APPENDICES

SECTION 7

ADA EVALUATION MAP

APPENDIX A







PUBLIC MEETING #1 SUMMARY REPORT

APPENDIX B



New York Avenue Streetscape and Trail Project Public Meeting #1 Summary

I. King Jordan Student Academic Center (SAC) Gallaudet University, Washington, DC February 23, 2017

















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1.0 INTRODUCTION

The first public meeting for the New York Avenue Streetscape and Trail project was the initial meeting to introduce the project to the community and stakeholders as well as explain the engagement process.

Four (4) public meetings are planned during this project. They will be held in neighborhood locations along and adjacent to the New York Avenue, NE corridor. The purpose of these meetings is to capture concerns and suggestions that will help to shape and define streetscape and trail improvements. Comments received will be considered during the development of preliminary design recommendations for corridor improvements.

1.1 Purpose of the Meeting

The purpose of this meeting was to provide a general summary of the project and what residents and stakeholders can expect during this process, as well as intended outcomes. Specifically, the District Department of Transportation (DDOT) is working to create a cohesive corridor streetscape and trail to serve the community and users of New York Avenue, NE. This project, with input from the community, will identify improvements that include sidewalks, streetlights, plantings, trees, benches, public art and other public space improvements.

Existing corridor conditions were presented to meeting participants to engage and encourage comments and suggestions that will help to develop conceptual design recommendations as the project moves forward.

1.2 Meeting Information

Public Meeting #1 was held on Thursday, February 23, 2017 from 6:00 pm – 8:00 pm at the I. King Jordan Student Academic Center (SAC) at Gallaudet University located at 800 Florida Ave, NE Washington, DC. Gallaudet University is located near the western-end of the corridor project boundary, New York Avenue and Florida Avenue, NE. It is anticipated that the second public meeting will be located near the eastern-end of the corridor project boundary, New York Avenue and Bladensburg Road, NE.

1.3 Format

To inform and engage the community, the public meeting was set-up in an open-house style format with a combination of corridor exhibits and interactive activities. DDOT gave a presentation providing an overview of the project and project schedule, highlighting public engagement. The presentation also provided a description of each project station. DDOT and consultant team members engaged with attendees at meeting board stations and project area roll maps; and engaged in discussion and answer questions.



1.4 Meeting Boards and Activities

1.4.1 Meeting Boards

Boards were developed to provide attendees an overview of existing conditions along the corridor and allow for streetscape and trail improvements to be prioritized and commented on by the community. The following is a list of the boards and roll maps presented:

- Welcome: Provided the title of the project with a map highlighting the project corridor and description of each project station.
- **Project Goals:** Description of project goals related to improving the off-street transportation system including project elements, i.e., sidewalks, trail design and bicycle facilities, green infrastructure, crosswalks, etc.
- **Project Schedule:** Served to better clarify the process milestones of the project, highlighting the status of the project and where public involvement will take place as the project progresses.
- Existing Land Use: Graphic description of the various land uses, along and adjacent to the project corridor of New York Avenue NE, Florida Avenue to Bladensburg Road. This included, (but not limited to) call-outs for commercial, industrial, residential, mixed-use, parks and schools.
- Existing Circulation: Graphic description of current pedestrian, bicycle and vehicular movements within the project area existing crosswalks, areas lacking sidewalk, areas with non-standard sidewalk and sidewalk in disrepair, and other existing features such as traffic signals, bike trails, Metrobus routes and stops, and Capital Bikeshare locations.
- Existing Materials and Amenities: Graphic display of existing site lighting, sidewalk materials, corridor aesthetics, recent streetscape improvements, and vegetation along New York Avenue.
- Streetscape Standards and Types: Photos with examples of other streetscape options locations in the District or best practices within DDOT design guidelines and standards – green infrastructure, standard curbs and pavement, and standard furnishings and streetscape.
- **Potential Bicycle Route:** Graphic display of potential trail routes along the corridor to show different bicycle route infrastructure options a shared use path (north), a cycle track (south) along New York Avenue, and bike lanes.
- Destinations in the Corridor: Focus was on specific destinations shown graphically on the corridor project map with call-outs highlighting Gallaudet University, NoMa-Gallaudet Metro Station, Capital Bikeshare locations, Union Market, National Arboretum, Ivy City - Hecht Warehouse District, as well as schools, churches, libraries, and community centers.



- Existing Conditions along Potential Bicycle Route Options: Using the corridor project map, pictures were added from specific locations to show the existing conditions along key potential bicycle route options.
- Stay Connected: Provided the various methods DDOT PM Contact, social media, website - for attendees to stay connected to project status and updates, as well as provide feedback.

1.4.2 Activities

Project boards and roll-maps were developed to allow for the community to provide feedback on corridor priorities and issue areas, and describe their current use of the corridor. The meeting interactive activities included:

- What Would a Successful Streetscape Project Mean to You? Attendees were given an opportunity to prioritize the type of streetscape elements that are most important sidewalks and sidewalk crossings, green infrastructure, park spaces, lighting, bike racks, etc. Attendees were given \$35 a combination of \$5, \$10, and \$20 stickers to place in the categories most important to them as a user on New York Avenue.
- What Would a Successful Trail Project Mean to You? For this activity, attendees were asked to respond to three (3) questions using green stickers indicating their preference.
 - What potential bicycle design do you prefer? Attendees were asked to choose their preference between *Along New York Avenue* or *Off of New York Avenue*.
 - If necessary, what are your preferred locations for a trail to cross New York Avenue? Attendees were asked to choose two (2) locations from the following choices:
 - Tunnel at 4th St.
 - Crosswalk at 4th St.
 - Crosswalk at 9th St.
 - Crosswalk at Fenwick St.
 - Crosswalk at 16th St.
 - What destinations are important to you? Attendees were asked to choose two (2) locations from the following choices:
 - National Arboretum
 - NoMa-Gallaudet Metro Station
 - Metropolitan Branch Trail
 - Gallaudet University
 - Other

Additionally, there were two (2) roll maps (116"x40") developed to complement the Streetscape and Trail project station boards to allow for attendees to use post-it notes to write comments, suggestions, concerns or ideas for streetscape and bicycle/trail route options.



2.0 OUTREACH EFFORTS

Outreach for Public Meeting #1 for New York Avenue Streetscape and Trail was key to connecting with the community and ensuring they were informed of the project and the meeting. Community residents, civic organizations, and key stakeholders were contacted through email, and posting and handing out meeting materials.

2.1 Electronic Communication and Social Media

A public meeting notice was developed and distributed via DDOT's Office of Communication, as well as, posted to DDOT social media (twitter and Facebook) accounts. The team contacted community leaders, civic and neighborhood organizations and enlisted their assistance for distribution via their individual listservs and websites.

2.2 Collateral Materials

Meeting notification "Save the Date" fliers were distributed via a grass roots team. The team canvassed the corridor focusing on community meeting locations, as the corridor itself is heavily commercial and industrial. The meeting notices were handed out at the NoMa-Gallaudet Metro Station, Union Market, Hecht Warehouse District at Ivy City, and Gallaudet University. Public Notices were also posted at corridor locations that included Mom's Organic Market, Planet Fitness, Union Market, churches, schools and wellness centers in and around the project area.

2.3 Neighbors and Civic Organizations

Neighborhood and civic organizations, and blogs were also contacted and sent information about the public workshop. These organizations included:

- ANCs 5C, 5D, and 5E
- Bicycle Advisory Council (BAC)
- Gateway to the City (Fort Lincoln)
- Greater Greater Washington
- HechtWarehouse
- Ivy City Civic Association
- NewKidOnEckingtonBlock
- NOMA Bid

- Pedestrian Advisory Council (PAC)
- TheDCBikerBlogger
- TheFrozenTropics
- TheWashCycle
- Trinidad Neighborhood Association
- Urbanturf
- Washington Area Bicycle Association (WABA)



3.0 Attendance

3.1 Attendees

There were thirty-three (33) attendees representing the public, including representatives from neighborhood ANCs and residents directly impacted by the project. Additionally, there were six (6) DDOT staff members, nine (9) consultant team members.

Eighteen (18) completed Title VI forms were collected at the meeting, the following charts below represent the demographic makeup of meeting attendees.





4.0 Comments

Initial comments, feedback, and other input were received via two (2) project stations, two (2) corridor roll maps, and comment and Title VI forms during the meeting.

Additionally, residents, stakeholders and interested parties were also provided an opportunity to give feedback via the on-line survey and interactive map on the project website, www.newyorkavenueproject.com. Interested parties and stakeholders provided comments immediately following the public meeting on February 23, 2017 through March 15, 2017.

Comment Type	# of Comments	
General		
Title VI Form	18	
On-site Comment Form	4	
Public Meeting		
Streetscape Focus Roll Map	15	
Bicycle Focus Roll Map	31	
Interactive Board #1 (Streetscape Priorities)	19	
Interactive Board # 2 (Trail Priorities)	59	
Website		
On-line Survey	119	
On-line Map	75	

The sections below summarize the input received from the meeting and on-line submissions.

4.1 Key Themes

Based on the comments received, including four (4) on-site comment forms, the primary themes that surfaced were:

- Bicycle facilities along the corridor
- Sidewalk improvements; provide sidewalks where missing
- Safe pedestrian crossings on New York Avenue
- Vehicular speed along the corridor
- Trail connections to existing bike/pedestrian trails
- Trail connections to adjacent neighborhoods

4.2 Interactive Activities

4.2.1 Activity Boards

What Would a Successful Streetscape Project Mean to You?



Attendees were asked to prioritize streetscape elements by placing any combination of \$35 - \$5, \$10, and \$20 stickers – in those categories important to them. The following summarizes attendee priorities.



What is most important to you?

What Would a Successful Trail Project Mean to You?

At the meeting, attendees were asked to respond to three (3) questions focused on bike design preference, preferred New York Avenue trail crossing, and important destinations. Using green stickers, attendees indicated their preferences. The following summarizes their preferences.





Preferred trail locations to cross New York Avenue



What destinations are important to you?





4.2.2 Corridor Roll Maps

Streetscape Roll Map: Fifteen (15) comments were provided by meeting attendees on the roll map focused on streetscape elements and improvements.



Bicycle Infrastructure Roll Map: Thirty-one (31) comments were provided by meeting attendees on the roll map focused on bicycle and trail routes.





4.3 Survey

A survey was developed for meeting attendees and visitors to the project website. The survey was comprised of 11 questions and an 'Additional Comments' section. One hundred and nineteen (119) surveys were completed. For many of the questions, respondents could select multiple responses. The table below reflects the total number of responses and comments for each question.

	Survey Questions	# of Responses/Comments
1	How do you use New York Avenue from Florida Avenue to Bladensburg Road?	133
2	What time do you typically use New York Avenue?	133
3	What do you like most about current conditions of New York Avenue? (Please write your ideas below)	71
4	Please select three streetscape improvements that you think should be a priority along the New York Avenue corridor?	377
5	What are the existing issues or barriers to using New York Avenue as a pedestrian and/or bicyclist?	96
6	What potential bicycle route do you prefer?	125
7	If the bicycle route is along New York Avenue, which side of the road would you prefer for the route?	115
8	If necessary, what are your preferred locations for a trail to cross New York Avenue? (pick two)	189
9	If the bicycle route is off New York Avenue, what is your preferred bicycle route infrastructure?	126
10	What should be the main goal of the bicycle accommodations?	128
11	What destinations are the most important to you within the corridor? (pick two)	262
	Additional Comments	30



The following tables summarize detailed responses.



