenue near the existing lockers	2012-2017 WMATA CIP
13	Colesville Road (MD 384)	MdSHA	Bicycle	Construct inverted U bicycle parking along NB Colesville Road (MD 384) under the WMATA tracks	2012-2017 WMATA CIP
14	Colesville Road (MD 384)	MdSHA	Bicycle	Construct inverted U bicycle parking along SB Colesville Road (MD 384) under the WMATA tracks	2012-2017 WMATA CIP

Table 2 – Summary of Master Plan Recommendations

Item No	Corridor	Jurisdiction	Improvement Type	Description	Reference
15	Colesville Road (MD 384)	MdSHA	Bicycle	Construct a bicycle sharing program parking along NB Colesville Road (MD 384) under the WMATA tracks	2012-2017 WMATA CIP
16	Colesville Road (US 29/MD 384)	MdSHA	Bicycle	Create a sharrow on Colesville Road (US 29/MD 384) between Spring Street and 16th Street (MD 390)	2012-2017 WMATA CIP
17	Colesville Road (US 29)	MdSHA	Bicycle	Dedicated bicycle parking facilities should be installed along Colesville Road (US 29)	Colesville Road Pedestrian Road Safety Audit
18	Colesville Road (US 29)	MdSHA	Intersection	Use diagonal crosswalk markings on all crosswalks to increase visibility	Colesville Road Pedestrian Road Safety Audit
19	Colesville Road (US 29)	MdSHA	Intersection	Modify pedestrian signal timings to synchronize pedestrian phase with concurrent vehicle phases	Colesville Road Pedestrian Road Safety Audit
20	Colesville Road (US 29)	MdSHA	Signing	Install R1-5b signs 'Stop Here for Pedestrians' at all crosswalks	Colesville Road Pedestrian Road Safety Audit
21	Colesville Road (US 29)	MdSHA	Signing	Install 'Right or Left Turn Yield to Pedestrians' where appropriate at crosswalks	Colesville Road Pedestrian Road Safety Audit
22	Colesville Road (US 29)	MdSHA	Maintenance	Replace non-functioning pedestrian push-buttons	Colesville Road Pedestrian Road Safety Audit
23	Colesville Road (US 29)	MdSHA	Sidewalk	Remove planters, newspaper dispensers and other impermanent objects from the sidewalk to improve conditions for pedestrians	Colesville Road Pedestrian Road Safety Audit
24	Colesville Road (US 29)	MdSHA	Curb Ramp	Install detectable warning surfaces on all pedestrian ramps that are missing detectable warning surfaces	Colesville Road Pedestrian Road Safety Audit
25	Colesville Road (US 29)	MdSHA	Sidewalk	Remove unnecessary curb cuts	Colesville Road Pedestrian Road Safety Audit
26	Colesville Road (US 29)	MdSHA	Maintenance	Remove soil, grass and vegetation encroaching on the sidewalk	Colesville Road Pedestrian Road Safety Audit
27	Colesville Road (US 29)	MdSHA	Curb Ramp	Replace sidewalk ramps that are not ADA compliant	Colesville Road Pedestrian Road Safety Audit
28	Colesville Road (US 29)	MdSHA	Pedestrian Lighting	Replace non-functioning street lighting	Colesville Road Pedestrian Road Safety Audit
29	Colesville Road (US 29)	MdSHA	Sidewalk	Remove hardware protruding onto sidewalk that may cause tripping hazards	Colesville Road Pedestrian Road Safety Audit

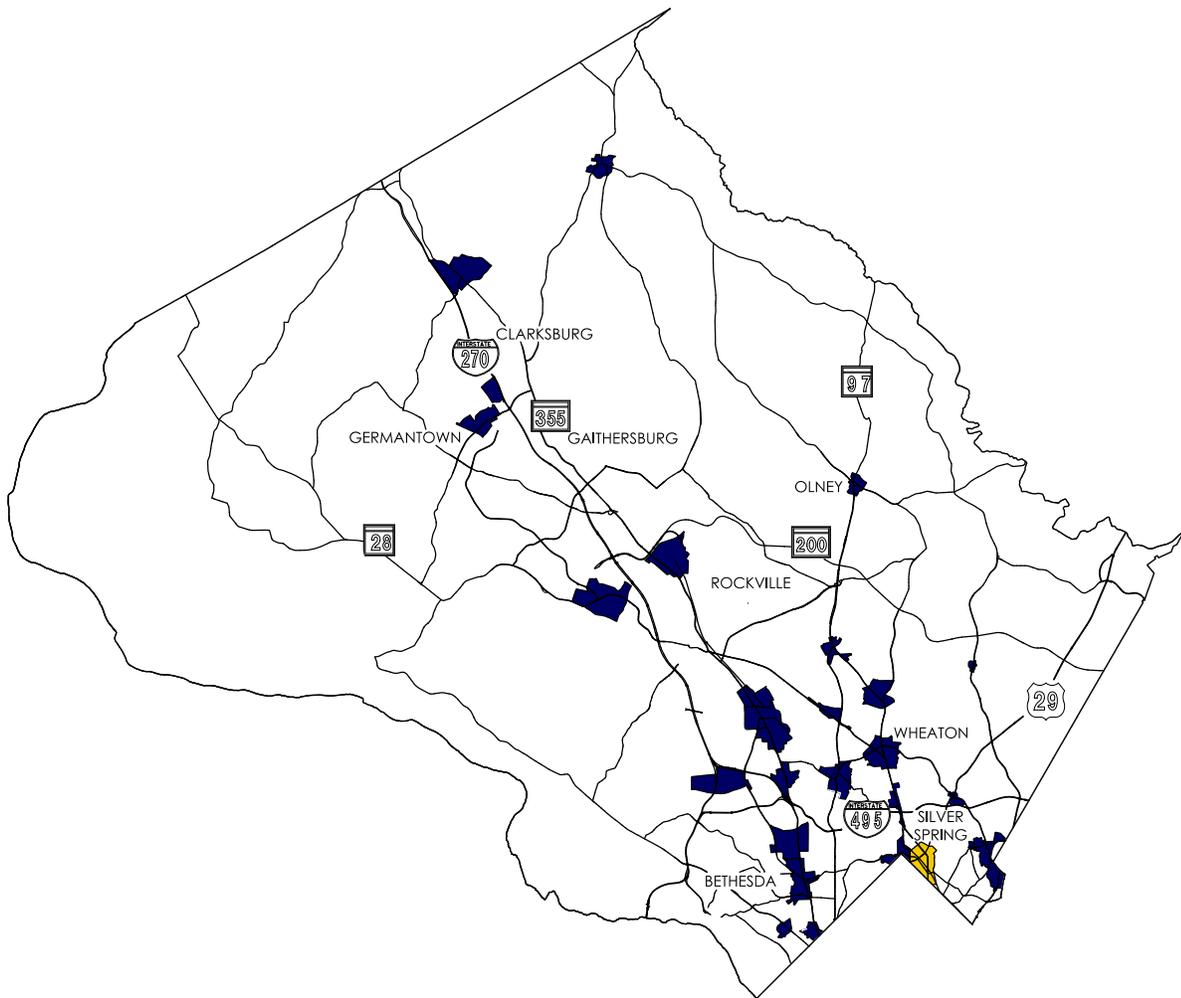
Table 2 – Summary of Master Plan Recommendations					
Item No	Corridor	Jurisdiction	Improvement Type	Description	Reference
30	Colesville Road (US 29)	MdSHA	Intersection	Conduct a pedestrian LOS to determine if additional WALK or Flashing Don't Walk time is need for each pedestrian phase	Colesville Road Pedestrian Road Safety Audit
31	Colesville Road (US 29)	MdSHA	Intersection	Modify E/P left turns to exclusive to limit the potential of left-turn pedestrian crashes	Colesville Road Pedestrian Road Safety Audit
32	Colesville Road (US 29)	MdSHA	Intersection; Sidewalk	Move traffic control cabinets sidewalks or consider widening sidewalks at intersections	Colesville Road Pedestrian Road Safety Audit
33	Colesville Road (MD 384)	MdSHA	Bicycle	Off road/class I bikeway from 2 nd /Wayne Avenue to CBD boundary	Silver Spring CBD and Vicinity Sector Plan (March 2001)
34	Dixon Avenue	Montgomery County	Bicycle	Off road/class I bikeway from Wayne Avenue to Silver Spring Avenue	Silver Spring CBD and Vicinity Sector Plan (March 2001)
35	Draper Lane extended Blair Mill Road	Montgomery County	Bicycle	On road bikeway from Colesville Road (MD 384) to East-West Highway (MD 410)	Silver Spring CBD and Vicinity Sector Plan (March 2001)
36	East-West Highway (MD 410)	MdSHA	Curb Ramp; APS/CPS	Reconstruct the intersection of East-West Highway (MD 410) and the shopping center east of Colesville Rd (MD 384) to provide APS/CPS signals and ADA compliant curb ramps	2012-2017 WMATA CIP
37	East-West Highway (MD 410)	MdSHA	Shared Use Path	Construct a shared used path on East-West Highway(MD 410) between Georgia Avenue (US 29) and 16 th Street (MD 390) (Part of larger system)	Countywide Bikeways Functional Master Plan
38	East-West Highway (MD 410)	MdSHA	Bicycle	Off road/class I bikeway from 16 th Street (MD 390) to Georgia Avenue (US 29)	Silver Spring CBD and Vicinity Sector Plan (March 2001)
39	Fenton Street Connector	Montgomery County	Bicycle	On road bikeway from Cameron Street to Spring Street	Silver Spring CBD and Vicinity Sector Plan (March 2001)
40	Fenwick Lane	Montgomery County	Bicycle	On road bikeway from 2 nd Avenue to Capital Crescent/Metro Branch Trail	Silver Spring CBD and Vicinity Sector Plan (March 2001)
41	Georgia Avenue (MD 97/US 29)	MdSHA	Sidewalk	Construct a grass buffer between the roadway and the sidewalk	Colesville Road Pedestrian Road Safety Audit
42	Georgia Avenue (MD 97/US 29)	MdSHA	Safety	Restrict right turn on red at signals	Georgia Avenue (MD 97) Pedestrian Road Safety Audit
43	Georgia Avenue (MD 97/US 29)	MdSHA	Intersection	Modify E/P left turns to Exclusive to limit the potential of left-turn pedestrian crashes	Georgia Avenue (MD 97) Pedestrian Road Safety Audit
44	Georgia Avenue (MD 97/US 29)	MdSHA	Curb Extension	Install curb extensions at the signals	Georgia Avenue (MD 97) Pedestrian Road Safety Audit

Table 2 – Summary of Master Plan Recommendations

Item No	Corridor	Jurisdiction	Improvement Type	Description	Reference
45	Georgia Avenue (MD 97/US 29)	MdSHA	Intersection	Upgrade all crosswalks to MdSHA standards	Georgia Avenue (MD 97) Pedestrian Road Safety Audit
46	Georgia Avenue (MD 97/US 29)	MdSHA	Intersection	Conduct a pedestrian LOS to determine if additional WALK or Flashing Don't Walk time is need for each pedestrian phase	Georgia Avenue (MD 97) Pedestrian Road Safety Audit
47	Georgia Avenue (MD 97/US 29)	MdSHA	APS/CPS	Install APS/CPS at all signals	Georgia Avenue (MD 97) Pedestrian Road Safety Audit
48	Georgia Avenue (MD 97/US 29)	MdSHA	Pedestrian Lighting	Improve the street lighting	Georgia Avenue (MD 97) Pedestrian Road Safety Audit
49	Jesup Blair Park	Montgomery County	Bicycle	Off Road/class I bikeway from Capital Crescent/Metro Branch Trail to Georgia Avenue (US 29)	Silver Spring CBD and Vicinity Sector Plan (March 2001)
50	Silver Spring Avenue	Montgomery County	Bicycle	On road bikeway from Georgia Avenue (US 29) to Grove Street	Silver Spring CBD and Vicinity Sector Plan (March 2001)
51	Silver Spring Green Trail	Montgomery County	Bicycle	Off road/class I bikeway on 2 nd /Wayne Avenue from Fenwick Lane to CBD boundary	Silver Spring CBD and Vicinity Sector Plan (March 2001)
52	Silver Spring Green Trail; Ellsworth Link	Montgomery County	Bicycle	Off road/class I bikeway on New Street, Ellsworth Drive and Cedar Street from Wayne Avenue at St. Michaels to CBD boundary	Silver Spring CBD and Vicinity Sector Plan (March 2001)
53	Silver Spring Metro Station	WMATA	Bicycle	Construct bicycle station at the Silver Spring Transit Center	2012-2017 WMATA CIP
54	Silver Spring Metro Station	WMATA	Bicycle	Construct 'Bike and Ride' station with cover on the SW corner of the WMATA tracks crossing Colesville Road (MD 384)	2012-2017 WMATA CIP
55	Silver Spring Metro Station	WMATA	Bicycle	Construct 'Bike and Ride' station with cover on the SE corner of the WMATA tracks crossing Colesville Road (MD 384)	2012-2017 WMATA CIP
56	Wayne/Ramsey Avenue	Montgomery County	Curb Ramp; APS/CPS	Reconstruct the intersection of Wayne Avenue and Ramsey Avenue to provide APS/CPS signals and ADA compliant curb ramps	2012-2017 WMATA CIP