A summary of use comments noted here by 'Other' include:

- Travel in/out of the District to Maryland
- Direct route to the Arboretum
- Connection between neighborhoods and Ivy City/Hecht Warehouse development



What time do you typically use New York Avenue?





Select three streetscape improvements you think should be a priority





What are your preferred locations for a trail to cross New York Avenue



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If bicycle route is along New York Avenue, which side of the road do you prefer?



If bicycle route is off New York Avenue, what is your preferred route infrastrucutre



What should be the main goal of the bicycle accommodations?







The following survey questions were open-ended, allowing attendees to provide feedback in their own words. Below are the major themes that emerged.

What do you like most about current conditions of New York Avenue? (Please write your ideas below).

- New York Avenue provides direct access to downtown DC.
- The new commercial development in Ivy City (Hecht Warehouse District)
- Traffic flows smoothly; great for cars.

What are the existing issues or barriers to using New York Avenue as a pedestrian and/or bicyclist?

- The high-speed, large volume of traffic, lack of ADA accessibility, lack of sidewalks, and lack of crosswalks deters pedestrians and bicyclists from New York Avenue in its current state.
- New York Avenue seen as catering to commuters and not the residents.
- Lots of hard to cross intersections; cars travelling at high rates of speed.
- There are no bicycle facilities.

4.4 Interactive Map

An interactive map (wikimap) of New York Avenue (Florida Avenue to Bladensburg Road) was developed and placed on the project website for a period of 2.5 weeks following the public meeting to provide an additional opportunity for residents to provide comments and suggestions. Seventy-five (75) comments were received, the category breakdown is as follows:



Pedestrian Bicycle General Streetscape



The key themes that emerged from this set of comments are summarized below.

- Bicycle
 - **Safe bicycle infrastructure:** Residents like the direct route to downtown DC, but are concerned with their safety relative to the speed and volume of New York Avenue traffic. The existing sidewalks are not wide enough to accommodate both bicycles and pedestrians or are missing entirely.
 - Connections: Residents and users of New York Avenue would like to see connections to existing trails and adjacent neighborhoods like Fort Lincoln located North of the project area; and improvements to North-South connections between Ivy City and Brentwood neighborhoods.
- Pedestrian
 - Sidewalks: Concerns with the condition of existing sidewalks and crosswalks missing, cracked, narrow; crossings at major intersections; and pedestrian signals (not enough time) – make it challenging to move around safely in the corridor.
 - **Traffic calming:** Residents noted the need for traffic calming (safety) measures to slow down vehicles, particularly at high volume intersections like the Montana Avenue/Mt. Olivet Circle.
- Streetscape
 - **Trees/Green space:** Residents and stakeholders noted the need for trees and the creation of green spaces (small parks) where available to continue and provide improved corridor aesthetic started with the artwork on the bridge.
 - Sidewalks/Crosswalks: Improvements to the sidewalks to make for safe passage through the corridor are encouraged, including the removal (relocation) of utility poles. The utilization of existing infrastructure (old rail bridge at T Street) and bump-outs to shorten crossing distances were also mentioned as improvements to create a walkable corridor.



- **Green Infrastructure:** The use of permeable materials for sidewalks, driveways and entrances, and green medians to reduce run-off were suggested throughout the corridor.
- General
 - Intersection improvements: Intersection improvements and connections for safety were noted at the Florida Ave., 4th/Penn St., and Montana Ave. locations. Suggestions for a "circle" (roundabout) at the Montana Ave. intersection were noted as well.

4.5 Other Comments

Additional comments were collected in an open-ended forum from the surveys, general comment cards and on the Title VI forms. Those comments echo many of the remarks noted throughout this section, and are summarized below.

- A desire for formalized bicycle facilities along New York Avenue.
- Connections to neighborhoods north of New York Avenue (Fort Lincoln, National Arboretum), existing trails and bike lanes (Metropolitan Branch and Anacostia Trails).
- Traffic calming measures to slow traffic to make New York Avenue safe for cyclists and pedestrians.
- Streetscape elements to improve the look and safety of the corridor, including crosswalks, sidewalks, lighting and trees/landscaping.



5.0 APPENDIX

- Comment Forms (On-site)
- Title VI forms
- Sign-In Sheets
- Roll Map Comments
 - o Streetscape
 - o Bicycle
- On-line Survey detailed summary
- On-line Interactive Map Comments

PUBLIC MEETING #2 SUMMARY REPORT

APPENDIX C



New York Avenue Streetscape and Trail Project Public Meeting #2 Summary

Holiday Inn Express and Suites, NE – The Arboretum Room Washington, DC April 25, 2017









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1.0 INTRODUCTION

The District Department of Transportation (DDOT) is working to create a cohesive corridor streetscape and trail to serve the community and users of New York Avenue, NE, from Florida Avenue to Bladensburg Road. Four (4) public meetings are planned during this project to help identify and develop implementable design improvements that include sidewalks, streetlights, plantings, trees, benches, public art and other public space improvements.

This report provides a summary of community feedback, key themes and comments collected from Public Meeting #2 and the first Public Engagement event. The purpose of these events was to share initial conceptual streetscape and trail design concepts based on feedback from on-line survey responses and interactive map comments from Public Meeting #1 held February 23, 2017 at the I. King Jordan Student Activity Center (SAC) on the Gallaudet University campus.

1.1 Public Meeting #2

Public Meeting #2 was held on Tuesday, April 25, 2017 from 6:00 pm – 8:00 pm at the Holiday Inn Express & Suites located at 1917 Bladensburg Rd NE, Washington DC. The Holiday Inn is located near the eastern-end of the corridor project boundary, New York Avenue and Bladensburg Road, NE. It is anticipated that the third public meeting will be located on the west side of the project, and near the Gallaudet University Metro Station stop.

The project team shard four (4) corridor design concepts and alternatives in an open house to engage attendees so that they could learn and discuss comments and suggestions about the concepts with the DDOT team and staff. The concepts and alternatives presented can be found in Section 1.4 of this document.

1.1.1 Format

To inform and engage the community, Public Meeting #2 was set-up in an open-house style format with corridor exhibits, and attendees were given a project survey highlighting the concepts shared during the meeting to gain additional insight on community preferences. DDOT and consultant team members engaged with attendees at meeting board stations.

1.2 On-Site Public Engagement Event

A public engagement event was held on-site on New York Avenue on May 20, 2017 from 9:00 am – 12:00 pm. Public Engagement event #1 focused on specific intersections located within the project corridor. The team went to New York Avenue and set up a tent with location



specific meeting boards to discuss with visitors at three (3) key corridor intersections with project information allowing for stakeholders to provide additional comment and feedback directly to DDOT team members:

- Bladensburg Road/New York Avenue NE
- Montana Avenue/New York Avenue NE
- Mount Olivet/9th Street /New York Avenue NE

DDOT team representatives were on-site and prepared to meet and discuss with corridor residents and stakeholders, existing challenges and potential solutions to the initial streetscape and trail improvement concepts shared during Public Meeting #2 held on April 25, 2017. Comment and survey forms were provided to stakeholders to capture their concerns and feedback.

1.3 Meeting Boards and Activities

1.3.1 Meeting Boards

Boards were developed to provide attendees an overview of initial concepts developed by the team based on existing conditions along the corridor and community feedback captured from the on-line survey and interactive map from Public Meeting #1. The following is a list of the boards presented:

- Welcome: Provided the title of the project with a map highlighting the project corridor and description of each project station. A project schedule was also included.
- **Project Goals:** Description of project goals related to improving the off-street transportation system including project elements, i.e., sidewalks, trail design and bicycle facilities, green infrastructure, crosswalks, etc.
- **Public Meeting #1 Themes:** Summary of feedback received from the first public meeting captured from general comment forms, on-line survey and interactive map comments.
- **Streetscape Planting Options:** Graphic description of the various plant types and options, streetscape standards for pavement and curbs, and 'Crime Prevention Through Environmental Design (CPTED)' concepts.
- **Green Infrastructure:** Graphic options and implementation for the utilization of green infrastructure BMPs including bioretention planters, bioswales, and permeable pavement.
- **Corridor Segment 1:** Florida Avenue NE to 4th Street NE design options including segment design challenges and opportunities.
- **Corridor Segment 2 Concepts:** 4th Street NE to 16th Street NE design options and design challenges and opportunities for the following segment concepts:
 - Concept 1 Raised Cycle Track and Sidewalks
 - o Concept 2 Shared Use Path with Open Space



- Concept 3 Cycle Track and Sidewalks
- Concept 4 Sidewalks and Streetscape Only
- **Corridor Segment 2 Trail Crossings:** 4th Street NE to 16th Street NE trail and cycle track crossing goals and typical sections:
 - Trail crossings at New York Avenue
 - o Cycle track crossing at intersections
- Corridor Segment 3 Montana Avenue: Focus was on concept design challenges and opportunities at this intersection, including potential Montana Avenue Circle improvements – green space, sidewalks, lighting, street trees, etc.; public art and gateway signage; and green infrastructure.
- Corridor Segment 4 Bladensburg Road: 16th Street NE to Bladensburg Road NE design options and design challenges and opportunities at this intersection highlighting streetscape options and intersection design goals.
- Off New York Avenue Bicycle Route: Focus on bicycle facility type, route locations, and key features, as well as typical sections (graphical) of shared use path, shared lanes and protected bike lanes (cycle track) for facilities not located along New York Avenue NE. Concepts included the following street routes:
 - Shared Use Path: Penn Street, Brentwood Parkway, Mount Olivet Road, and West Virginia Avenue
 - Shared Lanes: Delaware Avenue, Mount Olivet Road, T Street, 24th Street and R Street
 - Cycle Track/Protected Bike Lane: M Street, 4th Street, Union Market Alley, 17th Street, Fenwick Street, Okie Street, 16th Street, Mount Olivet Road, West Virginia Avenue and New City Development
- **Stay Connected:** Provided the various methods that the community can stay connected to project status and updates and provide feedback.

1.3.2 Interactive Activities

The activity for this meeting was the survey created to capture community preferences around the initial concepts developed as shown here.

New York Avenue NE Streetscape and Trail Project Survey

DDOT wants your input! Please take a few moments to review the four New York Avenue NE concepts for Segment 2 and complete the following survey on the reverse side. Segment 2 provides the most available space along the corridor to allow for the different Concepts shown and described below.













NOTE: The south side sidewalk is consistent throughout all Concepts at 10' to 16' wide.



1.) How important are the following to you? (Please rank in order of priority: 1=highest to 4=lowest)

Separation between bicyclists and pedestrians	
Minimized conflicts between cyclist and vehicles	
Decrease of hard surfaces and increase of green space and vegetation	
Wide sidewalks for pedestrian use only	
Additional comments:	

2.) Rank the concepts in order of preference (1=top choice, 4=least favorite)

Concept1	Raised cycle track and sidewalks	
Concept 2	Shared use path with open space	
Concept3	South side cycle track and sidewalks	
Concept 4	Sidewalks and streetscape only (includes bicycle route off of New York	
	Avenue)	
Additional comments:		

*Streetscape improvements along New York Avenue are included in all concepts.

How likely are you to ...?

	Likely	Unlikely
3.) Follow signage that encourages you to walk on the south side and bicycle		
on the north side of the New York Avenue NE Bridge near the Metropolitan		
Branch Trail?		
4.) Walk or bike on a sidewalk or trail on the north side of New York Avenue		
NE if you are required to cross New York Avenue NE at-grade?		
5.) Use a multi-use trail that crosses over New York Avenue NE via the		
unused Railroad Bridge and continues along the train tracks and behind the		
businesses to Bladensburg Road?		
Additional comments:		

6.) Rank the site features you prefer for the future design of Montana Avenue Circle. (1=most important, 3=least important)

Landscaping treatments	
Gateway features (public art, signage)	
Space for bicyclists and pedestrians to use refuge islands	
Additional comments:	



2.0 OUTREACH EFFORTS

Outreach for Public Meeting #2 for New York Avenue Streetscape and Trail was key to connecting with the community and ensuring they were informed of project progress and the meeting. Community residents, civic organizations, and key stakeholders were contacted through email, postcard mailings, and posting and handing out meeting materials.

2.1 Electronic Communication and Social Media

A public meeting notice was developed and distributed via DDOT's Office of Communication, as well as, posted to DDOT social media (twitter and Facebook) accounts. The team contacted community leaders, civic and neighborhood organizations and enlisted their assistance for distribution via their individual listservs and websites.

2.2 Direct Mailing and Public Notices

For this meeting, the focus was on those neighborhoods adjacent to the corridor. A postcard was developed and mailed to District residents living in the 20002 and 20018 zip code areas. Additionally, postcards were also distributed via the grass roots team and handed out at the NoMa-Gallaudet University Metro Station, Union Market, Hecht Warehouse District at Ivy City, and Gallaudet University. Public Notices were also posted at corridor locations that included MOM's Organic Market, Planet Fitness, Union Market, churches, schools and wellness centers in and around the project area.

2.3 Neighbors and Civic Organizations

Neighborhood and civic organizations, and blogs were also contacted and sent information about the public workshop. These organizations included:

- ANCs 5C, 5D, and 5E
- Bicycle Advisory Council (BAC)
- Gateway to the City (Fort Lincoln)
- Greater Greater Washington
- HechtWarehouse
- Ivy City Civic Association
- NewKidOnEckingtonBlock
- NOMA Bid

- Pedestrian Advisory Council (PAC)
- TheDCBikerBlogger
- TheFrozenTropics
- TheWashCycle
- Trinidad Neighborhood Association
- Urbanturf
- Washington Area Bicycle Association (WABA)



3.0 Attendance

3.1 Public Meeting #2 and Public Engagement Attendees

Forty-three (43) attendees representing the public, including representatives from neighborhood ANCs and residents attended Public Meeting #2. Additionally, six (6) DDOT staff members, two (2) interpreters, and seven (7) consultant team members were also in attendance.

Eleven (11) visitors met the project team – two (2) DDOT staff members and five (5) consultant team members – during the Public Engagement event.

Twenty-four (24) completed Title VI forms were collected from both events. The following charts below represent the demographic makeup of meeting attendees.





4.0 Feedback Results

Like Public Meeting #1, meeting attendees were provided various opportunities to provide comment and feedback on the concepts shared via DDOT Title VI forms, general comment forms and meeting tablets. Additionally, residents, stakeholders and interested parties were also provided an opportunity to give feedback via the on-line survey on the project website: www.newyorkavenueproject.com. Stakeholders could provide feedback immediately following the public meeting on April 25, 2017 through May 21, 2017.

4.1 Survey

A survey was available during Public Meeting #2 and on the project website. The survey asked six (6) questions with 'Additional Comments' sections for each. Three hundred and ninety-three (393) surveys were completed. Responses are based on individual preferences and utilization (current and future) of the New York Avenue NE corridor. Please find the results of the survey feedback below.




Q2. Rank the concepts shown in order of preference (1=Top choice, 4=Least favorite)



Q3. How likely are you to follow signage that encourages you to walk on the south side and bicycle on the north side of the New York Avenue bridge near the Metropolitan Branch Trail (MBT)?





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Q6. Rank the site features you prefer for the future design of Montana Avneue Circle (1=Most important, 3=Least important)



4.2 Key Themes

In addition to the survey responses, three (3) key themes emerged from the comments received:

- Safety for pedestrians and bicyclists (protected) along the corridor
- Trail connections to existing bike/pedestrian trails
- Increase in greenspace; beautification of the corridor

4.3 Written Comments

The Project Team received a combined total of nearly three hundred (300) comments and survey responses from the April 25th Public Meeting #2 and the May 20th Public Engagement event.



Comment Type	# of Comments
Public Meeting #2	
Title VI Form	8
Comment Form	4
Comment Tablet	5
Survey	20
On-Line Comments	
Survey	251
Public Engagement Event	
Comment Form	3
Survey	6

The sections below summarize the input received from Public Meeting #2, Public Engagement event and on-line survey submissions.

4.3.1 Survey Comments

The key themes that emerged from the survey comments are summarized below.

- Design Elements
 - Safety for all users is the #1 priority.
 - The design should focus on pedestrian and bicycle users.
 - For safety, the separation of cars and bicycles is a key factor.
 - Respondents are willing to have trees and landscape if pedestrian/bicycle elements are not sacrificed or compromised.
- Concept Preference
 - Concept #1-Raised Cycle Track and Sidewalks (as shown on the Survey) is preferred of the options presented.
 - Best concept is the one that has the least interaction of cyclists and vehicles (turning movements).
 - A preference for a design that allows safe and easy bike passage without disrupting a major commuting corridor and without creating additional bottlenecks along the corridor.
 - North side location of cycle track/bike lanes is preferred because of the low number of pedestrian traffic, curb cuts and vehicle turning movements, however New York Avenue crossings to get to destinations is still concerning.
 - The South side location of cycle track/bike lanes was noted as a challenge because of the high number of intersection crossings, curb cuts and vehicle turning movements.



- Crossings and Connections
 - Safety at night is a concern.
 - Connections should be meaningful to connect pedestrians/bicyclists to other trails, neighborhoods and destinations.
 - Open to additional options for crossing New York Avenue including tunnel or bridge options.
 - Bridge and sidewalks would need to be widened; additional lighting.
 - At-grade crossings are fine but DDOT would need to consider safety from vehicular speeding along the corridor (bike/pedestrian signalization).
 - Multi-use trails that are separate from vehicular roads are preferred.
- Montana Avenue NE (Circle)
 - Green spaces, trees and public art are appreciated and would be welcomed, but features improving the safety of pedestrians and bicyclists should be the priority.
 - Refuge islands are helpful, but it's preferred if there was less traffic to take refuge from—reduction in points of conflict between pedestrians, bicyclists and vehicles.
 - o Impacts to traffic flow with conceptual improvements.

4.3.2 Public Meeting #2

The comments collected during the meeting on the comment tablet highlighted the following themes:

- For scenic purposes suggest a broadening of New York Avenue with historical markers and the insertion of a street car line to North Capitol Street; Advise that Bladensburg Road and adjacent parallel streets be used for biking – K, L and I Streets – towards 6th Street NE to Union Station; and connect upper and lower NE using 18th Street as well as South Dakota towards Bladensburg Road.
- Transitions and connections at terminus of project, east of project limit towards South Dakota Avenue.
- Montana Ave Circle traffic circulation
- Bridge underneath railroad at Montana Avenue is dark and unsafe needs lighting
 - Address with existing Montana Avenue
 - Green space north of Montana Avenue Circle can it be used to improve pedestrian/bike experience?
 - N-S connections thru Montana Avenue Circle
- To link upper and lower NE rely on these corridors into the City towards the 1st Street NE business and residential area:
 - Queens Chapel to Bladensburg H, I, L, and K Streets corridor to Downtown



- Landen/18th Street to Montana Avenue toward West Virginia/Gallaudet University to I, L and K Streets to Downtown
- 13th Street to 9th Street bridge to Brentwood Parkway towards Union Market, 6th Street to Downtown

4.3.3 Public Engagement Event

The comments collected during this outreach event highlighted the following themes:

- Trail connection to Metropolitan Branch Trail (MBT)
- Design elements focused on the safety of pedestrians and cyclists
 - o Longer signalized lights for pedestrians
 - Wider sidewalks to accommodate bicycles
 - o Higher pedestrian visibility

4.4 Additional Comments

Additional comments were collected from the general comment and Title VI forms. Those comments echo many of the remarks noted throughout this section, and are summarized below.

- A desire for having protected bike lanes and pedestrian space.
- Desire for Circulator bus service connecting the Ivy City neighborhood to Union Station.
- Expansion of Metro Bus D4 service all day versus only at peak AM/PM hours.
- Concern that the project will focus on MD commuters and DC residents.
- Connect this project to the South Dakota Ave improvement project.
- Cycle track preferences:
 - North side location for cycle track least amount of curb cuts/driveways
 - o Utilization of RR bridge near Montana Avenue with connection to MBT
- Need for signage along trail to guide pedestrians and cyclists.
- Welcome to DC or similar gateway signage to highlight the corridor.



5.0 APPENDIX

- Sign-In Sheets
- Title VI Form Comments
- Comment Forms
- Survey Comments

PUBLIC MEETING #3 SUMMARY REPORT

APPENDIX D

NEW YORK AVENUE NE STREETSCAPE AND TRAIL CONCEPT REPORT



New York Avenue Streetscape and Trail Project Public Meeting #3 Summary

REI Co-Op, 201 M Street NE Washington, DC June 29, 2017













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1.0 INTRODUCTION

The District Department of Transportation (DDOT) is working to create a streetscape and trail to serve the community and users of New York Avenue, NE, from Florida Avenue to Bladensburg Road. Four (4) public meetings are planned during this project to help identify and develop implementable design improvements that include sidewalks, streetlights, plantings, trees, benches, public art and other public space improvements.

This report is a summary of community feedback, key themes and comments collected from Public Meeting #3. The purpose of this event was to share the final draft streetscape and trail design concepts based on feedback from comments from Public Meeting #2 held April 25, 2017 at the Holiday Inn Express (1917 Bladensburg Road), and Public Engagement event #1 held May 20.

1.1 Public Meeting #3

Public Meeting #3 was held on Thursday, June 29, 2017 from 6:00 pm – 8:00 pm at the REI Co-Op, located near the western-end of the corridor project limits. It is anticipated that the Public Meeting #4 will be held at Gallaudet University.

At 6:30 pm, DDOT Project Managers provided a brief presentation about the project concept. The presentation was followed by the final draft corridor design concepts being shared in an open house format.

1.1.1 Meeting Format

The format of Public Meeting #3 was an open-house. Corridor exhibits of the concept streetscape and trail design highlighted both the project limits and three (3) segments to gain insight on community preferences for particular areas. DDOT and consultant team members engaged with attendees at meeting board stations.