Silver Spring CBD

Public Input



Public Input





PUBLIC/STAKEHOLDER INPUT

The public and stakeholders had a chance to voice their comments at two meetings held by Silver Spring. The first meeting was on February 22, 2015 at the Civic Center in Silver Spring, MD. The second meeting was on July 16, 2015 at the Silver Spring firehouse on Georgia Avenue in Silver Spring, MD. Also, Stantec received comments from the M-NCPPC in 2014-2015 with improvements that the county would like to implement. A summary of the comments from the public/stakeholder meetings and the M-NCPPC is shown in Table 3.

Table 3 - Summary of Public/Stakeholder Input Comments			
Item No	Corridor	Comment	Reference
1	2 nd Avenue from MD 384 to Cameron Street	Make this intersection a 'T' intersection with no slip ramps. Can this be a HAWK Signal?	Silver Spring Community Advisory Board Meeting
2	2 nd /Wayne Avenue	Please keep this pedestrian crossing across Colesville Road (MD 384) near the future transit center.	Silver Spring Community Advisory Board Meeting
3	2 nd /Wayne Avenue and MD 384	It is difficult to cross this intersection.	Silver Spring Community Advisory Board Meeting
4	Area Wide	Consider a road diet here.	Silver Spring Community Advisory Board Meeting
5	Area Wide	The traffic signal timing in these areas needs to be evaluated to see where additional time can be allotted to pedestrians. Beyond the potential for advance pedestrian timing, there is wasted time in some signals, such as at Georgia/Spring in Silver Spring where there is a split phase: the walk signal on the south leg operates with the WB movement, for which there is no dedicated left-turn phase, but it doesn't continue with the EB phase even though the only conflict is right-turning vehicles. At Cameron Street, the signalization might look okay on paper, but the reality at least at lunchtime is that there are often no NB vehicles approaching the intersection when the SB movement is stopped; pedestrians could possibly be given a protected crossing here.	M-NCPPC
6	Area Wide	There is a longstanding issue of people, including the police, not understanding where it is legal or illegal to cross in the Silver Spring CBD, although I'm sure this applies elsewhere also. MD Vehicle Law only prohibits pedestrians from crossing between two adjacent signalized intersections, so on some blocks you can cross anywhere and some you can only cross at signalized crosswalks. In addition to this being very confusing, it points up the need to have more protected crossings where we have high concentrations of pedestrians.	M-NCPPC
7	Area Wide	Rather than a general recommendation to improve lighting, I'd rather see an assessment of the adequacy of lighting per AASHTO standards, and since we're talking about areas where we have very high levels of pedestrian activity, more attention paid to the location of the light fixtures at intersections in relation to pedestrians who are crossing the street. Pedestrians who are front-lit are more visible to oncoming drivers because clothing colors and patterns can be discerned; backlit pedestrians only appear as silhouettes than have very little contrast against asphalt pavement.	M-NCPPC
8	Cedar Street and Wayne Avenue	Left turn signal is too long from 2nd Avenue; left onto Colesville Road. Could it be 10 seconds?	Silver Spring Community Advisory Board Meeting
9	Colesville Road	Need more crosswalks across MD 410 along this stretch of roadway.	Silver Spring Community Advisory Board Meeting
10	Ellsworth Drive and Fenton Street	Make Fenton Street a bike trail.	Silver Spring Community Advisory Board Meeting

Table 3 - Summary of Public/Stakeholder Input Comments

Item No	Corridor	Comment	Reference
11	Fenton Street	Make this intersection more pedestrian friendly.	Silver Spring Community Advisory Board Meeting
12	Fenton Street	Construct curb Extensions and traffic calming devices.	Silver Spring Community Advisory Board Meeting
13	Fenton Street and Silver Spring Avenue	Replace/Increase the width of the sidewalks.	Silver Spring Community Advisory Board Meeting
14	Fenton Street between the Green Trail and Ellsworth Drive	There is a long wait time for pedestrians at this intersection.	Silver Spring Community Advisory Board Meeting
15	Fenton Street/ Cameron Street	The entrance to the County garage opposite the northern end of Fenton Street on Cameron is far too wide. It has an unnecessary double entrance since the traffic pattern here changed years ago. The throat should be reduced in width and a better refuge/sidewalk area provided between the entrance and the exit driveway next to LA Fitness. The entrances/exits of garages should be evaluated on a general basis since they usually have pretty poor pedestrian accommodation.	M-NCPPC
16	Fenton Street/Bonifant Street/Thayer Avenue	Consider re-timing this intersection.	Silver Spring Community Advisory Board Meeting
17	Georgia Avenue (MD 97/US 29)	Colesville Road pedestrian signal timing is also applies to the Georgia Avenue/Spring Street intersection -- where the steady walk signal is on when conflicting [should be flashing walk] Spring Street westbound left turns are moving and the don't walk signal is on when it is equally safe to cross Georgia Avenue while the split-phased eastbound Spring Street vehicles has a green signal.	M-NCCCPC
18	MARC Train Tunnel	Continue the 3 lane road diet north from Ellsworth Drive to the end of Fenton Street at Cameron Street.	Silver Spring Community Advisory Board Meeting
19	MD 384 and 2 nd /Wayne Avenue	The brick sidewalk here is too slippery.	Silver Spring Community Advisory Board Meeting
20	MD 384 and MD 410	The utility poles here should be moved behind the sidewalk.	Silver Spring Community Advisory Board Meeting
21	MD 384 and Silver Spring Metro Station	Water collects here creating a drainage problem.	Silver Spring Community Advisory Board Meeting
22	MD 390 and Spring Street	This will need to be widened as the parking lot will be greatly utilized with the new library; sidewalks here are far too narrow.	Silver Spring Community Advisory Board Meeting

Table 3 - Summary of Public/Stakeholder Input Comments

Item No	Corridor	Comment	Reference
23	MD 410	Install more pedestrian friendly curb ramps.	Silver Spring Community Advisory Board Meeting
24	MD 410 and Fenton Street	Install APS at this intersection.	Silver Spring Community Advisory Board Meeting
25	MD 410 between MD 384 and Blair Mill Road	When on Spring Street heading west across Georgia Avenue, the green light does not have any left arrow but it is programmed as if it does. This causes drivers to wait in the intersection thinking the eastbound traffic has the right of way. This creates pedestrian confusion as much as it does for drivers.	Silver Spring Community Advisory Board Meeting
26	MD 97 and Cameron Street	Make this roadway more pedestrian accessible.	Silver Spring Community Advisory Board Meeting
27	MD 97 and Spring Street	The visibility at this intersection is poor.	Silver Spring Community Advisory Board Meeting
28	MD 97/US 29	Please re-open this tunnel to pedestrians.	Silver Spring Community Advisory Board Meeting
29	Spring Street	Improve the pedestrian pathway under the CSX/WMATA tracks.	Silver Spring Community Advisory Board Meeting
30	Spring Street	A bump out into the parking lane should be provided on EB Spring Street opposite Woodland Drive at our office building to shorten the crossing and provide users of the crosswalk a safe place to view oncoming traffic that is now obscure by parked cars and the grade of the roadway.	M-NCPPC
31	Spring/Cedar Street	On road bikeway from 16 th Street to Wayne Avenue	M-NCPPC
32	Thayer Avenue	Add do not block the box markings.	Silver Spring Community Advisory Board Meeting
33	US 29	Install crosswalk on the south leg of this intersection.	Silver Spring Community Advisory Board Meeting
34	US 29 and Sligo Avenue	Curb extensions extend into travel lanes; this creates an unsafe condition for drivers.	Silver Spring Community Advisory Board Meeting
35	US 29 and Wayne Avenue	Missing 'share the roadway' signage for bicycles.	Silver Spring Community Advisory Board Meeting
36	US 29 and Wayne Avenue	Could bicycle repair facilities be added along with the proposed bike rack locations?	Silver Spring Urban District Committee Meeting
37	Wayne Avenue and Cedar Street	Could Bike a bike rack location be added in the vicinity of the AFI Theater?	Silver Spring Urban District Committee Meeting

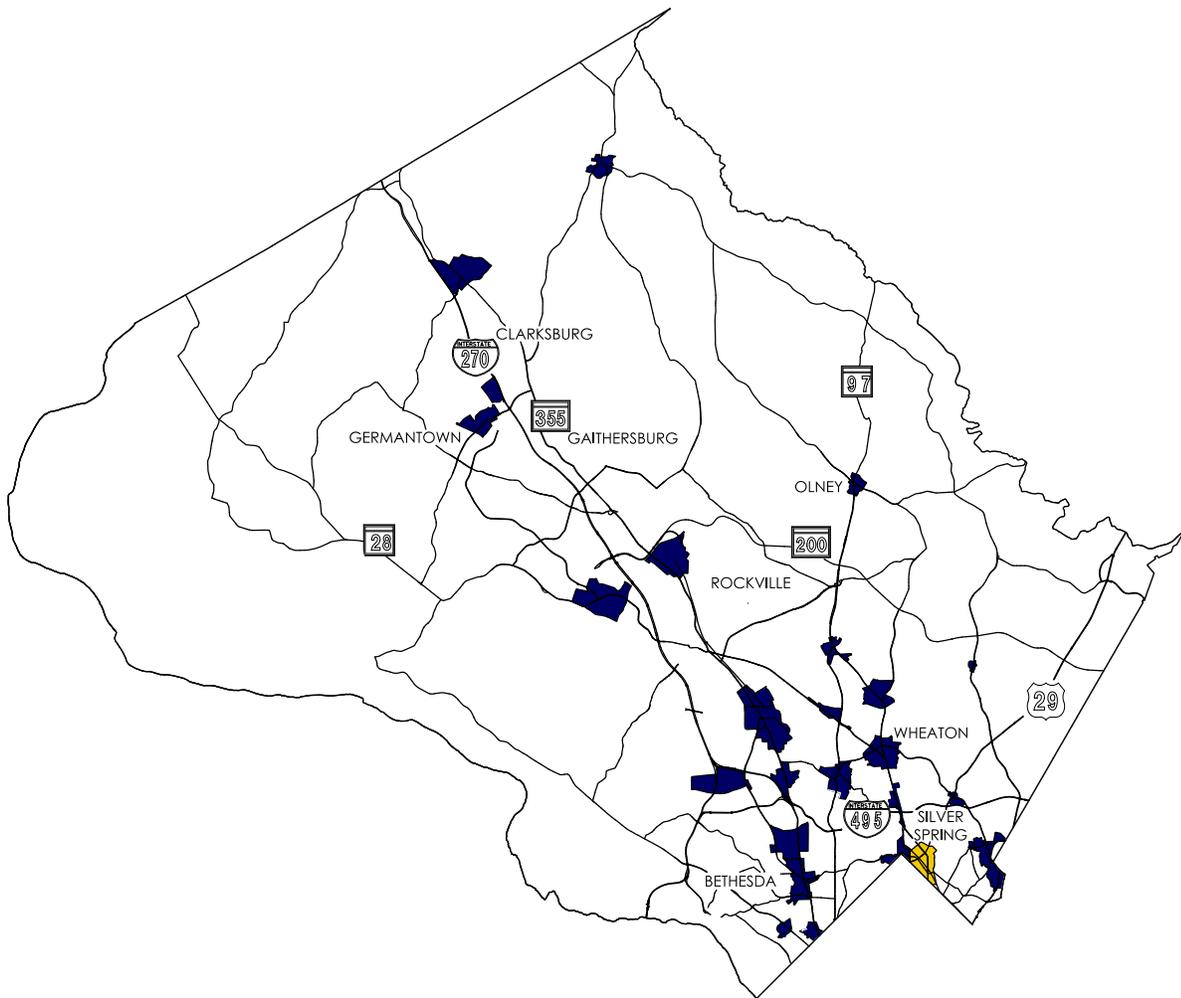
STAKEHOLDERS

Stakeholders for the Silver Spring CBD BiPPA include the Silver Spring Community Advisory Board, the Silver Spring Regional Center, Silver Spring Urban District Committee the Montgomery County Council, the Maryland State Highway Administration (SHA), the Montgomery County Department of Transportation (MCDOT), and the Maryland-National Capitol Park and Planning Commission (M-NCPPC). As the planning and implementation process continues, it is expected that additional stakeholders will include:

- Maryland Transit Administration (MTA)
- Montgomery County Department of Permitting Services (DPS)
- Montgomery County Department of Environmental Protection
- Washington Metropolitan Area Transit Authority (WMATA)
- PEPCO
- Verizon
- Washington Gas and Light
- Washington Suburban Sanitary Commission

Silver Spring CBD

Field Investigation and Existing Conditions



FIELD INVESTIGATION AND OBSERVATIONS

FIELD INVESTIGATION SUMMARY

For the BiPPA study, a comprehensive field investigation was performed to further define how and where master plan improvements could be implemented at street level within the Silver Spring area. Preparation and execution of field investigations followed these basic steps:

- 1) Downloaded base mapping and aerial imagery available from the Montgomery County Parks and Planning Commission online database to the office network server;
- 2) Uploaded base mapping onto mobile iPad/ArcMap platform;
- 3) Prepared a customized menu with all potential improvement types and loaded onto ArcMap;
- 4) Visited study area with field crews consisting of one or two transportation engineers and one GIS technician;
- 5) Collected locations, photos, and notes on various proposed improvements in the field using iPad/ArcMap platform;
- 6) Uploaded data collected in the field to network server for further analysis and design.

The outlined method proved to be especially useful for locating potential spot improvements such as curb ramps, driveway aprons, APS/CPS, curb extensions, median refuge, signing, maintenance tasks, etc.

By performing field investigations, crews were also able to note other important factors such as site constraints, user behavior, facility operation, safety issues, and adjacent construction.



BICYCLE AND PEDESTRIAN NETWORK

The existing bicycle and pedestrian network consists of several shared use paths, bicycle racks and stations, and roadways with sharrow markings. A map of the existing bicycle network and existing sidewalk/shared-use path network are shown in Figure 6 and Figure 7, respectively.

A section of the metropolitan branch trail is within the BiPPA boundary as well as a section of the Silver Spring Green Trail. The Metropolitan Branch Trail is an 8-mile trail that runs from Union Station to Silver Spring at the intersection of MD 410 and Fenton St. The Silver Spring Green Trail runs alongside Wayne Ave into Second Avenue within the BiPPA Boundary. There is also a bike lane on Second Avenue from Fenwick Lane to Spring Street. It is at Second Avenue and Spring Street where the proposed Capital Crescent trail is being built starting behind the newly constructed Fenwick apartments. There are a total of 10 capital bikeshare stations located within the BiPPA boundary as well bicycle racks located throughout the area.

Sidewalks are prevalent throughout the area with most of them being 5' or greater. However, upon field investigation it was found that the sidewalks on the minor roads inside of Fenton Street, Georgia ave, Bonifant Street, and MD 410 were very narrow with utility poles obstructing the walkways.

TRANSIT NETWORK

The Silver Spring CBD BiPPA is served by the Silver Spring Metro Station located on MD 384 between MD 410 and 2nd/Wayne Avenue. The Red Line has a U-shaped alignment with the Silver Spring Metro Station on the eastern leg. The southernmost points along the Red-line are in downtown Washington D.C. near the Verizon Center. There are entrances from the MD 384 roadway and the future Silver Spring Transit Center. The parking structure for the Silver Spring Metro station is located along Bonifant Street between Ramsey Avenue and Dixon Avenue. The Silver Spring Transit Center is currently under construction next to the Metro Station and will become a bus transfer depot.

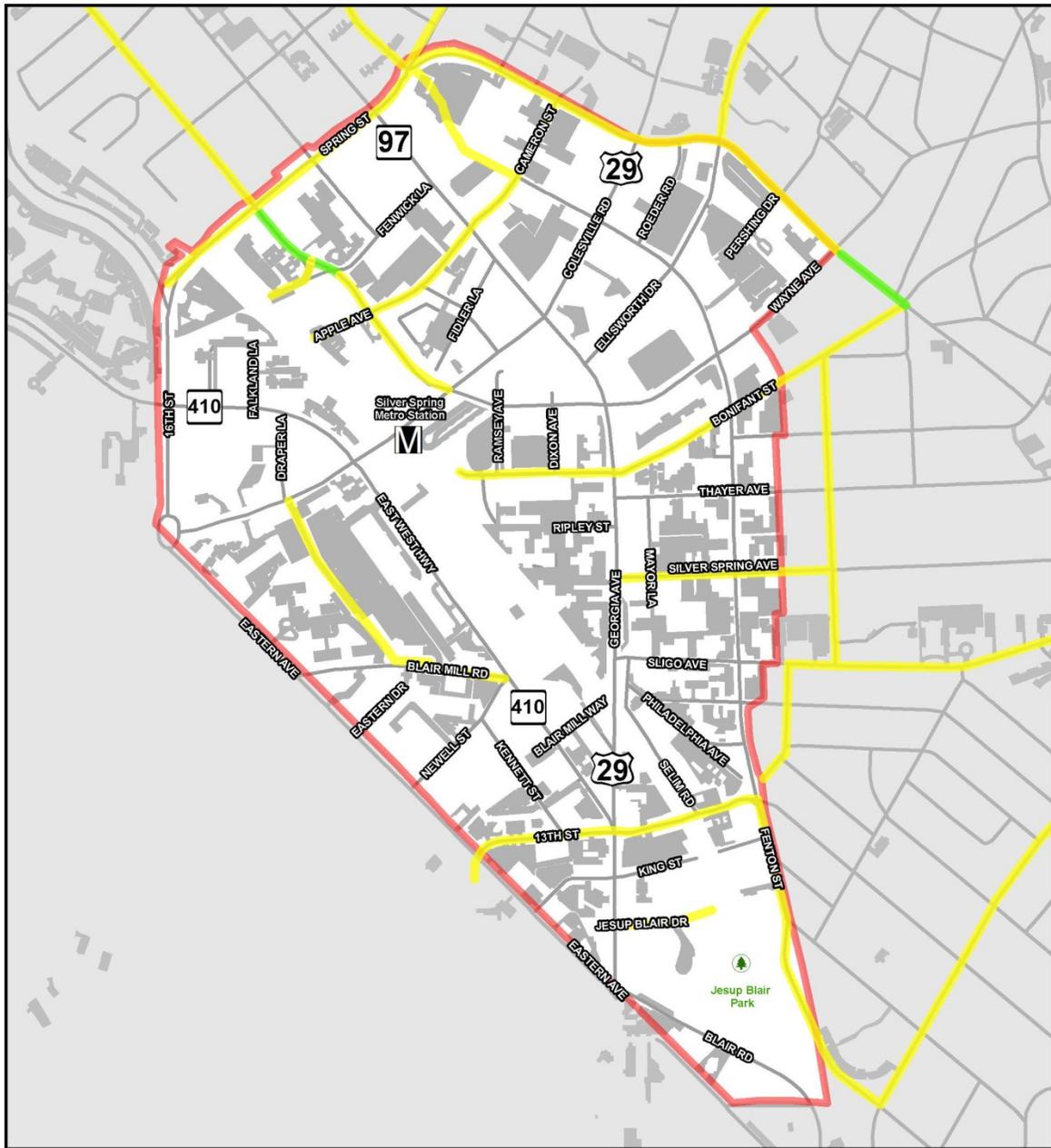
Silver Spring is also served by Silver Spring MARC Train on the Brunswick line that has Northern terminuses in Frederick, MD and Martinsburg, WV and a south Terminus of Union Station in Washington D.C.