1.2 Meeting Boards

Display boards were developed for Public Meeting #3 to share with attendees the final draft concepts developed by the team. The boards were based on existing conditions along the corridor and community feedback captured from Public Meeting #2 and Public Engagement Event #1. The following is a list of the boards presented:



- Welcome: Provided the title of the project with a map highlighting the project corridor and description of each project station. A project schedule was also included.
- Connecting to New York Avenue Bicycle Route Western Segment: Connect to NoMa-Gallaudet Metro Station: Graphic description of proposed on-street bicycle route including potential future bicycle facilities, proposed cycle track, and shared lanes.
- Connecting to New York Avenue Bicycle Route Eastern Segment: Connect to National Arboretum: Graphic description of proposed on-street bicycle route including bicycle facilities and trail connections, sidewalks and proposed shared lanes.
- **Green Infrastructure:** Graphic options and implementation for the utilization of green infrastructure BMPs including bioretention planters, bioswales, and permeable pavement.
- New York Avenue Segment 1 Florida Avenue NE to 9th Street Bridge: Graphic description of New York Avenue NE draft corridor concept including proposed sidewalks, bicycle facilities and trail connections, stair and ramp connections to the Metropolitan Branch Trail, streetscape improvements (lighting, grass and tree plantings), and potential future bicycle facilities.
- New York Avenue Segment 2 9th Street Bridge to Hecht Warehouse Area: Graphic description of New York Avenue NE draft corridor concept including ramp and stair connection to 9th Street, proposed sidewalks, bicycle facilities and trail connections, streetscape improvements (lighting, grass and tree plantings), and potential future bicycle facilities.
- New York Avenue Segment 3 Hecht Warehouse Area to Bladensburg Road NE: Graphic description of New York Avenue NE draft corridor concept including detail of New York Avenue and 16th Street intersection detail, proposed West Virginia Avenue NE raised cycle track and 16th Street shared use path, streetscape improvements at Montana Avenue Circle, 17th Street cycle track, and New York Avenue and Bladensburg Road intersection detail. This board also showed an alternate bicycle route concept for West Virginia Avenue NE buffered lanes.
- **Stay Connected:** Provided the various methods that the community can stay connected to project status and updates and provide feedback.



2.0 OUTREACH EFFORTS

Extensive outreach for New York Avenue Streetscape and Trail Public Meeting #3 was performed by the project team; those efforts are outlined below.

2.1 Electronic Communication and Social Media

A public meeting notice was developed and distributed via DDOT's Office of Communication, as well as, posted to DDOT social media (Twitter and Facebook) accounts. The team contacted community leaders, civic and neighborhood organizations and enlisted their assistance for distribution via their individual listservs and websites.

2.2 Postcard Distribution

A public meeting announcement postcard was developed and distributed by the grass roots team and handed out at the NoMa-Gallaudet University Metro Station, Union Market, Hecht Warehouse District at Ivy City, and Gallaudet University. Public Notices were posted at gathering sites along the corridor that include:

- Brentwood Recreation Center
- Gallaudet University
- Hecht Warehouse at Ivy City
 - o Planet Fitness
 - Mom's Organic
 - o CrossFit Hierarchy
 - o Petco
 - o Bicyclespace
- Union Market
- Quality Inn & Suites
- Days Inn Gateway

- Holiday Inn Express & Suites
- Marriott Courtyard
- Hayes Senior Wellness Center
- Model Cities Wellness Center
- Two Rivers Public Charter School
- The Children's Guild DC Public Charter School
- District of Columbia Animal Care and Control
- Teresa's Garden Center
- MPD 5D



2.3 Neighbors and Civic Organizations

Neighborhood and civic organizations, and blogs were also contacted and sent information about the public workshop. These organizations included:

- ANCs 5C, 5D, and 5E
- Bicycle Advisory Council (BAC)
- Gateway to the City (Fort Lincoln)
- Greater Greater Washington
- HechtWarehouse
- Ivy City Civic Association
- NewKidOnEckingtonBlock
- NOMA Bid

- Pedestrian Advisory Council (PAC)
- TheDCBikerBlogger
- TheFrozenTropics
- TheWashCycle
- Trinidad Neighborhood Association
- Urbanturf
- Washington Area Bicycle Association (WABA)



3.0 ATTENDANCE

Public Meeting #3 Attendees

Twenty-nine (29) attendees representing the community, including representatives from neighborhood ANCs attended Public Meeting #3. Additionally, five (5) DDOT staff members and nine (9) consultant team members were also in attendance.

Thirteen (13) attendees completed Title VI forms at Public Meeting #3. A summary of the demographic makeup of meeting attendees is below.



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4.0 FEEDBACK AVENUES

Meeting attendees provided comment and feedback about the project design via DDOT Title VI forms, general comment forms and meeting tablets. Additionally, residents, stakeholders and interested parties were also provided an opportunity to give feedback via the project website: www.newyorkavenueproject.com.

4.1 Key Themes

The key themes that emerged from the comments received:

- Safety for pedestrians and bicyclists (protected) along the corridor;
- Trail connections to existing bike/pedestrian trails;
- Neighborhood connections between the south and north sides of the corridor;
- Intersection crossings within the Corridor need improvement; and
- Streetscape elements need more variety

4.2 Written Comments

The Project Team received fifty-one (51) comments from the June 29th Public Meeting #3.

Comment Type	# of Comments
Public Meeting #3	
Title VI Form	6
Comment Form	20
Comment Tablet	25
TOTAL	51

The sections below summarize the input received from Public Meeting #3.

4.2.1 Public Meeting #3

The following comments listed below, highlight some of the discussion topics from the meeting:

- Safety
 - Safety for all users is the #1 priority!
 - Ensure that north side of NY Ave has sufficient lighting and visibility to mitigate safety concerns at night (particularly since its limited access).
- Pedestrian



- Need safe crossing on 9th street to ramp.
- Need crossing (on NY Ave) to get to MOM's east of Fenwick St.
- Streetscape
 - Concern about left turn from NY Ave to 4th Street cars back-up.
 - Consider 'bump out' on 4th Street intersection @ NY Ave to force slower turns by vehicles and safer crossing for peds/cyclists.
 - Bump-out extension turn lane by men's shelter for police parking.
 - Create park amenities to include exercise areas, areas for play, areas of education; intra-District (agency) agreement with DPR to maintain.
 - Recycling/landfill containers should be implemented along walkway/bike paths to improve upkeep.
 - "You are here" signs to provide directions/routes.
 - A Business Improvement District to help cover maintenance costs and programming.
- Trail
 - How is the ramp used from MBT to NY Ave going west?
 - Concern about crossing at ramp/stairs or potential wrong-way riding?
 - Consider re-designing 4th Street intersection to ensure safer crossing and less chaotic vehicle traffic (no obvious turn lane and aggressive driving).
 - Move stairs to North side of NYA at MBT.
 - Can there be concrete barriers for the protected bike lane on the bridge?
 - Consider switching sidewalk and bike trail along the corridor to ease queuing peds and bikes at intersections.
 - Love full bike path on North side of NYA (avoids all intersections).
 - Reconsider existing treatment on the most western section of Segment 1 (Florida Ave and NY Ave, northside). Without physical separation, vehicles will come onto bike lane to take right on Eckington Place. Consider merging bike lane into mixed share path to take right on Florida Ave then on Eckington Place.
 - Coordinate w/Florida Ave project and Dave Thomas (Wendy's) circle redesign, to ensure safe and efficient transition/connection from NY southbound to either Florida Ave SE bound (on cycle track) or NY Ave/1st street south bound.
 - Provide cycle track on all of 4th Street NO SHARROWS!
 - Indicate where protected track ends/changes sides, etc.



4.3 Additional Comments

Additional comments were collected from the general comment and Title VI forms. Those comments echo many of the remarks noted throughout this section, and are listed below.

- General
 - Love the improvements since the last meeting.
- Trail
 - On-street routing connections need work. Cycle tracks, not sharrows, are needed on:
 - 4th Street
 - 9^{th,} 6th, and Brentwood Parkway
 - West Virginia Avenue
 - Bladensburg Road
 - Need to provide safe crossing spaces at intersections near major attractions Union Market, Hecht Town Area and future New City area.
 - Segment 1: Please consider not having a bike lane on New York Avenue if not physically separated by hard infrastructure.
 - Glad to see separate bike space over the bridge, but still unclear whether it would feel safe.
 - I like the esplanade idea".
 - Like the transition promenade on North side of New York Avenue.
 - Give greater consideration for emergency vehicles access to railroad facilities between 9th and 16th Streets.
 - Consider parallel tunnel to existing PRR tunnel it is a doable venture.
 - Be mindful of VRE's plans for placing an elevated turntable for locomotives at Montana Avenue.
 - Please think about phasing, start with bike routes from Bladensburg Road.
- Streetscape
 - How do you propose to maintain the proposed greenery along the corridor?
 - It would be great to have public art in the circle (Montana Ave.).



5.0 APPENDIX

- Sign-In Sheets
- Meeting Tablet Comments
- Title VI Form Comments
- Comment Forms

PUBLIC MEETING #4 SUMMARY REPORT

APPENDIX E

NEW YORK AVENUE NE STREETSCAPE AND TRAIL CONCEPT REPORT



New York Avenue Streetscape and Trail Project Public Meeting #4 Summary

Gallaudet University, I. King Jordan Student Activity Center 800 Florida Avenue, NE, Washington, DC September 19, 2017





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1.0 INTRODUCTION

The District Department of Transportation (DDOT) is working to create a streetscape and trail to serve the community and users of New York Avenue, NE, from Florida Avenue to Bladensburg Road. Four (4) public meetings were planned during this project to help identify and develop implementable design improvements that include sidewalks, streetlights, plantings, trees, benches, public art and other public space improvements.

This report is a summary of community feedback, key themes and comments collected from the last of the planned public meetings, Public Meeting #4. The purpose of this event was to share the final draft streetscape and trail design concept developed based on feedback from comments from Public Meeting #3 held June 29, 2017 at the REI Co-Op (200 M Street NE, and Public Engagement Event #2 held August 19, 2017 at Union Market (800 Florida Avenue NE).

1.1 Public Meeting #4

Public Meeting #4 was held on Tuesday, September 19, 2017 from 6:00 pm – 8:00 pm at Gallaudet University's I. King Jordan Student Academic Center (SAC) located near the westernend of the corridor project limits.

DDOT Project Managers, Katherine Youngbluth and Michael Alvino, provided a brief presentation to inform meeting participants on themes captured from Public Meeting #3 and Community Engagement events. This presentation highlighted:

- the selected concept that met the goals of the project and was most preferred per community feedback;
- corridor improvements and details that included sidewalks, landscape, stormwater management BMPs; and
- transit service considerations.

The final draft corridor design concept was shared in an open house format. The full presentation is attached and available at <u>www.newyorkavenueproject/resources/</u>.

1.1.1 Meeting Format

The format of Public Meeting #4 was an open-house, with a brief presentation at 7pm. Corridor exhibits of the draft final concept streetscape and trail design highlighted the design throughout the project limits to collect final thoughts on the design. DDOT and consultant team members engaged with attendees at meeting board stations.