Figure 4 – Typical Bicycle Route Wayfinding Signage



Figure 5 – Silver Spring Transit Center



Metro Station Bike Lane
 BiPPA Boundary Shared Roadway

Feet
 0 250 500 1,000

Figure 6 – Existing Bicycle Network

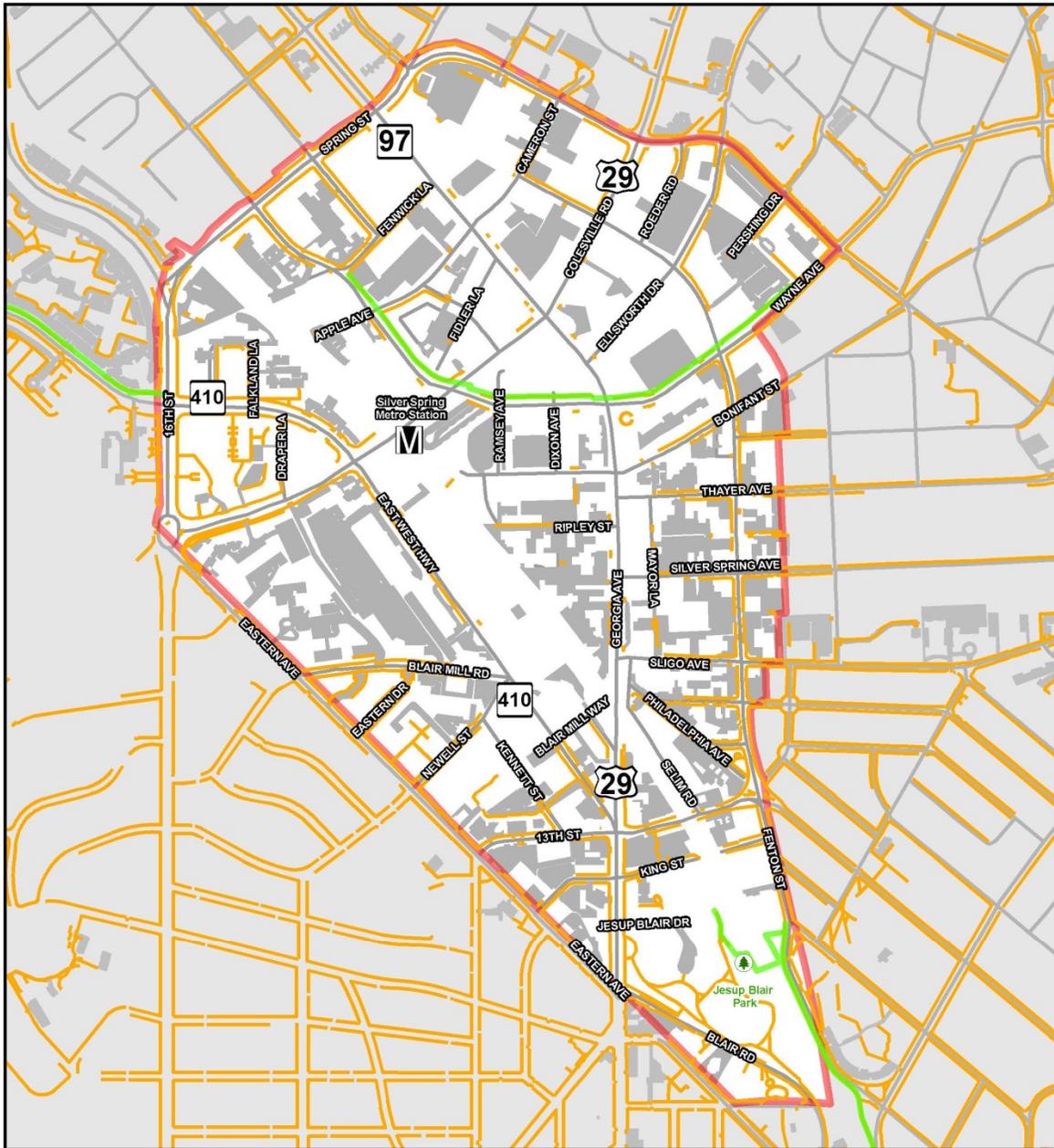
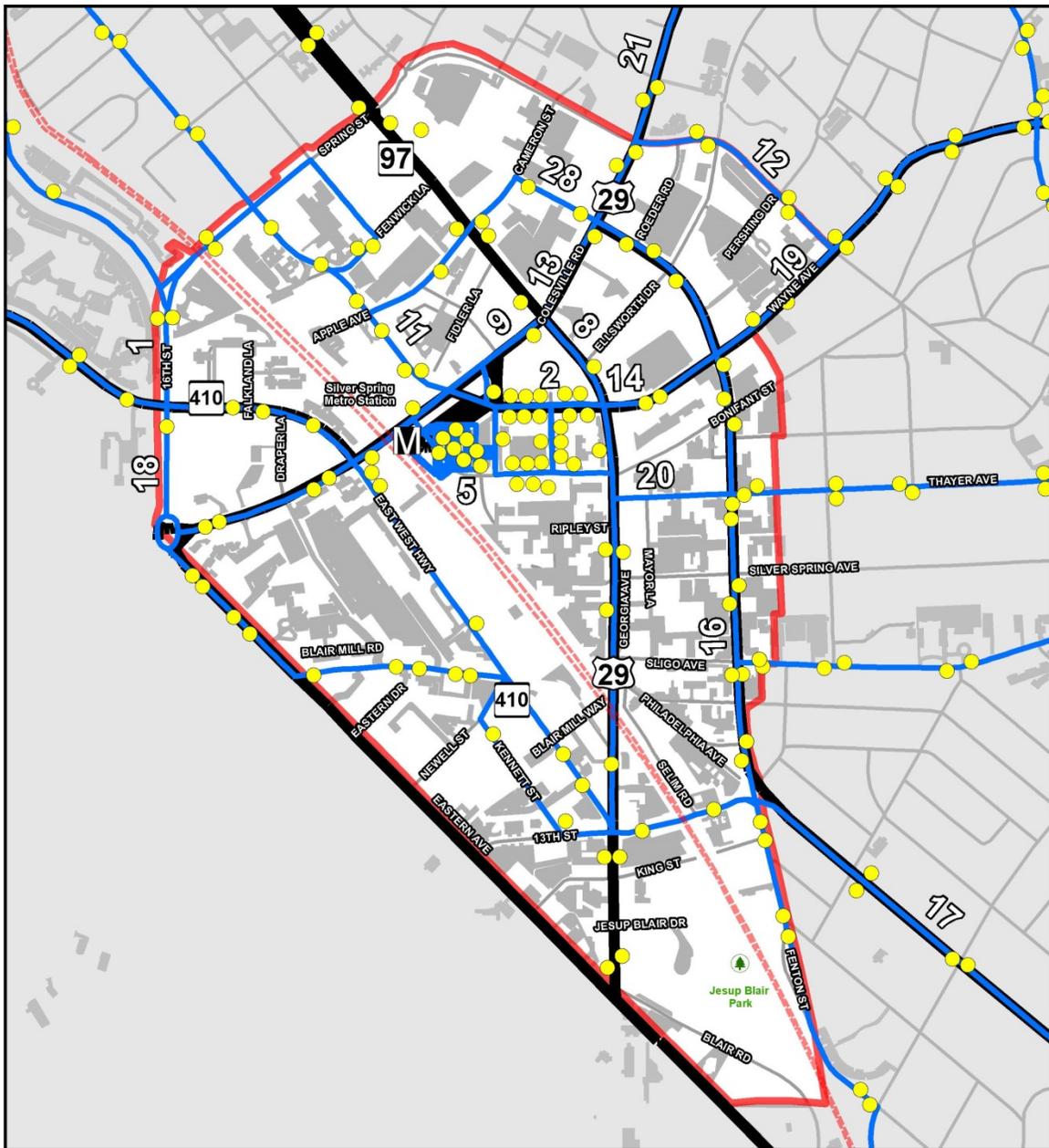


Figure 7 – Existing Sidewalk and Shared-Use Path Network

Metro Station Shared Use Path
 BiPPA Boundary Sidewalk

0 250 500 1,000 Feet



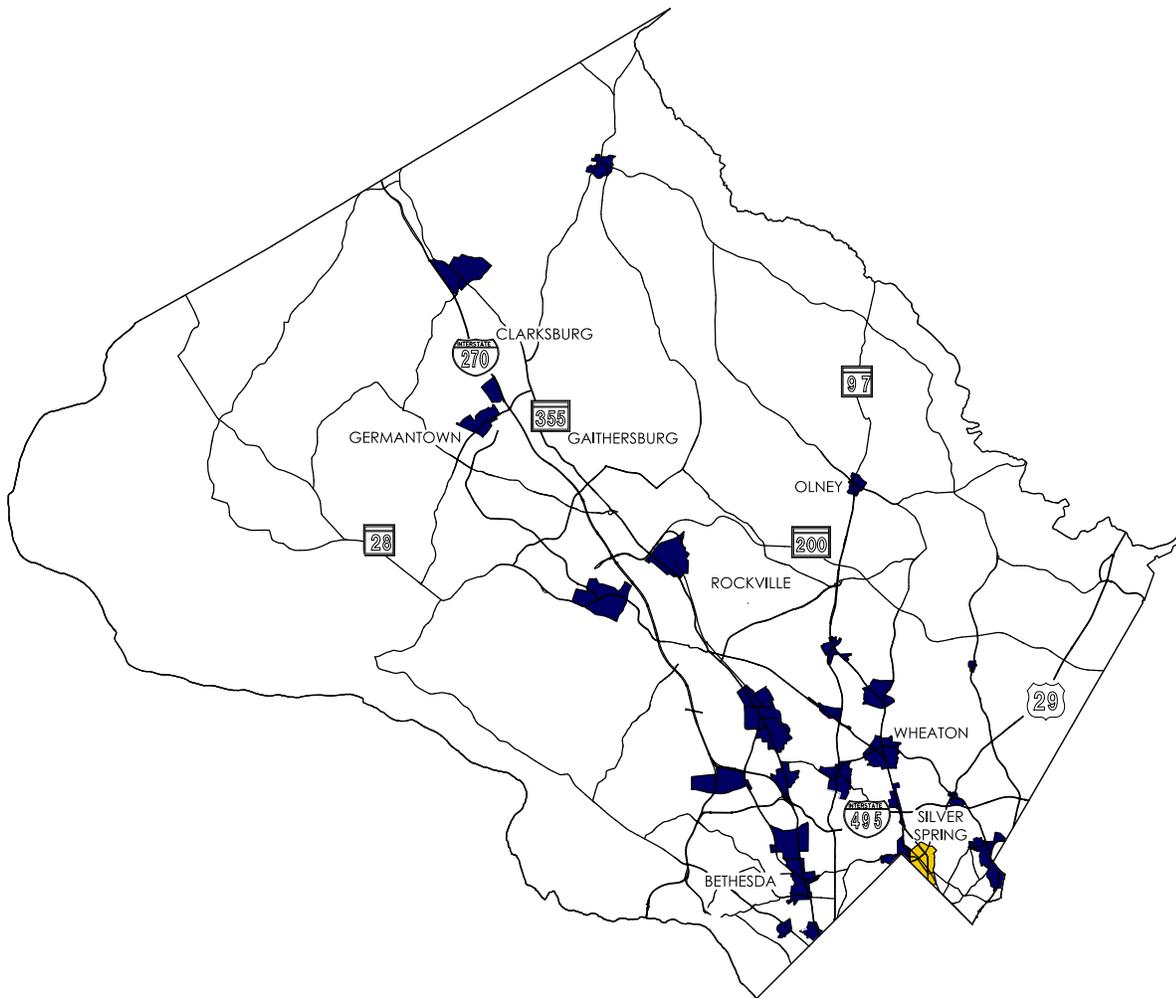
Metro Station	Bus Stops	Ride-On Bus Routes	Route Number
BiPPA Boundary	Metro Line/ MARC	Metro Bus Routes	

Figure 8 – Existing Transit Network

0 250 500 1,000 Feet

Silver Spring CBD

Ranking Criteria



RANKING CRITERIA

This study proposes some improvements can be implemented almost immediately, some in phases or increments, while others will need to follow the capital project track through to planning, design and construction. To help prioritize improvements, the following factors have been considered for each of the proposed improvements:

1. Priority - High, Medium, Low
 - a. Determined based on the net sum of:
 - i. Benefits – Safety, Connectivity and Circulation, Transportation Equity, Accessibility, Infrastructure Upgrade, Master Plan, Public Input
 - ii. Impacts – Right of way, Environmental, Traffic, Parking, Utilities
2. Timeframe – Short-term (1 – 2 years), Mid-term (2 – 5 years), Long-term (5+ years)
 - a. Determined based on the sum of:
 - i. Design Tasks – Environmental Investigation, Survey, Utility Investigation, Soils Investigation, Traffic Study, Contract Documents, Public/Stakeholder coordination, Permits & Approvals, Right of way acquisition, Funding
 - ii. Construction Tasks – Paving, Grading, Structures, Utility Relocation, Drainage/Storm Water Management/Erosion & Sediment Control, Signals, Lighting, Signing & Marking, Traffic Control
3. Cost (Order of magnitude)
 - a. Broken down into the following ranges:
 - i. \$ = <\$10,000
 - ii. \$\$ = \$10,000 - \$100,000
 - iii. \$\$\$ = 100,000 - \$1,000,000
 - iv. \$\$\$\$ = 1,000,000 - \$5,000,000
 - v. \$\$\$\$\$ = >\$5,000,000



Priority is simply based on the ratio of benefits to impacts. For improvements with multiple benefits and few impacts, a high priority is the result. Likewise, improvements with few benefits and multiple impacts result in a low priority.

Timeframe is based on the number of design and construction tasks necessary to implement an improvement. Short-term improvements have an estimated completion time of 1-2 years and would require minimal design, coordination, or permits/approvals. Furthermore, short-term improvements can likely be implemented with established funding sources. Examples of short-term improvements include signing and marking, ADA upgrades, and maintenance tasks. Mid-term improvements have an estimated completion time of 2-5 years and would typically require a combination of further design, coordination, programmed funding, and permits/approvals. Typical mid-term improvements include shared-use paths, cycle tracks, and new signals. Lastly, long-term improvements have an estimated completion date that is greater than 5 years. These projects would require an extensive combination of further planning, design, coordination, political will, programmed funding, and permits/approvals. The typical scope of long-term improvements would include reconstruction and extensive impacts such as utility relocations and right of way acquisition.

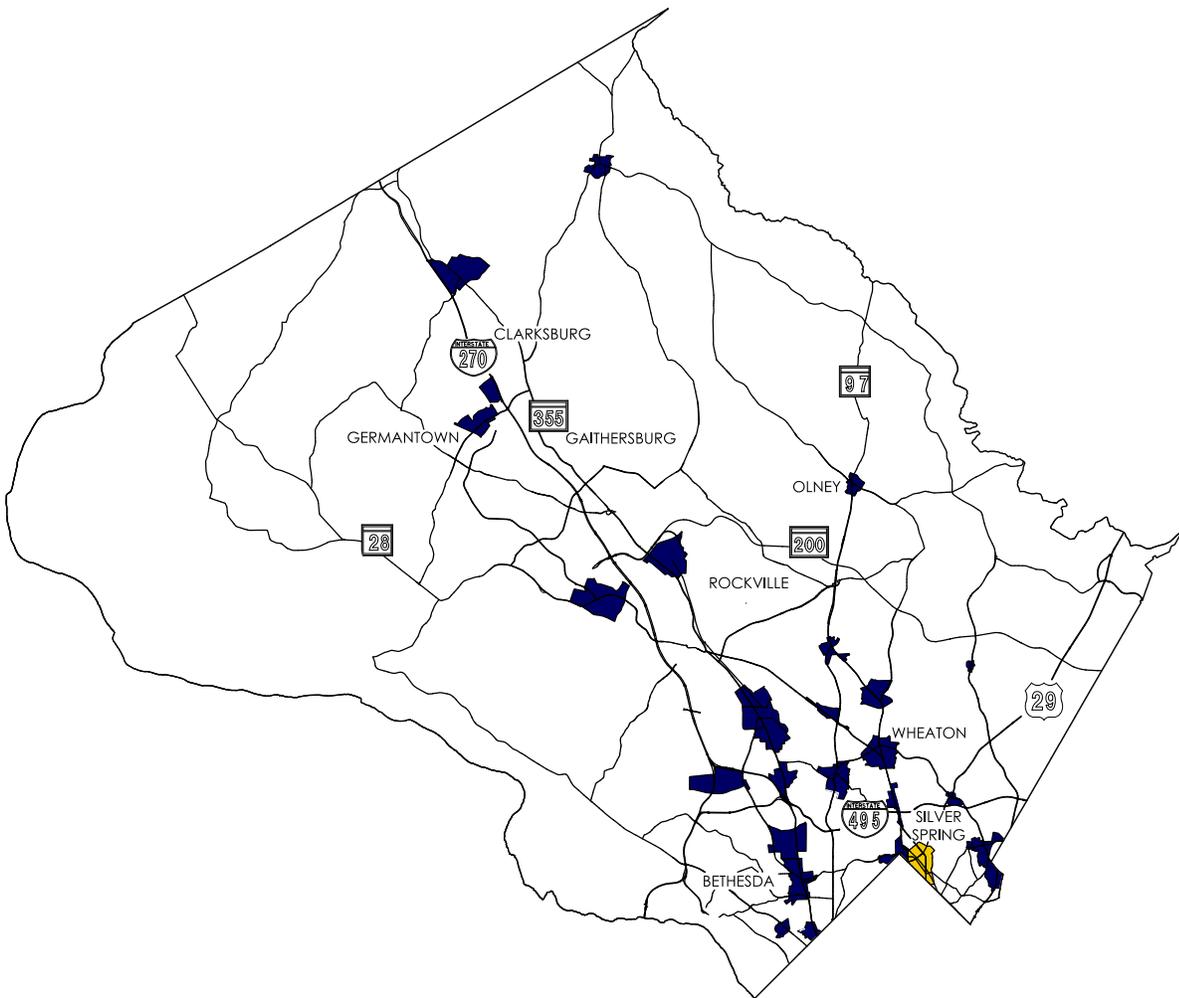
The cost component is largely subjective and should only be considered as an order of magnitude.

The implementation for each improvement could follow a different track, depending on the factors listed above, as well as the implementing agency. However, short-term improvements could likely be constructed with a combination of basic design drawings and MCDOT and/or MDSHA standard drawings to locate and construct improvements. Mid- and long-term improvements will generally require further project development that includes coordination, survey, design, ROW acquisition, permits, and/or approvals.

Funding sources are subject to change throughout the duration of this study. At the present time, all public transportation agencies and funding entities - federal, state, county, and municipal - are considered potential partners for funding of implementation and maintenance of these priority improvements. For county roads, funds are appropriated directly by the Montgomery County Council. For state roads, depending on the type of improvement, different funds can be used to implement improvements. Fund 76 and Fund 77 projects, commonly used for signal upgrades, pavement resurfacing, signing and marking, can incorporate bicycle and pedestrian accommodations. A list of known, potential funding sources is listed the appendices.

Silver Spring CBD

Priority Improvements



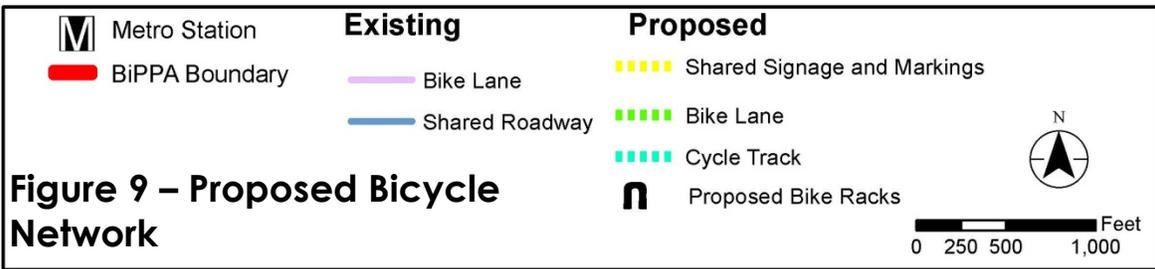
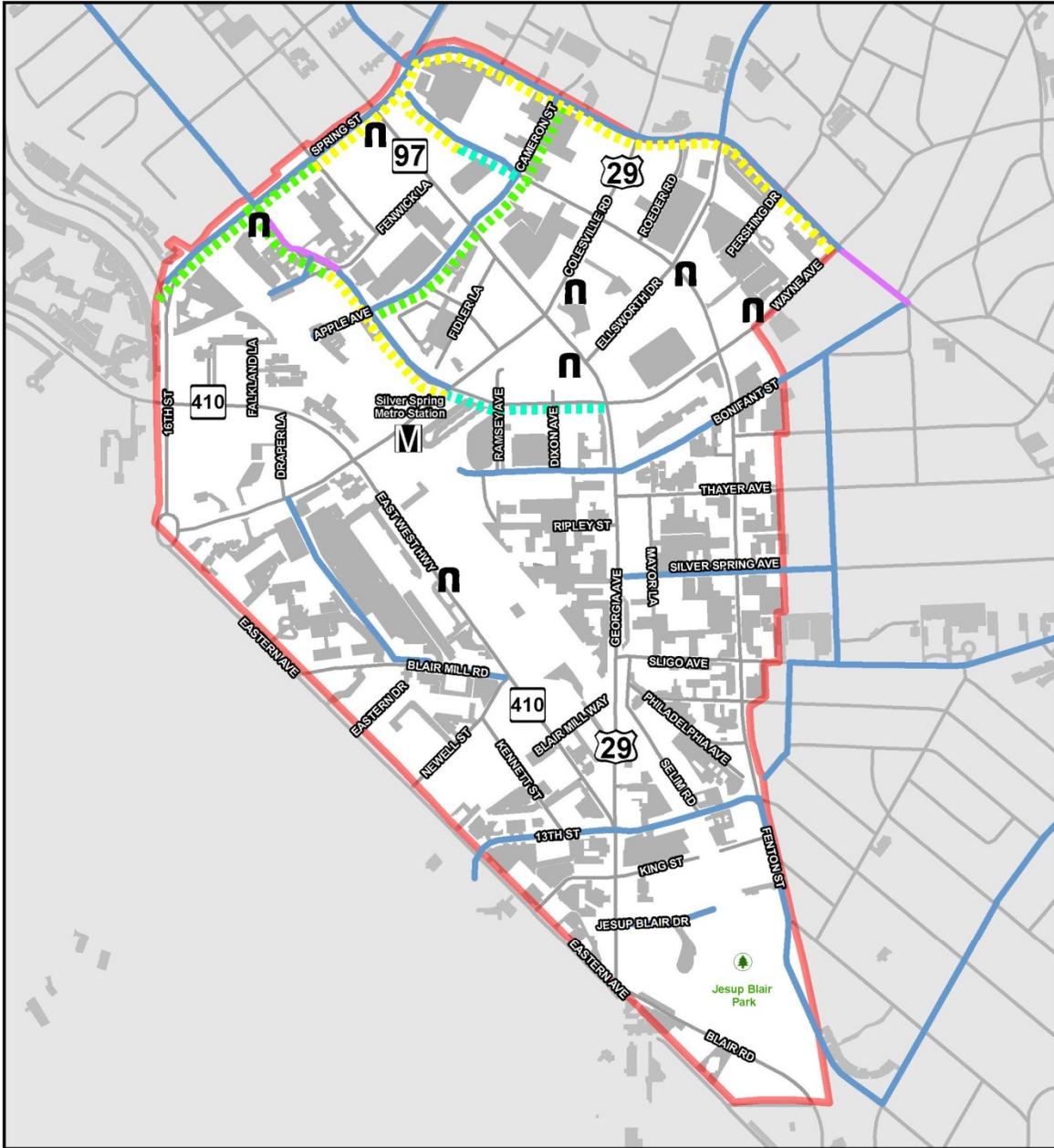
PRIORITY IMPROVEMENTS

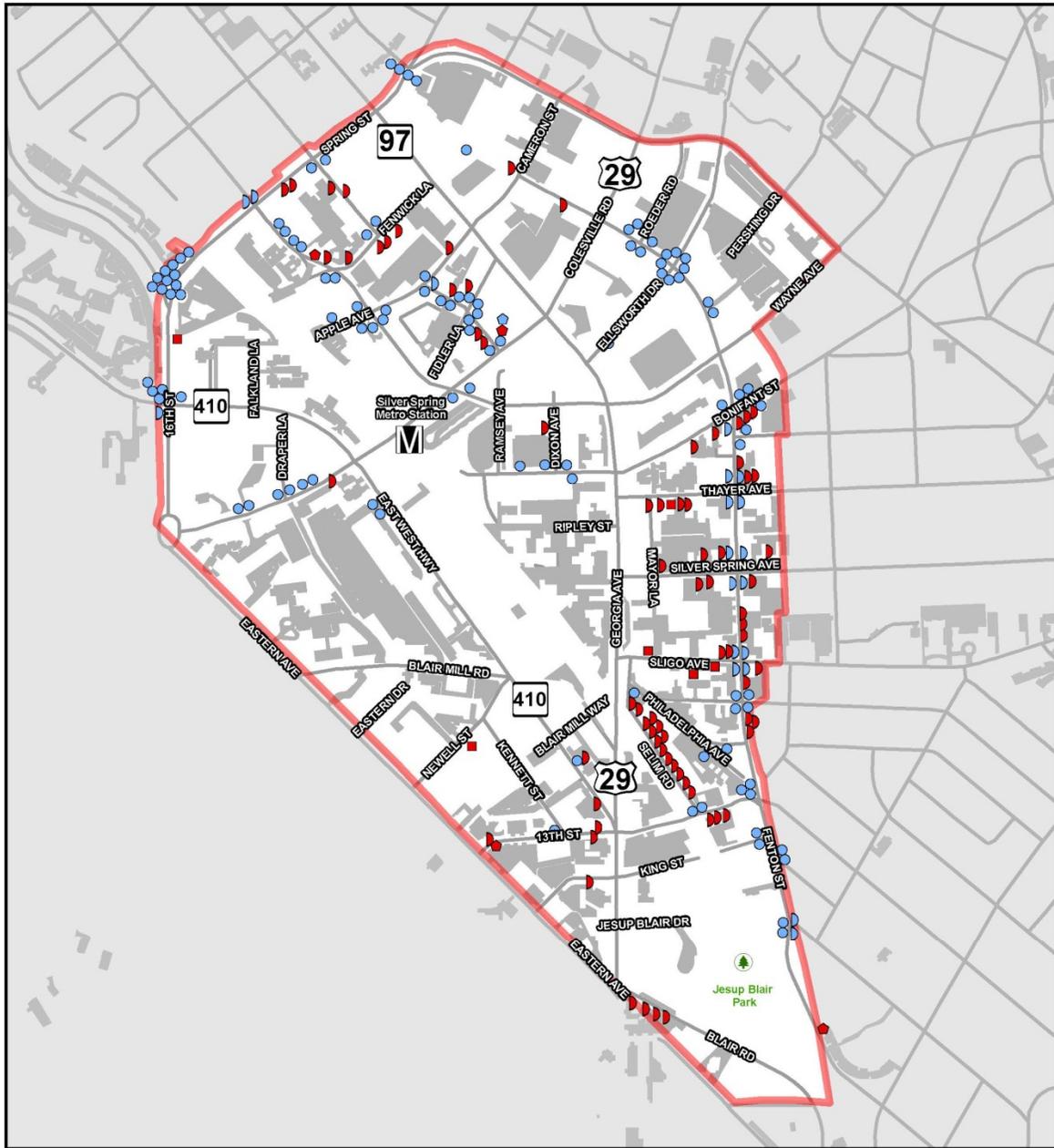
OVERVIEW OF IMPROVEMENT TYPES

The Silver Spring CBD BiPPA has been evaluated for various bicycle and pedestrian improvements types. Proposed improvements have been developed and prioritized based on master or sector plan recommendations and public/stakeholder input.