Interpretation Services

Due to the project area being in close proximity of the Gallaudet University community, interpretation services for the hearing impaired were requested and provided for previous



public meetings over the course of the project. Although interpretation services were requested for this meeting (Public Meeting #4), the request for the services was not finalized and no interpreters were provided for the meeting. At the meeting and with the help of the Gallaudet University point of contact, the project team was able to identify and request the interpretation services of a community member, in attendance at the meeting, to provide this service. This was done with the approval of those hearing-impaired in attendance.

Additionally, the project team offered to schedule a separate meeting with a focus on the hearing-impaired community to provide an opportunity for additional comment and review of the project process and final draft concept developed.

1.2 Public Engagement Event #2

A public engagement event was held Saturday, August 19, 2017 from 10:00 am – 1:00 pm at Union Market located near the western-end of the corridor project boundary, New York Avenue and Florida Avenue, NE.

Public Engagement event #2 focused on the draft concepts developed and shared during Public Meeting #3, held June 29th. The team set up meeting boards on-site at Union Market to engage and discuss with residents and stakeholders the draft streetscape and trail concepts developed for the New York Avenue corridor. Thirty-four (34) members of neighboring and adjacent communities stopped at the project's blue tents to discuss the draft concepts developed with the project team. Ten (10) Title VI forms were collected from community member at this event. Comments received on these forms during the event can be found in Section 4.3, "Additional Comments".

1.3 Meeting Boards

Display boards were developed for Public Meeting #4 to share with attendees of the final draft concept developed by the team. The boards were based on community feedback captured from Public Meeting #3 and Public Engagement event #2. The following is a list of the boards presented:

- **Welcome:** Provided the title of the project with a map highlighting the project corridor and project schedule (timeline).
- Connecting to New York Avenue Bicycle Route Western Area: Connect to NoMa-Gallaudet Metro Station: Graphic description of proposed on-street bicycle route including potential future bicycle facilities, proposed cycle track, and shared lanes.
- New York Avenue NE Area 1 Florida Avenue NE to 9th Street NE Bridge: Graphic description of New York Avenue NE draft corridor concept including proposed sidewalks, bicycle facilities and trail connections, stair and ramp connections to the



Metropolitan Branch Trail, streetscape improvements (lighting, grass and tree plantings), and potential future bicycle facilities.

- New York Avenue Area 2 9th Street NE Bridge to Hecht Warehouse Area: Graphic description of New York Avenue NE draft corridor concept including ramp and stair connections to 9th Street, proposed sidewalks, bicycle facilities and trail connections, streetscape improvements (lighting, grass and tree plantings), and potential future bicycle facilities.
- New York Avenue Area 3 Hecht Warehouse Area to Bladensburg Road NE: Graphic description of New York Avenue NE draft corridor concept including detail of New York Avenue and 16th Street intersection detail, proposed West Virginia Avenue NE raised cycle track and 16th Street shared use path, streetscape improvements at Montana Avenue Circle including potential interim bicycle facilities, 17th Street cycle track, and New York Avenue and Bladensburg Road intersection detail. This board also showed an alternate bicycle route concept for West Virginia Avenue NE buffered lanes.
- Connecting to New York Avenue Bicycle Route Eastern Area: Connect to National Arboretum: Graphic description of proposed on-street bicycle route including bicycle facilities and trail connections, sidewalks and proposed shared lanes.
- New York Avenue Phasing Plan: Graphic breakdown of improvements for implementation by plan focus streetscape and bicycle including concept considerations for extension and future multi-modal connections along the corridor.
- **Stay Connected:** Provided the various methods that the community can stay connected to project status and updates and provide feedback.



2.0 OUTREACH EFFORTS

Extensive outreach for New York Avenue Streetscape and Trail Public Meeting #4 was performed by the project team; those efforts are outlined below.

2.1 Electronic Communication and Social Media

A public meeting notice was developed and distributed via DDOT's Office of Communication, as well as, posted to DDOT social media (Twitter and Facebook) accounts. The team contacted community leaders, civic and neighborhood organizations and enlisted their assistance for distribution via their individual listservs and websites.

2.2 Direct Mailing and Public Notices

For the last planned public meeting, the focus was to ensure those neighborhoods adjacent to the corridor were informed. A postcard was developed and mailed to District residents living in the 20002 and 20018 zip code areas. Additionally, postcards were also distributed via the grass roots team and handed out at Community Engagement Event #2 at Union Market as well as the NoMa-Gallaudet University Metro Station, Union Market, Hecht Warehouse District at Ivy City, and Gallaudet University. Public Notices were posted at gathering sites along the corridor that include:

- Brentwood Recreation Center
- Gallaudet University
- Hecht Warehouse at Ivy City
 - o Planet Fitness
 - Mom's Organic
 - o CrossFit Hierarchy
 - o Petco
 - o Bicyclespace
- Union Market
- Quality Inn & Suites
- Days Inn Gateway

- Holiday Inn Express & Suites
- Marriott Courtyard
- Hayes Senior Wellness Center
- Model Cities Wellness Center
- Two Rivers Public Charter School
- The Children's Guild DC Public Charter School
- District of Columbia Animal Care and Control
- Teresa's Garden Center
- MPD 5D

2.3 Neighborhood and Civic Organizations

Neighborhood and civic organizations, and blogs were also contacted and sent information about the public workshop. These organizations included:

- ANCs 5C, 5D, and 5E
- Bicycle Advisory Council (BAC)

- Gateway to the City (Fort Lincoln)
- Greater Greater Washington



- HechtWarehouse
- Ivy City Civic Association
- NewKidOnEckingtonBlock
- NOMA Bid
- Pedestrian Advisory Council (PAC)
- TheDCBikerBlogger

- TheFrozenTropics
- TheWashCycle
- Trinidad Neighborhood Association
- Urbanturf
- Washington Area Bicycle Association (WABA)



3.0 ATTENDANCE

3.1 Public Meeting #4 Attendees

Twenty-four (24) attendees representing the community, including representatives from neighborhood ANCs, attended Public Meeting #4. Additionally, three (3) DDOT staff members and seven (7) consultant team members were also in attendance.

Fourteen (14) attendees completed Title VI forms during Public Meeting #4. A summary of the demographic makeup of meeting attendees is below.





4.0 FEEDBACK AVENUES

Meeting attendees provided comment and feedback about the project design via DDOT Title VI forms and meeting tablets. Additionally, residents, stakeholders and interested parties were also provided an opportunity to give feedback via the project website, <u>www.newyorkavenueproject.com</u>.

4.1 Key Themes

Comments that were captured during the meeting mainly include thoughts around the following areas:

- Trail connections to existing bike/pedestrian trails
- Intersection crossings within the Corridor need improvement, particularly at Montana Avenue circle
- Streetscape elements

4.2 Written Comments

The Project Team received a total of twenty-one (21) comments from the August 19th Community Engagement #2 and the September 19th Public Meeting.

Comment Type	# of Comments
Public Meeting #4	
Title VI Form	5
Title VI Form – Community Engagement #2 (Aug 19)	6
Comment Tablet	9
TOTAL	21

4.2.1 Public Meeting #4

The following comments listed below, highlight some of the discussion topics from the meeting:

- Streetscape
 - I appreciate the thought and study that has gone into the project, especially on the north side of NY Ave where the parameters are very tight. My concern with this particular aspect is that it contains some very long stretches, that may not be daunting to through-cyclists but might inhibit use by young families and older adults. I would like to see features on the north side that break up these stretches, provide resting/roosting spots (individual stools that wouldn't encourage nappers), and water for thirsty cyclists, dogs and others.



- I am all for making the train area/tracks as visually accessible as possible. Kids are endlessly interested in trains, which would make the target area more appealing for families.
- Trail/Connections
 - Swapping locations of cycle track and sidewalk makes a lot of sense. Makes crossing and queuing easier. Trees & landscaping will help ensure the pedestrian experience is not worse for it.
 - Cycle track on 4th should remain a priority with developers. Thanks for pushing this.
 - At crossings of NY Ave, especially at 4th and 16th, the ramps should be extra wide to accommodate both pedestrians and bikes as they cross. The concrete median also needs a wide cut to allow queuing in the median.
 - The Montana Ave circle still needs additional work to make the bike/pedestrian crossings safe.

4.3 Additional Comments

4.3.1 Public Meeting #4 Title VI forms

Additional comments were collected from the Title VI forms both at Public Meeting #4 and Public Engagement #2. Those comments are noted below.

- General
 - Excited to see bike facility coming to New York Avenue.
 - This is fantastic. Badly needed in this area. I will not bike down New York Avenue today. This will make things much better.
 - Definitely needed! Looks like a great proposal!
 - Thanks for all your hard work!
 - I appreciated that the meeting was held at Gallaudet University. It was an acknowledgement of the University's presence in the study area, and the impact and benefit it (the project) will have for campus residents and visitors.
 - Provide interpreter; Provide interpreter on flyer.
 - The interpreters did not arrive.
 - This plan is heavily covered by Gallaudet University and conference center right by New York Ave. I am disappointed at how this came out. Appreciated with the information that was shared with Kate. Please have interpreters ready.
 - I would like to urge DDOT to include the Section 106 "area of potential effects" at the very first meeting of any new project so the public can be consulted as to properties potentially eligible for listing on the National Register of Historic



Places. When the design is this far along it is late and risk of slow down or public outcry over missed opportunities to avoid or minimize adverse effects is more problematic.

- I would urge DDOT project managers to more proactively contact affected owners to allow them to get familiar with how they might be affected, and to get them on board. Example, it surprises me that the entrance to the animal shelter has not been discussed with the managers of the shelter. Even though I understand you within DDOT's right of way, it is entirely a missed opportunity to not ask them in for a meeting at their premises and get a sense for how to best cooperate. Their entrance is going to become even less generous, yet it is heavily used by the public and should really be relocated. All that said, I'm a big fan of this project, and everything that DDOT can do to enhance walkability and bikeability. So, THANKS!
- Streetscape
 - Glad to see diversity in tree species is proposed.
 - Any street art? This can be identified as part of future design phases.
 - More bike share stations.
 - Provide pump stations along the way in the event someone has a flat.
- Trail
 - Would be nice if there was a better connection from MBT to start of dedicated lane. Looks like sidewalk space might be a bit constrained in this area.
 - Wondering if lane of parking could be removed to extend dedicated trail all the way to Arboretum entrance.
 - If you have to prioritize...opt for North side connection over South side connection to New York Ave from MBT (there is already somewhat of a connection on South Side).
 - 4th Street NE needs a protected cycletrack between Morse and New York if tunnel isn't built under New York Avenue.



5.0 APPENDIX

- Sign-In Form
- Meeting Tablet Comments
- Title VI Form Comments
- September 19, 2017 Public Meeting #4 Presentation

NEW YORK AVENUE NE STREETSCAPING DESIGN CRITERIA

APPENDIX F

NEW YORK AVENUE NE STREETSCAPE AND TRAIL CONCEPT REPORT

NEW YORK AVENUE STREETSCAPE DESIGN CRITERIA					
Category	Design Elements	Existing Conditions	Reference	Recommended	Proposed Design
	Roadway Classification	Principal Arterial	DDOT DEM 30.4.2	Principal Arterial	Principal Arterial
	Right-of-Way Width	Varies	Public Realm Design Manual DDOT DEM	No Change	No Change
	Median Width/Materials	Width Varies/ Brick Paver	Public Realm Design Manual DDOT DEM 31.4	4' min./Stamped Concrete or Aggregate	4' min. Green Space or Paver
Roadway	Curb and Gutter type	Varies	Public Realm Design Manual DDOT DEM 31.2.4	Granite	Granite
	Crosswalks	Varies	MUTCD DDOT DEM 44.7	20' wide high visibility	20' wide
	Stop Lines	Varies	DDOT DEM 44.4	12" wide, 6' before crosswalk	12" wide, 6' before crosswalk
	ADA Ramps	Varies	Public Realm Design Manual	At all intersections	ADA Compliant at all intersections
	Traffic Calming Devices	Varies	CPTED Guidebook	At all intersections	None
	Sidewalk Materials	Concrete/Brick	Public Realm Design Manual and DDOT DEM 31	Concrete, 4" min. depth, 6' min. width	Concrete/Brick 10' width
	Total Sidewalk Width Including Tree Box	Varies	Public Realm Design Manual	16' wide	16' wide
	Pedestrian Clear Zone	Varies	Public Realm Design Manual	6' preferred	6' clear
Sidewalk	Tree Box Width	Varies	Public Realm Design Manual	4' min. 6' preferred	6' wide
	Grades/Slopes	Varies	ADAGG DDOT DEM	1% Min. 2% max cross slope	1% Min. 2% max cross slope
	Pedestrian Sight Lines	Varies	CPTED Guidebook	Avoid blind spots and problematic routes; pathways are direct	Avoid blind spots and problematic routes; pathways are direct
	Street Trees	Varies	Public Realm Design Manual	Yes	Maximize street trees
	Street Tree Spacing	Varies	Public Realm Design Manual DDOT DEM 47.4.2	Where no overhead wires are present, use $35 - 40$ ft. Where overhead wires are present, use 20 - 25 ft.	30' - 40'
	Tree Box Treatment	Varies	Public Realm Design Manual	Low maintenance materials	Grass-like perennial
Londscoping	Bike Racks	Do not exist on NYA	Public Realm Design Manual	Hoop style bike rack	TBD during Final Design
and Public Space	Benches	Do not exist on NYA	Public Realm Design Manual	City standard	TBD during Final Design
	Fencing/Barriers	Varies	CPTED Guidebook	Maximize surveillance and minimize hiding spots	Used between Amtrak and Cycle Track
	Site Amenities Location	N/A	CPTED Guidebook	Bike racks, benches, etc. should be close to buildings and planned activity areas.	TBD during Final Design
	Vegetation Layout	Varies	CPTED Guidebook	Avoid landscaping that obstructs natural surveillance and allows hiding spots	Avoid landscaping that obstructs natural surveillance and allows hiding spots

NEW YORK AVENUE STREETSCAPE DESIGN CRITERIA					
Category	Design Elements	Existing Conditions	Reference	Recommended	Proposed Design
	Roadway Lighting				
	Average Maintained Illuminance	Varies	DDOT SPDG 4.1	1.6 foot-candle	1.6 foot-candle
	Uniformity Ratio	Varies	DDOT DEM 41.4.2, DDOT SPDG 4.2.1	3:1	3:1
	Pedestrian Lighting				
	Average Maintained Illuminance	Varies	DDOT SPDG 4.1	0.9 foot-candle	0.9 foot-candle
	Uniformity Ratio	Varies	DDOT DEM 41.4.2	3:1	3:1
	Trail Lighting				
	Average Maintained Illuminance	N/A	DDOT SPDG 4.1	2.0 foot-candle	2.0 foot-candle
Lighting	Uniformity Ratio	N/A	DDOT DEM 41.4.2	3:1	3:1
	Lighting Hardware Type	Cobrahead/Washington Upright	DDOT SPDG 5.5 Table 22	Washington Upright Twin-20, Cobrahead, or Decorative Teardrop	Washington
	Pole Color	Black	DDOT SPDG 5.5 Table 22	Black	Black
	Minimum Light Pole Spacing	Varies	DDOT SPDG 4.2.5, 5.5 Table 22	60'	60'
	User visibility	Varies	CPTED Guidebook; CPTED for Transit Facilities	Lighting should be provided so that a person with normal vision can identify a face 30 feet away	Pedestrian/bike/motorist lighting safety measures to be included
	Bioretention planter adjacent to roadway	Do not exist on NYA	DDOT Green Infrastructure Standards - DDOT DWG 621.22; Greening DC Streets	4' min. width; 6' preferred	6' width
	Bioswale adjacent to roadway	Do not exist on NYA	DDOT Green Infrastructure Standards - DDOT DWG 621.22; Greening DC Streets	4' min. width; 6' preferred; 2' min. from edge of roadway and edge of sidewalk; bottom of bioswale 2' above seasonal high water table	Not proposed
	Bioretention in open area	Do not exist on NYA	DDOT Green Infrastructure Standards - DDOT DWG 621.20; Greening DC Streets	6' min from roadway; side slopes max 3:1; bottom of bioswale 2' above seasonal high water table	Not proposed

NEW YORK AVENUE STREETSCAPE DESIGN CRITERIA					
Category	Design Elements	Existing Conditions	Reference	Recommended	Proposed Design
	Bioretention curb cuts and edge treatments	Do not exist on NYA	DDOT Green Infrastructure Standards	Yes	Yes
Green Infrastructure	Permeable concrete sidewalk	N/A	DDOT Green Infrastructure Standards - DDOT DWG 621.02; Greening DC Streets	6' min. width; Max 2% cross slope; max 5% longitudinal slope	Not proposed
	Permeable paver sidewalk	Varies	DDOT Green Infrastructure Standards - DDOT DWG 621.06; Greening DC Streets	6' min. width; Joint 1/4 to 1/2 in. max gap; Max 2% cross slope; max 5% longitudinal slope	Proposed for sidewalk buffer
	Porous asphalt sidewalk	N/A	DDOT Green Infrastructure Standards - DDOT DWG 621.04; Greening DC Street	6'min. width; Max 2% cross slope; max 5% longitudinal slope	Proposed for cycle track
	Plantings	N/A	DDOT Green Infrastructure Standards - Green Infrastructure Plant List	Yes	Yes
	Structural soil	Varies	DDOT Green Infrastructure Standards; Greening DC Streets	Yes for applicable street tree locations	Used with street trees
	Vegetation layout	Varies	CPTED Guidebook	Vegetation should not obstruct user sight lines or visibility from buildings. Hedges should not be convenient hiding spaces.	Planting design will ensure sight lines are preserved
	Utility impacts avoidance	N/A	DC Water Green Infrastructure Utility Protection Guidelines	5' min. offset from main for tree box; 3' min for tree; 1' min. clearance from main for bioswales and bioretention	5' min. offset from main for tree box; 3' min for tree; 1' min. clearance from main for bioswales and bioretention

Design Guidelines include:

AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities (2004) AASHTO Roadway Lighting Design Guide (2005) AASHTO Policy on Geometric Design of Highways and Streets (2011) Americans with Disabilities Act Accessibility Guidelines (ADAAG) APTA Crime Prevention Through Environmental Design (CPTED) for Transit Facilities (2010) Crime Prevention Through Environmental Design (CPTED) Guidebook (2003) DC Municipal Regulations (DCMR) DC Water Green Infrastructure Utility Protection Guidelines (2013) DOEE Soil Erosion and Sediment Control Handbook (2003) DOEE Stormwater Management Guidebook (2013) DDOT Design and Engineering Manual (2009) DDOT Green Infrastructure Standards (2014) DDOT Public Realm Design Manual (2011) DDOT Standard Drawings (2015) DDOT Streetlight Policy and Design Guidelines (SPDG) (2013) FHWA Manual on Uniform Traffic Control Devices (2015) Greening DC Streets: A Guide to Green Infrastructure in the District of Columbia (2014) New York Avenue Green Infrastructure Assessment (2011) Public Rights-of-Way Accessibility Guidelines (PROWAG)

NEW YORK AVENUE TRAIL DESIGN CRITERIA					
Category	Design Elements	Existing Conditions	Reference	Recommended	Proposed Design
	Classification	N/A	AASHTO Bike 2012	Shared Use Path	Shared Use Path
General	Design Speed	N/A	AASHTO Bike 2012 p. 5-12	18 mph	18 mph
	Design Vehicles	N/A		Bicycle	Bicycle
	Minimum Radius	N/A	AASHTO Bike 2012 p. 5-13	60'	60'
Horizontal Alignment	Normal Cross-slope	N/A	AASHTO Bike 2012 p. 5-15/ DDOT p. 28-4	2%	2%
	Sight lines	N/A	CPTED Guidebook	Avoid blind spots and problematic routes; pathways are direct	Avoid blind spots and problematic routes; pathways are direct
	Minimum Grade	N/A	AASHTO Bike 2012 p. 5-16	0.50%	0.50%
	Maximum Grade	N/A	AASHTO Bike 2012 p. 5-16	5%	5%
	Crest Vertical Curves (min. L)	N/A	AASHTO Bike 2012 p. 5-20	3'	3'
Vertical	Sag Vertical Curves (min. L)	N/A		3'	3'
Vertical	Minimum Vertical Clearance	N/A	DDOT p. 28-4	10'	10'
Alignment	Stopping Sight Distance	N/A	AASHTO Bike 2012 p. 5-17	Varies	Varies
	Sight lines	N/A	CPTED Guidebook	Avoid blind spots and problematic routes; pathways are direct	Avoid blind spots and problematic routes; pathways are direct
	Section Type	N/A		Open	Open
	Path Width	N/A	AASHTO Bike p. 5-3/DDOT p. 29-8	10'-14'	10'
	Shoulder Width	N/A	AASHTO Bike p. 5-5	2' paved, 5' graded	Varies
	Shoulder Slope	N/A	AASHTO Bike p. 5-4	1V:6H	1V:6H
Turnian Continu	Offset from Roadway	N/A	DDOT p. 28-3/28-4	5'	5'
Typical Section	Offset from Obstruction	N/A	DDOT p. 28-3	2'	2'
	Cross-Slope	N/A	DDOT p. 28-4	2% Max.	1%
	Cross-Slope Transition	N/A	AASHTO Bike 2012 p. 5-16	5' for each 1 % change	5' for each 1% change
	Sight lines	N/A	CPTED Guidebook	Avoid blind spots and problematic routes; pathways are direct	Avoid blind spots and problematic routes; pathways are direct
	Pedestrian Lighting				
----------	--------------------------------	--------	---	--	---
Lighting	Average Maintained Illuminance	Varies	AASHTO Bike 2012 p. 5-29/ DDOT DEM 41.4.2/ DDOT SPDG 2.2	1.8 to 2 foot-candles	2 foot-candles
	Uniformity Ratio	Varies	DDOT DEM 41.4.2/ DDOT SPDG 2.2	3:1	3:1
	User visibility	N/A	CPTED Guidebook	Lighting should be provided such that a person with normal vision can identify a face 10 meters away	Pedestrian/bike/motorist lighting safety measures to be included