In the Recommended Priority Improvements section, improvements are primarily organized by corridors or intersections. However, many improvement types can be implemented in an area-wide project format as well. The area-wide improvements include pedestrian curb ramps; reconstruction of driveway aprons; widening of sidewalk; reconstruction of sidewalk; striping or re-striping of crosswalks; the addition of APS/CPS; install or relocate pedestrian/bicycle signing; and general tree trimming maintenance. The linear improvements include the implementation of shared lanes (sharrows); and the construction of shared-use paths.

Table 4 – Improvement Type Summary	
Improvement	Applications and Benefits
Sidewalk	<i>Pedestrian connections to parks, schools, residents, businesses, or other sidewalk / trail sections</i>
Shared-Use Paths	<i>Pedestrian connections to parks, schools, residents, businesses, or other sidewalk / trail sections</i>
Shared Roadway Markings	<i>Limited lane widths, on-street parking sections, wayfinding, or wherever correct bicycle positioning is vague</i>
Bike Lanes	<i>Higher-speed (greater than 25mph) streets to avoid some bicycle-car conflicts and create predictable movements</i>
Cycle Track	<i>Similar to bicycle lanes, also reduces some concerns from overtaking crashes and may reduce double-parking</i>
Curb Ramp	<i>Missing or non-ADA-compliant curb ramps</i>
Driveway Apron	<i>Deteriorated, missing, or non-ADA-compliant aprons</i>
Median Refuge	<i>Increases separation of pedestrians from car traffic to improve comfort levels and safety</i>
Curb Extension	<i>Shortens crossing distances, lowers speeds of turning vehicles, increases visibility of pedestrians entering an intersection</i>
Bike Box	<i>Reduces bicycle delay, increases bicycle convenience, and improves bicycle positioning in traffic in slow/start situations.</i>
Crosswalks	<i>Improves visibility of pedestrians in motorway (may be high-visibility markings), denotes best or preferred location for pedestrian crossings</i>
Accessible / Countdown Pedestrian Signal	<i>Replaces non-compliant signals, improves crossing safety for pedestrians, particularly on long crossing maneuvers</i>
Decorative Bike Racks	<i>Provides location for public to park and lock their bicycles. Improves public perception of Silver Spring CBD.</i>

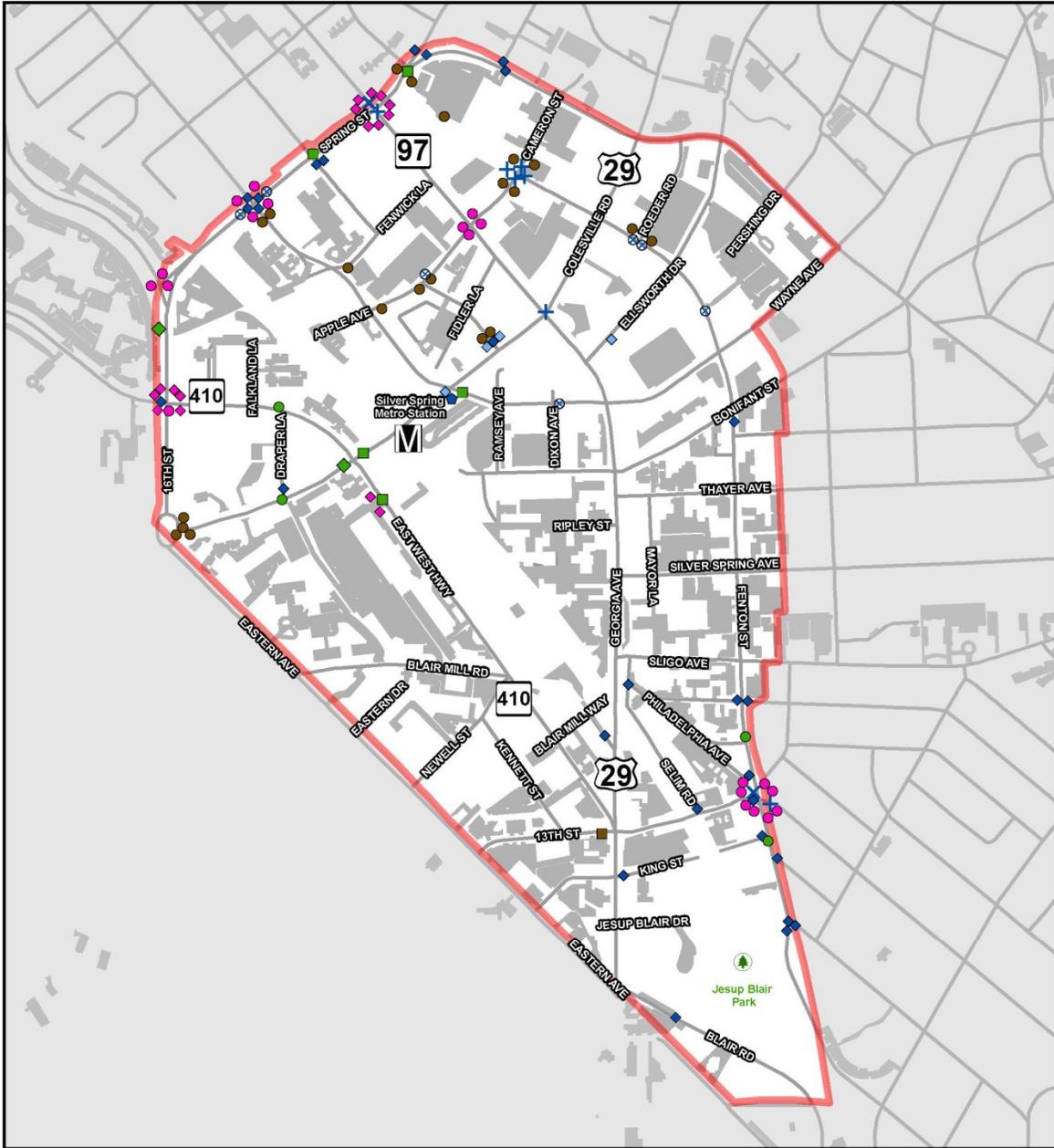




Metro Station	Construct New Curb Ramp	Noncompliant Slope
BiPPA Boundary	Existing Curb Ramp Poorly Aligned or Located	Remove Driveway Apron
	Serves Two Crosswalks	Reconstruct Driveway Apron

Figure 10 – Proposed ADA Improvements

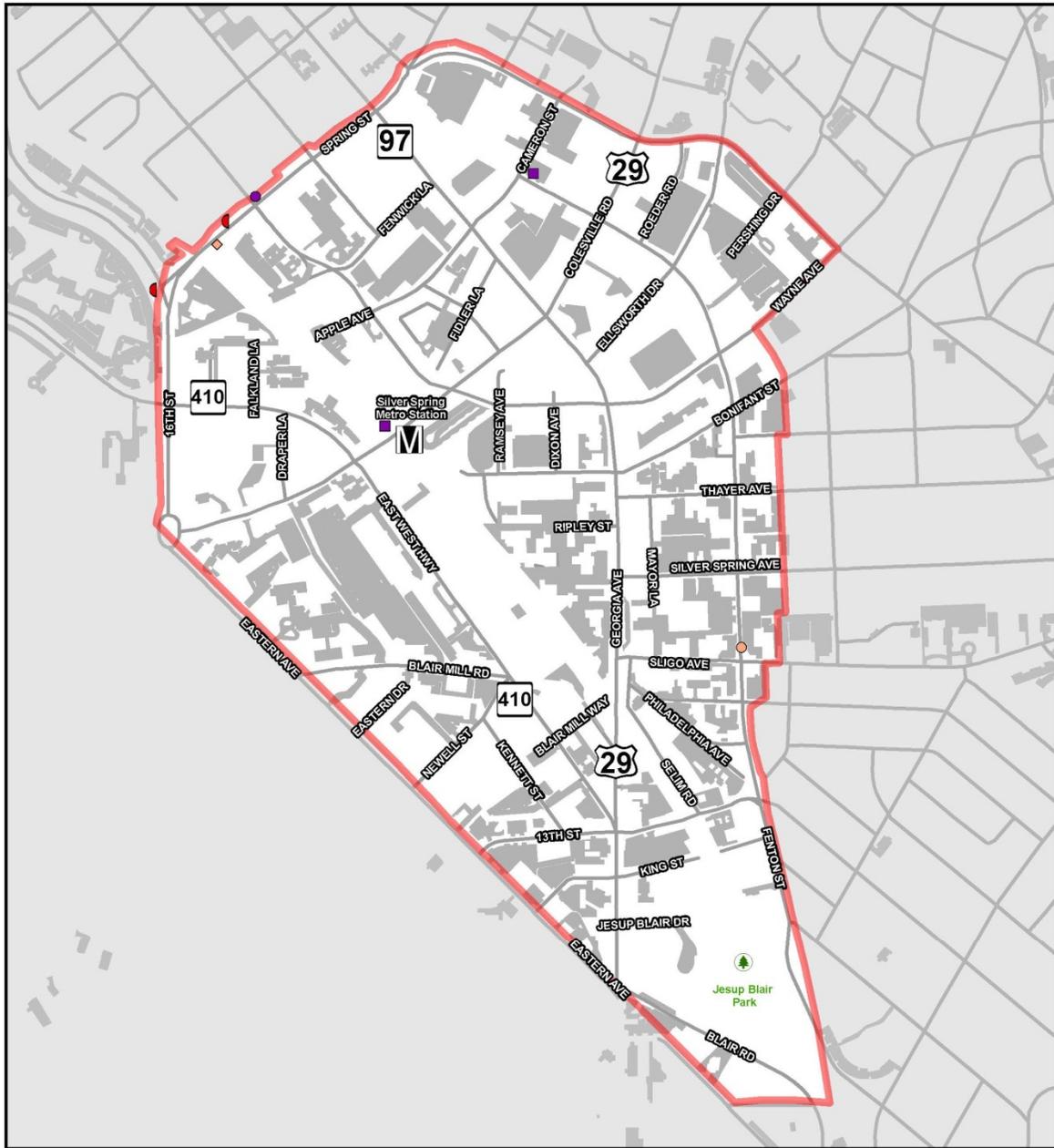
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- | | | |
|--|--------------------------------|---|
| Metro Station | Cut Back Median | Reconstruct Mid-Block Pedestrian Crossing |
| BiPPA Boundary | Adjust Pedestrian Phase Timing | Relocate Mid-Block Pedestrian Crossing |
| Install Detectable Warning Surface | Relocate Traffic Control Box | Construct Curb Extension |
| Construct/Re-Align/Re-Stripe Crosswalk | Install APS | Reconstruct Curb Extension |
| Provide Median Refuge | Install APS and CPS | Construct Pedestrian Signal |