Design Guidelines include:

AASHTO Guide for the Development of Bicycle Facilities (2012)

APTA Crime Prevention Through Environmental Design (CPTED) for Transit Facilities (2010)

Crime Prevention Through Environmental Design (CPTED) Guidebook (2003)

DDOT Bicycle Facility Design Guide (2007)

DDOT Design and Engineering Manual (2009)

DDOT Standard Drawings (August 2015)

DDOT Standard Specifications for Highways and Structures (2013)

DDOT Streetlight Policy and Design Guidelines (SPDG) (2013)

New York Avenue Green Infrastructure Assessment (2011)

NACTO Urban Bikeway Design Guide (2014)

FHWA Separated Bike Lane Planning and Design Guide (2015)

MassDOT Separated Bike Lane Planning and Design Guide (2015)

Vancouver Transportation Design Guidelines: All Ages and Abilities Cycling Routes (2017)

PRELIMINARY STORMWATER MANAGEMENT PLAN

APPENDIX G

NEW YORK AVENUE NE STREETSCAPE AND TRAIL CONCEPT REPORT

New York Avenue NE

Streetscape and Trail Project

Preliminary Stormwater Management Plan

30% Design Phase



Prepared in October 2017 for

District Department of Transportation

55 M Street, SE

Washington, DC 20003

Ву



Whitman, Requardt & Associates, LLP Engineers · Architects · Environmental Planners Est. 1915



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New York Avenue NE Streetscape and Trail Project Preliminary Stormwater Management Report

I. INTRODUCTION

A. PROJECT MAP



Figure 1: Project Map

B. PROJECT SITE INFORMATION

The New York Avenue NE project corridor is a major transportation route through a neighborhood and an important industrial and commercial hub in DC. The corridor is currently motor vehicle-focused with inconsistent and insufficient pedestrian and bicycle facilities to meet current and future growth. Recent efforts by the District of Columbia (the "District") and private development have improved portions of the streetscape along this portion of New York Avenue NE.

The current project has evaluated a specific portion of the corridor which extends for 9,825 ft (1.86 mi) along New York Avenue NE. The project area boundaries are:

- Florida Avenue NE intersection as the western boundary
- Bladensburg Road NE intersection as the eastern boundary
- New York Avenue NE as the northern boundary
- Florida Avenue NE and West Virginia NE as the southern boundary

The project area additionally extends south of New York Avenue NE in order to develop potential trail route options to connect the NoMa-Gallaudet U Metro Station and the Metropolitan Branch Trail to the U.S. National Arboretum. The majority of the project area consists of urbanized, highly impervious land uses. New York Avenue NE and surrounding roadways are curbed with closed-section drainage systems to convey runoff.



II. STORMWATER MANAGEMENT NARRATIVE

A. PURPOSE

Urbanized conditions within the District currently result in increased stormwater runoff as a direct result of impervious surfaces associated with development. This project proposes a cycle track, sidewalk and minor roadway improvements which will increase the area of impervious surface within the existing right-of-way and require stormwater management to be implemented in accordance with District Department of the Energy and the Environment (DOEE, formerly the District Department of the Environment (DDOE)) regulations.

The purpose of this report is to present a concept for meeting stormwater management requirements using a combination of techniques including land conversion of existing impervious surfaces to planting/vegetated areas, pervious pavement, bioretention planters and street tree plantings.

B. ASSUMPTIONS AND METHODOLOGIES

The stormwater management concept has been developed using the following documents and assumptions as guidance.

- DDOE 2013 Stormwater Management Rule
- DDOE 2013 Stormwater Management Guidebook
- Land uses within the project area were determined through field-run topographic mapping (CAD format), aerial photogrammetry, and field inspection.
- Drainage areas were determined through field-run topographic mapping (CAD format) and aerial contour information
- Soil information was determined from 2014 Natural Resources Conservation District (NRCS) Web Soil Survey (WWS) data, 2014.
- Support data are assumed to be the most recent and best available data to supplement surveyed and observed field data.
- Bioretention planters, pervious pavement and underdrain connection design will follow DC Water Green Infrastructure Utility Protection Guidelines for clearance requirements.
- Bioretention planter feasibility will be verified through soil borings prior to finalization of design plans.
- Bioretention planters are required to be a minimum of 4-feet wide.
- Pervious pavement is not considered where the subsurface drainage may impact retaining walls.
- All right-of-way acquisitions and boundaries are not finalized.



District Department of Transportation

C. EXTENT OF IMPERVIOUS AREA

The typical streetscape section the north (westbound) side of New York Avenue NE from Florida Avenue NE to 16th Street NE consists of a 4-foot to 6-foot wide street tree plantings and brick banding buffer directly behind the roadway curb, a 6-foot to 10-foot wide concrete sidewalk, a 10-foot wide asphalt cycle track and a 4-foot wide vegetative buffer with trees between the sidewalk and cycle track. On the south (eastbound) side, a 4-foot to 6-foot wide street tree plantings and brick banding buffer at the back-of-curb and an existing sidewalk upgraded to a width of 6-feet to 10-feet are proposed. Beyond 16th Street NE to Bladensburg Road NE, the typical streetscape section consists of a 4-foot to 6-foot wide street tree and brick banding buffer at the back-of-curb and an existing sidewalk to be upgraded to a width of 6-feet to 10-feet. Off of New York Avenue NE, the proposed trail route along 16th Street NE to West Virginia Avenue NE consists of a proposed 10-foot wide asphalt multi-use trail.

- Impervious Cycle Track, Streetscape, Sidewalk/Ramp Area = 490,470 SF = 11.25 Acres •
- Pervious Cycle Track Area =22,897 SF = 0.53 Acres •
- Pavement Removal "Land Conversion" Area = 70210 SF = 1.61 Acres •
- Bioretention Planter Area = 23,434 SF = 0.54 acres •
- Total Limit of Disturbance (LOD) = 695,061 SF = 15.96 Acres •

Further detail pertaining to specific drainage areas can be found in Appendix C in the MEP Worksheet.

D. KNOWN HOTSPOT LOCATIONS

Stormwater Hotspots are defined in the DDOE SWM Guidelines as "commercial, industrial, institutional, municipal or transport related operations that produce higher levels of stormwater pollutants, and/or present a higher potential risk for spills, leaks or illicit discharges." Identified Stormwater Hotspots within the project limits include a car wash, gas stations, bus yards, commercial parking lots, and other transport-related areas. These areas all have the potential of producing runoff with higher concentrations of pollutants and have been identified on the Stormwater Management Plans (see Appendix E). The following locations have been identified as hotspots and therefore have eliminated the enveloping drainage area from consideration as a potential location for stormwater management infiltration facilities:

Hotspot Location	Hotspot Description
STA 151+00 – 152+00, LT	Gas Station
STA 151+00 – 152+00, RT	Gas Station
STA 152+00 – 160+00, RT	Bus Yard
STA 180+00 – 182+00, RT	Gas Station
STA 1014+00 – 1016+00, LT & RT	Gas Station & Police Vehicle Storage Yard
STA 196+00 – 198+00, RT	Car Washing Facility
STA 198+00 – 199+00, LT	Gas Station

Table 1: Stormwater Hotspots



E. KNOWN CONFLICTS

In addition to the Hotspots described above, additional constraints and conflicts with potential stormwater management facility locations have been identified and include:

- The limited extent of the existing right-of-way, topography and adjacent land uses limit the stormwater management opportunities within the project limits
- The lack of undeveloped open space within the project limits, which is further restricted by the presence of existing utilities and poor in situ soils
- A proposed retaining wall beginning east of the existing New York Avenue bridge over Amtrak and continuing until the 9th Street Bridge intersection limits the use of pervious surfaces in this section.
- Final property line locations are to be determined and will influence the location of stormwater management facilities.

F. LAND CONVERSION AND BMP PLACEMENT

Due to the limited space within the right-of-way and adjacent land uses the opportunities for land conversion (i.e. impervious area to open, vegetated space) are minimal. Existing areas on the north side of New York Avenue NE between Kendall Street and 16th Street NE will be converted to accommodate a 6-foot wide street buffer, a 10-foot wide sidewalk and 10-foot wide cycle track. The remaining available space is to be converted to open space. In addition, isolated impervious areas throughout the corridor which overlap with proposed open, vegetated areas have been identified as "Pavement Removal – Land Conversion" areas on the plans and accounted for as "Compacted within LOD" on the Public Right of Way (PROW) MEP Assessment Worksheet (the "MEP Worksheet") included in Appendix C.

Conceptual locations for proposed Bioretention Planters have been identified throughout the project corridor and are identified on the Stormwater Management Plans included in Appendix E. In general, Bioretention Planters have been located upstream of existing and proposed storm drain inlets in the plantings and brick banding buffers between the sidewalk and roadway curb and gutter. Final Bioretention Planter locations will be confirmed based upon the results of forthcoming geotechnical investigations (i.e. infiltration tests) and confirmation of utility impacts. The area for proposed Bioretention Planters has been assessed as "Natural within LOD" in the MEP Worksheet in Appendix C.

Permeable pavement has preliminarily been investigated and has been specified as "porous asphalt" cycle track from Fairview Avenue NE to 16th Street NE. Porous asphalt is not specified in areas where retaining walls will be placed. Also note that porous asphalt is not assessed as a land conversion quantity in the MEP spreadsheet included in Appendix C. It is assessed as "Paved within LOD." The corresponding area of porous asphalt will be assessed as a BMP during the next design milestone.



G. PROPOSED BIORETENTION FACILITY DETAIL

As noted above, Bioretention Planters have been conceptually located along the north and south sides of New York Avenue NE. In accordance with DDOT requirements, the minimum width for the planters is 4-feet; however, the majority of the planters are currently specified to be 6-feet wide in order to match the width of the plantings and brick banding buffer. The DDOT Green Infrastructure Detail #621.22 Bioretention Planter Adjacent to Roadway - 1 is the standard for all potential bioretention facilities along the New York Avenue NE roadway. Using field survey, existing drainage inlets along the edge of roadway have been identified in these spaces as logical overflow and underdrain connection points for potential bioretention facilities. Final planter location and design will be contingent upon favorable geotechnical investigation and utility impact assessment to be completed with subsequent design milestone submissions.



Figure 2: Bioretention Facility Detail



H. SEWERSHED LOCATION

Based upon DC Water mapping, a portion of the project site will discharge to Combined Sewer Outfall CSO-019. CSO-019 collects runoff from the project site from the Florida Avenue NE intersection to approximately the Fenwick Street NE intersection. The exact limits of the CSO sewershed will be determined pending forthcoming utility confirmation, and all inlets and systems discharging runoff to the CSO will be designed and specified in accordance with DC Water requirements. The approximate limits of the sewershed are depicted in Figure 3 below.



Figure 3: Sewershed (CSO 019) Map

I. DEVELOPMENT OF DRAINAGE AREAS

Drainage areas have been delineated based upon the location of existing and proposed inlets within the project limits. Due to the urbanized nature of the corridor, which has largely established the drainage patterns, the total contributing drainage areas to each inlet have been isolated to the right-of-way limits for the purpose of the preliminary analysis. Within each of



these drainage areas, sub-areas have been delineated for areas inside and outside of the LOD. The respective areas within and outside of the LOD have been used to calculate the base, required Stormwater Retention Volume (SWRv) in the MEP Worksheet.