Figure 11 – Proposed Intersection Improvements

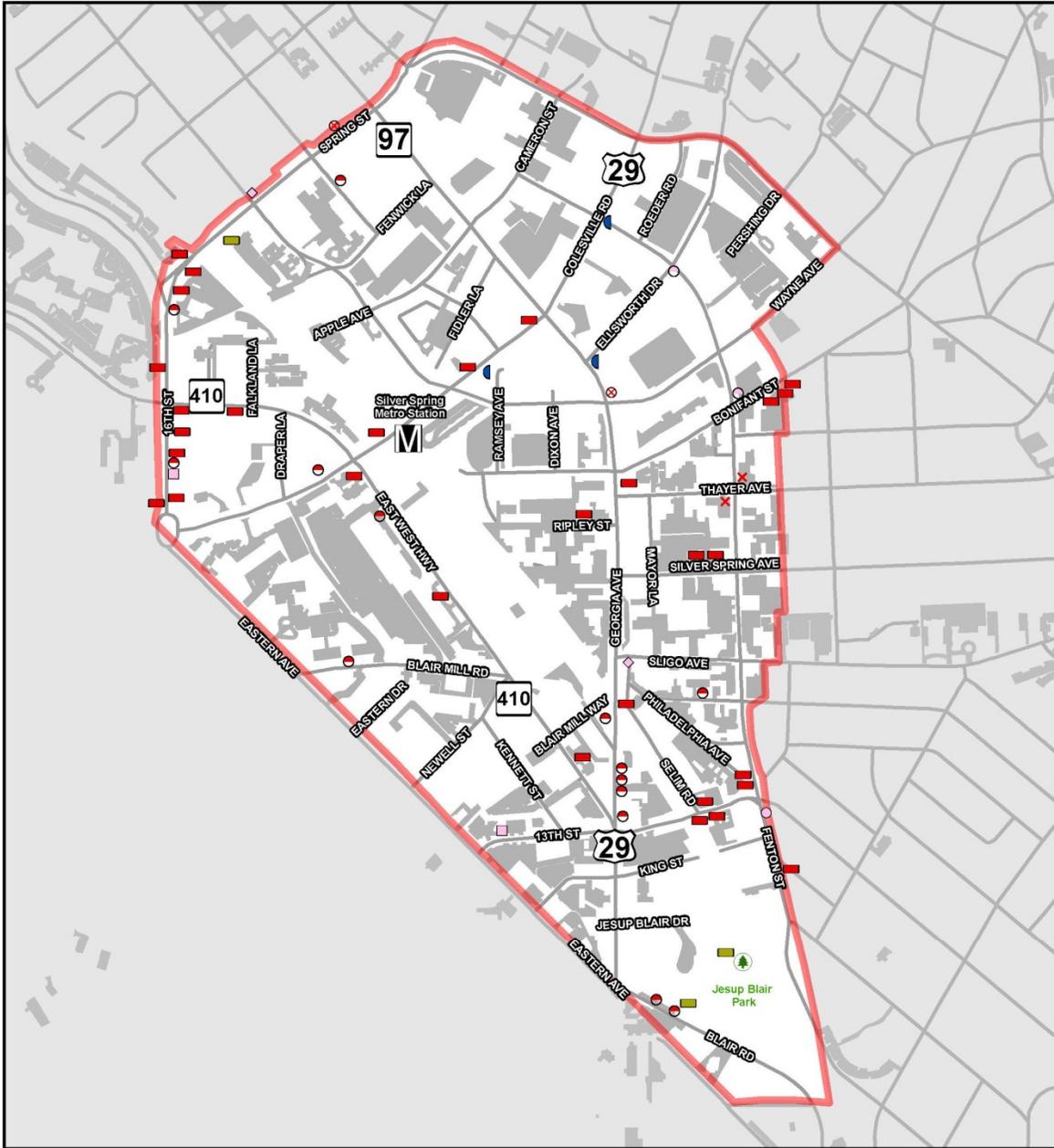




Metro Station	Install Safety Railing
BPPA Boundary	Reduce Speed Limit
	Poor Sight Distance
	Construct Pedestrian Lighting
	Upgrade Pedestrian Lighting

Figure 12 – Proposed Safety Improvements

0 250 500 1,000 Feet



Metro Station	Construct/Reconstruct/Widen Sidewalk	Pavement Rutting/Pothole/Cracking
BiPPA Boundary	Vertical Obstruction - Trip Hazard	Cut Back Grass Growth
	Vertical Obstruction - Low Overhead Clearance	Cut Back Hedges Growth
	Remove/Relocate Street Furniture/Amenities	Cut Back Trees/Branches
	Construct/Reconstruct/Widen Shared-Use Path	Replace-Repair APS and/or CPS

Figure 13 – Proposed Maintenance

0 250 500 1,000 Feet

RECOMMENDED PRIORITY IMPROVEMENTS

The following section summarizes priority improvements developed for this BiPPA study. This section should be read in combination with the concept plans. Priority and timeframe are based on the ranking criteria established in the previous section. Costs are also based on general assumptions and the cost methodology.

2nd Avenue

From Spring Street to Fenwick Lane (east)

Improvement Type: *Bike Lanes, Signing, Curb Extensions*

Priority: *High* **Timeframe:** *Short-term* **Cost:** *\$\$*

2nd Avenue is designated as an on-road bikeway in the 2001 Silver Spring CBD and Vicinity Sector Plan. While there are markings to indicate this designation, there are no signs to support this. It is recommended that 2nd Avenue is improved by installing “Bicycle Route” signing. Bike lanes should be placed on both sides of the roadway and sharrow markings should be placed at the approach to the intersection with Fenwick Lane. The typical section of this roadway will become a two lane road with two bike lanes and two parking lanes. Bike lanes should have a width of 5’ from stripe to stripe when adjacent to a parking lane and 4’ when the bike lane is not adjacent to a parking lane. Parking lanes should have a width of 8’ from face of curb to the bike lane stripe. A detailed drawing of this section of the roadway is shown in the design layout maps attached.

From Fenwick Lane (east) to Colesville Road

Improvement Type: *Sharrows, Signing*

Priority: *High* **Timeframe:** *Short-term* **Cost:** *\$\$\$*

From Fenwick Lane to Colesville Road, sharrow markings, “Bicycle May Use Full Lane” signing, and “Bicycle Route” signing should be installed. Sharrow markings should be located immediately after intersections and spaced at 250’ intervals thereafter. Sharrow markings should be placed within the middle of the lane, or a minimum of 4’ from the face of curb.

Bike Rack Locations

Improvement Type: *Bike racks*

Priority: *High* **Timeframe:** *Short-term* **Cost:** *\$*

Decorative bike racks should be installed at key locations near restaurants, shopping, parking garages, transit, employment, and churches. Conceptual bike rack design options are shown in Figure 14. Potential bike rack locations are shown in Figure 9. Bicycle repair stations should accompany decorative bike racks where space allows.



	
<p align="center">Option 1</p>	<p align="center">Option 2</p>
	
<p align="center">Option 3</p>	<p align="center">Option 4</p>

Figure 14 - Decorative Bike Rack Designs

Cameron Street

From 2nd Avenue to Spring Street

Improvement Type: *Bike Lanes, Signing, Re-Paving, Curb Extensions, and Bikes Boxes*

Priority: *High*

Timeframe: *Short-term*

Cost: *\$\$\$*

Cameron Street is designated as an on-road bikeway in the 2001 Silver Spring CBD and Vicinity Sector Plan. There are currently no markings or signing to indicate travelers that this is a shared roadway. Cameron Street should be striped with bike lanes and “Bicycle Route” signing should be installed. Bike lanes should be placed on both sides of the roadway and bike boxes should be installed at intersections where there are bikeways on the crossing road. Curb Extensions should be installed at each intersection that has parking to allow for shorter crosswalks. Upon completion of the proposed curb Extensions, Cameron Street should be re-surfaced and re-striped. Detailed drawings of these improvements are shown in the layout maps attached.

Cedar Street

From Ellsworth Drive to Wayne Avenue

Improvement Type: Sharrows, Signing, Bike Boxes, and Re-Paving

Priority: High Timeframe: Short-term Cost: \$\$

Cedar Street is designated as an on-road bikeway in the 2001 Silver Spring CBD and Vicinity Sector Plan. Currently there is no signing or marking to indicate this designation. Cedar Street should be re-striped and resurfaced. It is recommended that "Bicycle Route" signing and sharrow markings are installed on this corridor. The sharrow markings would be on both sides of the roadways and run the complete length of the corridor. Drawings of these improvements are shown in the attached layout maps.

Fenton Street Connector

From Spring Street to Cameron Street

Improvement Type: Shared-Use Path, Cycle Track, Sharrow, Signing, Bike Box

Priority: High Timeframe: Short-term Cost: \$\$

The Fenton Street Connector spans from Spring Street to Cameron Street. The connector will consist of a shared-use path, cycle track, and sharrow. The two-lane exit adjacent to the MCDOT Spring-Cameron public parking garage should be repurposed as one lane and a cycle track. From the garage exit to the fire lane, there is currently a sidewalk and green space bounded by the parking garage and a high rise office building. It is recommended that a shared-use path is constructed here to transition from the cycle track to the fire lane. Sharrow markings should be placed on the existing fire lane so that this section can serve dual purpose for bikers and emergency vehicles. From the fire lane to Spring Street, it is recommended that a shared-use path is constructed. On the southern end, a bike box should be placed at the intersection of the Fenton Street Connector and Cameron Street. A detailed drawing of this design is shown in the attached layout maps.

Georgia Avenue (MD 97)

@ Fenwick Lane

Improvement Type: Crosswalk, Median Refuge, Signing, Curb Ramps

Priority: High Timeframe: Short-term Cost: \$\$

An uncontrolled crosswalk is proposed across the southern leg of the intersection with Fenwick Lane. This crosswalk should include advanced signing and pavement markings, ADA compliant curb ramps, and a median refuge. The crosswalk width should be 10 feet from inside strip to inside stripe and have diagonal hatching at 45° with 12 inch wide markings. Signing should be installed to warn traffic to stop for pedestrians in the crosswalk. Parking should be removed to provide adequate visibility for drivers approaching the crosswalk. Detailed signing & marking and roadway plans are attached with this report.



Silver Spring Avenue, Thayer Avenue, Sligo Avenue, and Burlington Avenue

From Georgia Avenue to Fenton Street

Improvement Type: *APS/CPS, Sidewalk, Curb Extensions*

Priority: *High* **Timeframe:** *Short-term* **Cost:** *\$\$*

The recommendations for these roadways are to improve the sidewalks, install curb extensions, and add APS to intersections. It was found upon field investigation that the sidewalks on Silver Spring Avenue, Thayer Avenue, and Sligo Avenue were very narrow with utility poles obstructing the clear width. These sidewalks should be widened where feasible and utility poles should be relocated to provide a minimum 3' clear width. It is also recommended that driveway aprons are reconstructed on these roadways to ADA compliancy. The locations of these proposed improvements are shown in Figure 10 and Figure 13. At Burlington Avenue and Fenton Street, the intersection did have countdown pedestrian signals but was not accessible. It is recommended that APS is installed at this intersection.

Spring Street

From 16th Street to Georgia Avenue

Improvement Type: *Bike Lanes, Signing, Re-Paving, Curb Extensions, and Bikes Boxes*

Priority: *High* **Timeframe:** *Short-term* **Cost:** *\$\$\$*

Spring Street is designated as an on-road bikeway in the 2001 Silver Spring CBD and Vicinity Sector Plan. There is currently no signing or marking to indicate this designation. Bike lanes, curb extensions, bike boxes, and signing are recommended on this corridor. The typical section would consist of two bike lanes, two parking lanes, two through lanes, and a middle median/left turn lane. Bike boxes should also be installed at major intersections and intersections with other bikeways. Curb Extensions should be constructed at each intersection that has parking to allow for shorter crosswalks. A detailed drawing of these improvements is shown in the attached layout maps.

From Georgia Avenue to Ellsworth Drive

Improvement Type: *Sharrows, Signing, Re-Paving, Curb Extensions, and Bikes Boxes*

Priority: *High* **Timeframe:** *Short-term* **Cost:** *\$\$\$*

From Georgia Avenue to Ellsworth Drive, it is recommended that sharrow markings are placed on both sides of the roadway. Bike boxes should be installed at the intersection with Georgia Avenue, Colesville Road, and Cameron Street. A bulb-out should be constructed on the westbound side of Spring Street at the crosswalk for Woodland Drive. Upon completion of the proposed improvements Spring Street should be re-surfaced and re-stripped. Detailed drawings of these improvements are shown in the attached layout maps.

@Georgia Avenue

Improvement Types: *Signal Improvement*

Priority: *High*

Timeframe: *Short-term*

Cost: *\$\$*

The signal for Spring Street facing westbound is missing a green left turn signal to notify drivers that the movement has a protected left turn. This causes a queue of drivers who want to make a left turn but do not know if there is a conflicting movement. The eastbound direction of Spring Street does have a signalized turning. It is recommended that a new signal be placed for westbound traffic that includes a green left-turn arrow.

Wayne Avenue

Colesville Rd to Georgia Avenue

Improvement Types: *Sharrow, Signing, One-way Cycle Track, Bike Boxes*

Priority: *High*

Timeframe: *Short-term*

Cost: *\$\$\$*

Due to the variation in section widths and major roadways at Georgia Avenue and Colesville Road, the improvements for Wayne Avenue have three proposed typical sections along the corridor. From Colesville Road to Ramsey Avenue, a one-way cycle track should be constructed on the westbound side and a sharrow should be placed on the eastbound side. From Ramsey Avenue to Dixon Avenue, one-way cycle tracks should be constructed on both sides of the roadway. From Dixon Avenue to Georgia Avenue, a one-way cycle track should be constructed on the westbound side and sharrow markings should be placed on the eastbound side. Bike boxes should be placed at the intersection of Wayne Avenue with Georgia Avenue and with Colesville Road.

Wayne Avenue should be improved with re-striping of the lanes and "Bicycle Route" Signing. Sharrow markings should be placed immediately after intersections and spaced at 250' intervals thereafter. Sharrow markings should be placed at the middle of the lane or a minimum of 4' from the face of curb. One-way cycle track lanes should have a minimum width of 4' from stripe to stripe. There should also be a 2' buffer placed between the cycle track and vehicular traffic. Detailed drawings of these improvements are shown in the attached layout maps.

@ Colesville Road

Improvement Types: *Pocket Park*

Priority: *Low*

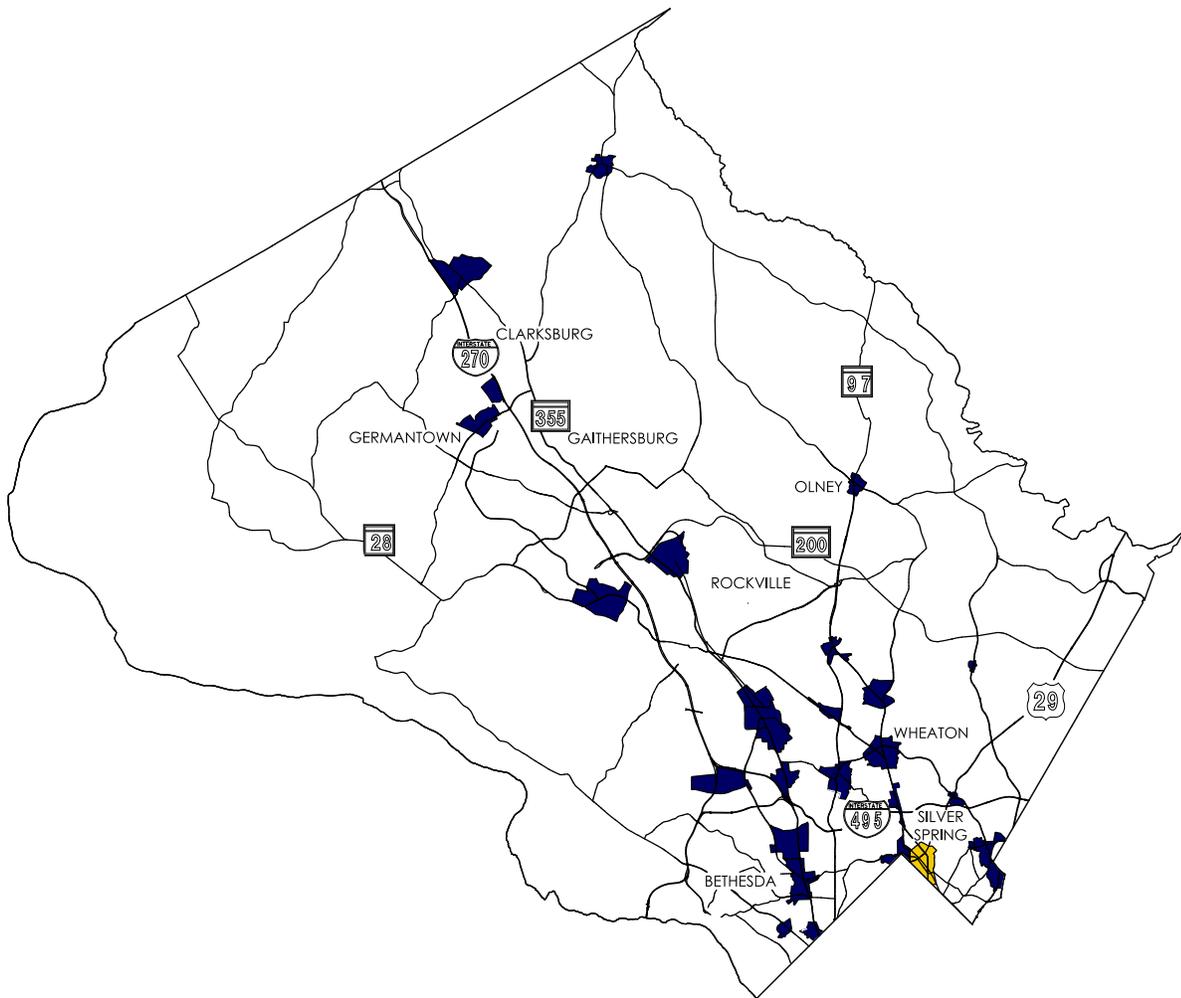
Timeframe: *Mid-term*

Cost: *\$\$\$*

There is a unique opportunity to remove an existing bus loading and unloading area once the Silver Spring Transit Center is operational. The intersection of these roadways creates an unusual triangular patch of concrete. If this area is closed from bus traffic it can be turned into a small pocket park, large enough for a fenced in area with benches and landscaping.

Silver Spring CBD

Conclusion



CONCLUSION

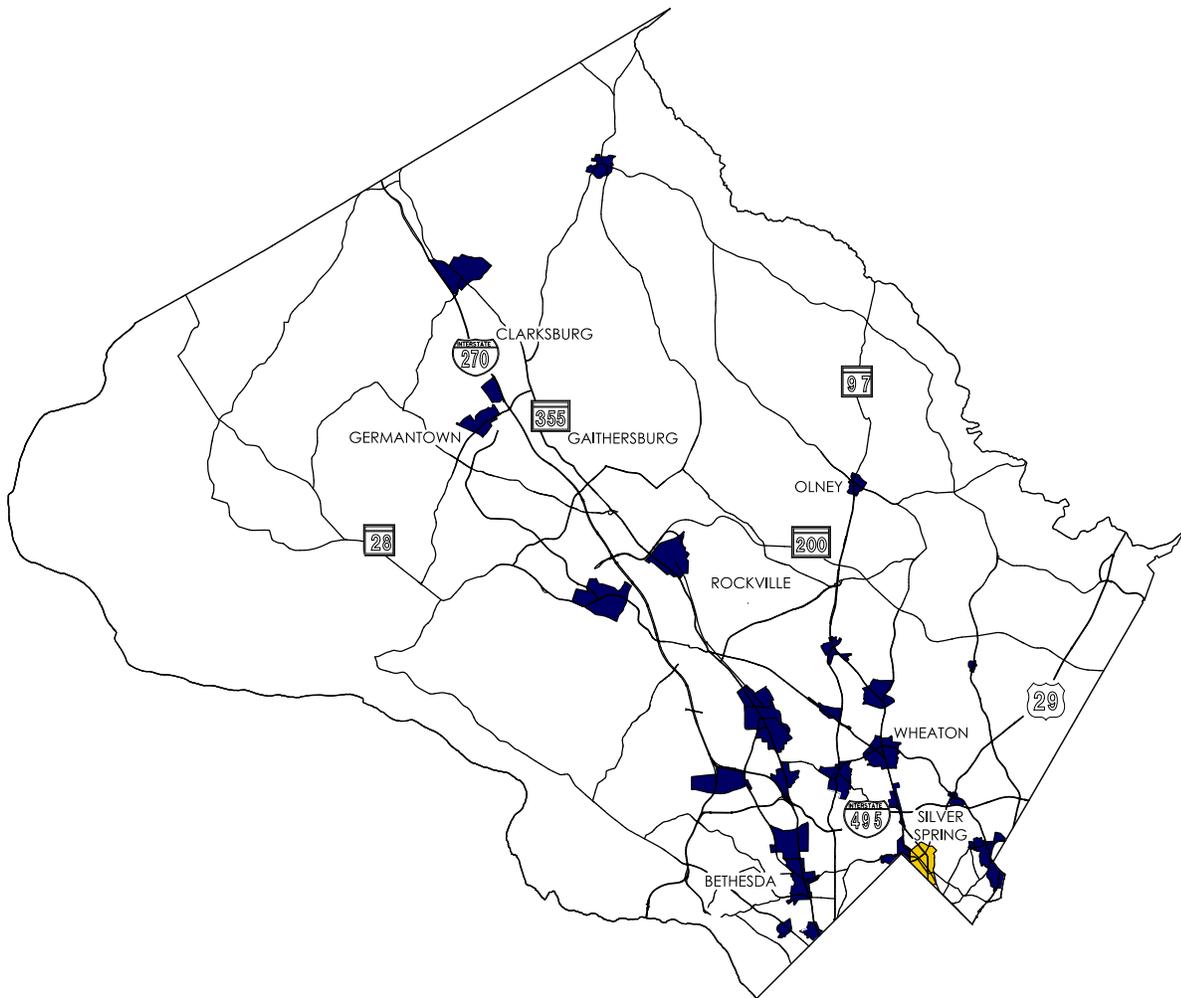
The present day condition in the Silver Spring CBD BiPPA has great potential for the area to have a strong pedestrian and bicycle network. With major employers and attractions such as Discovery Communications, Downtown Silver Spring, and the Silver Spring Civic Building improving the pedestrian and bicyclist safety and accessibility is essential. Implementing the improvements in this report can benefit Silver Spring CBD by potentially decreasing traffic congestion and air pollution; and increasing public safety, comfort, and health.

The Silver Spring CBD and its Vicinity Sector Plan has stated that in order for the master plan to be implemented it cannot be completed by a single project, but needs to be an effort of the entire community. With the nearly complete Silver Spring transit center, and future planned projects such as the Purple Line, Metro Branch Trail, Capital Crescent Trail, and improvements in this report, Silver Spring will be transformed into an area that people want to travel in. Attracting people who want to be there is key in creating a population who care about the community and will preserve all of the existing and proposed improvements to the area.

Silver Spring CBD and Vicinity Sector Plan has also stated that the plan's land use and development recommendations strive to balance the needs of commuter and local traffic, of walkers and drivers, and to maximize the investment in Silver Spring's transit infrastructure. The overall strategy of this report was to rebalance priorities to include pedestrians and bicycles as an equally important user of the right-of-way. Silver Spring's current transportation system is heavily geared towards vehicles, Metro and MARC, and bus services. Urban areas have traditionally higher percentages of people who choose walking and bicycling as their form of transportation for access to jobs, public services, and social networks. Silver Spring encourages people to live, work, shop, and entertain themselves in its community. Implementing the pedestrian and bicycle network improvements proposed in this report will bring Silver Spring one step closer to accomplishing the goals of its Sector Plan.

Silver Spring CBD

References



REFERENCES

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5. Urban Bikeway Design Guide, National Association of City Transportation Officials, Second Edition, 2014.
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