J. INITIAL GEOTECHNICAL OBSERVATIONS

Implementation of the geotechnical boring program is currently under development, and therefore, initial observations are based upon field investigations and desktop soils mapping available through the Natural Resources Conservation Service (NRCS) Web Soil Survey. In general, soils are reflective of developed conditions with 83.5% of the soils classified with an "Urban Lands" Hydrologic Soil Group (HSG). HSG classifications for the remaining soils include 0.20% HSG "B" soils, 7.9% HSG "C" soils and 8.4% HSG "D" soils. Complete NRCS Web Soil Survey data are included in Appendix A.

K. TREE PRESERVATION

Tree protection measures will be implemented for the following trees within the limits of disturbance that are recommended for preservation. Refer to details on Sheet LD-14 of the Landscape Plans in Appendix F. Fifteen (15) trees are recommended for preservation as follows:

Sheet	Station	DBH	TREE	CONDITION
SW-3	120+50RT	12″	Unknown	Unknown
SW-3	123+00RT	24"	Elm	Good
SW-3	123+46RT	23"	Elm	Good
SW-3	123+86RT	5"	Elm	Good
SW-3	124+25RT	21"	Elm	Good
SW-6	152+36RT	25″	Elm	Fair
SW-7	158+31RT	9"	Elm	Good
SW-7	158+72RT	9"	Elm	Good
SW-7	159+20RT	2"	Elm	Good
SW-9	177+51RT	23"	Elm	Good
SW-9	178+76RT	19"	Elm	Fair
SW-9	179+10RT	18"	Elm	Good
SW-9	179+99RT	23″	Elm	Good
SW-11	192+72LT	8″	Elm	Good
SW-11	194+60LT	12"	Elm	Good

Table 2: Tree Preservation Recommendations

See Appendix D for all trees that are recommended to be replaced or preserved along New York Avenue NE within the project area. A total of 89 trees are recommended to be replaced along New York Avenue NE. Off of New York Avenue NE, 3 trees are recommended for removal to accommodate proposed 10-foot wide shared use path to West Virginia Avenue NE. Currently, the



plans propose 381 new trees along New York Avenue NE between Florida Avenue NE and Bladensburg Road NE.

L. SUMMARY AND CONCLUSIONS

The New York Avenue NE Streetscape and Trail Project proposes to improve pedestrian and bicycle access to connect the NoMa-Gallaudet U Metro Station and the Metropolitan Branch Trail at New York Avenue NE to the United States National Arboretum. The proposed cycle track is within DDOT Right-of-Way and space limitations, utilities and soil conditions restrict the type of stormwater management facilities that can be used in the design. In combination with preserved and proposed tree plantings, land conversion and the implementation of porous asphalt for the cycle track, the proposed Bioretention Planters are depicted conceptually to provide adequate SWRv per DOEE requirements for providing stormwater management to the Maximum Extent Practicable.



APPENDIX A

USDA/NRCS District of Columbia Soil Survey Mapping and Data





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Web Soil Survey National Cooperative Soil Survey



Hydrologic Soil Group

н	ydrologic Soil Group— S	ummary by Map Unit —	- District of Columbia (DC00	01)
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BnC	Bourne fine sandy loam, 8 to 15 percent slopes	D	0.1	0.1%
CfB	Christiana-Urban land complex, 0 to 8 percent slopes	С	6.4	7.2%
CfC	Christiana-Urban land complex, 8 to 15 percent slopes	С	0.4	0.5%
CxC	Croom-Urban land complex, 8 to 15 percent slopes		0.2	0.2%
КеВ	Keyport fine sandy loam, 0 to 8 percent slopes	D	0.2	0.2%
SgD	Sassafras-Urban land complex, 15 to 40 percent slopes		7.2	8.1%
SmB	Sunnyside fine sandy loam, 0 to 8 percent slopes	В	0.0	0.0%
SmC	Sunnyside fine sandy loam, 8 to 15 percent slopes	В	0.2	0.2%
SpB	Sunnyside-Urban land complex, 0 to 8 percent slopes		2.7	3.1%
U1	Udorthents		2.0	2.3%
U8	Udorthents, sandy, smoothed	А	0.9	1.0%
Ub	Urban land		63.8	72.0%
UcB	Urban land-Beltsville complex, 0 to 8 percent slopes		4.5	5.1%
Totals for Area of Intere	est		88.7	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition Component Percent Cutoff: None Specified Tie-break Rule: Higher



Soil Features

This table gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage, or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, saturated hydraulic conductivity (Ksat), content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Soil Features---District of Columbia

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			So	vil Features-District	of Columb	lia			
Map symbol and		Res	trictive Layer		Subsi	dence	Potential for frost	Risk of c	orrosion
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		Low-RV- High	Range		Low- High	High-			
		In	In		ln	ln			
BnC—Bourne fine sandy loam, 8 to 15 percent slopes									
Bourne					0	0	None	High	High
CfB—Christiana- Urban land complex, 0 to 8 percent slopes									
Christiana					0	0	Moderate	High	High
Urban land		10			0	0	None		
CfC—Christiana- Urban land complex, 8 to 15 percent slopes									
Christiana					0	0	Moderate	High	High
Urban land		10			0	0	None		
CxC—Croom- Urban land complex, 8 to 15 percent slopes									
Croom					0	0	Moderate	Moderate	High
Urban land		10			0	0	None		

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Natural Resources Conservation Service

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			So	il Features-District	of Columb	oia			
Map symbol and		Re	strictive Layer		Subsi	dence	Potential for frost	Risk of c	corrosion
soll name	Kind	Depth to top	Thickness	Hardness	Initial	Total	action	Uncoated steel	Concrete
		Low-RV- High	Range		Low- High	Low- High			
KeB—Keyport fine sandy loam, 0 to 8 percent slopes									
Keyport					0	0	High	High	High
SgD—Sassafras- Urban land complex, 15 to 40 percent slopes									
Sassafras		I			0	0	Moderate	Low	High
Urban land		10			0	0	None		
SmB—Sunnyside fine sandy loam, 0 to 8 percent slopes									
Sunnyside					0	0	Moderate	Low	High
SmC—Sunnyside fine sandy loam, 8 to 15 percent slopes									
Sunnyside		I			0	0	Moderate	Low	High
SpB—Sunnyside- Urban land complex, 0 to 8 percent slopes									
Sunnyside		1			0	0	Moderate	Low	High
Urban land		10			0	0	None		
U1									
Udorthents		10			0	0	None		

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Natural Resources Conservation Service

USDA

			So	il Features-District	of Columb	a			
Map symbol and		Res	trictive Layer		Subsic	dence	Potential for frost	Risk of c	orrosion
	Kind	Depth to top	Thickness	Hardness	Initial	Total	action	Uncoated steel	Concrete
		Low-RV- High	Range		Low- High	Low- High			
U8—Udorthents, sandy, smoothed									
Udorthents		10	_		0	0	None	Low	High
Ub-Urban land									
Urban land		10			0	0	None		
UcB—Urban land- Beltsville complex, 0 to 8 percent slopes									
Urban land		10			0	0	None		
Beltsville	Fragipan	20- 20-40	6-49	Strongly cemented	0	0	High	High	High

Data Source Information

Soil Survey Area: District of Columbia Survey Area Data: Version 10, Sep 19, 2016

Natural Resources Conservation Service

NSDA

Web Soil Survey National Cooperative Soil Survey





Hydric Rating by Map Unit

Hyd	ric Rating by Map Unit—	Summary by Map Unit	— District of Columbia (DC	001)
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BnC	Bourne fine sandy loam, 8 to 15 percent slopes	0	0.1	0.1%
CfB	Christiana-Urban land complex, 0 to 8 percent slopes	0	6.4	7.2%
CfC	Christiana-Urban land complex, 8 to 15 percent slopes	0	0.4	0.5%
CxC	Croom-Urban land complex, 8 to 15 percent slopes	0	0.2	0.2%
КеВ	Keyport fine sandy loam, 0 to 8 percent slopes	0	0.2	0.2%
SgD	Sassafras-Urban land complex, 15 to 40 percent slopes	0	7.2	8.1%
SmB	Sunnyside fine sandy loam, 0 to 8 percent slopes	0	0.0	0.0%
SmC	Sunnyside fine sandy loam, 8 to 15 percent slopes	0	0.2	0.2%
SpB	Sunnyside-Urban land complex, 0 to 8 percent slopes	0	2.7	3.1%
U1	Udorthents	0	2.0	2.3%
U8	Udorthents, sandy, smoothed	0	0.9	1.0%
Ub	Urban land	0	63.8	72.0%
UcB	Urban land-Beltsville complex, 0 to 8 percent slopes	0	4.5	5.1%
Totals for Area of Intere	st		88.7	100.0%

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States. Federal Register. September 18, 2002. Hydric soils of the United States. Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Percent Present" returns the cumulative percent composition of all components of a map unit for which a certain condition is true. For example, attribute "Hydric Rating by Map Unit" returns the cumulative percent composition of all components of a map unit where the corresponding hydric rating is "Yes". Conditions may be simple or complex. At runtime, the user may be able to specify all, some or none of the conditions in question.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Lower

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.



APPENDIX B

FEMA Floodplain Maps







APPENDIX C

Public Right of Way (PROW) MEP Assessment Worksheet (30% Design)

Public Right of Way (PROW) MEP Assesment Worksheet

	Project N	ame:	New Yor	k Avenue S	Streetscape	and Trail P	roject		Circle One	e: MS4 CS	0		Check if in AWDZ:		DOE Plan Review No.:	ТВД
	Disturb No. of I	pance Area (; Drainage Are	: 30% D ac.): eas:	13.94 102	 	Regulated Re Rete	etention Vol ntion Volun	lume (1.2"): ne retained: Deficit:	50,525 TBD TBD	CF		Instruction Blocks in the All shaded	ons ne worksheet that are no blocks are computation	ot shaded are data entry fie	lds for the designer.	1
[-						Step 2: Cons	ider	Step 3: Evaluate Existi	ing Infrastructure		
	Step 1: Number a	Drainage A	drainage a	Regulated V	Volumes he project li	mits of distu	bance (LOD)). Identify the	sq. foot of a	drainage	Use the numb drainage areas	ered list of s to record soil	Constraints On SWM, depict utility local of ex. conveyance infrastru opportuntities for proposed	tions and invert/top elevations icture to determine d land conversions and BMP	Step 4: Identify Land Co On SMM identify ex. prop islands, cul-de-sacs, etc) v or not, for land conversion	prversion and BMP Placement Opportunities features (traffic islands, triangle parks, median within each drainage area. Depict if they are chosen, ns or BMP placements. Provide the basis for the
	drainage	area. Provide	correspo	nding draina	age area ide	ntifications o	n SMM.		required for	each	within the pro	ject limits of OD).	without conflict, including a for BMPs can not be met. [condition].	areas where minimum depths Delineate trees (size, species,	decision if these features stormwater retention BM in the previous two steps.	are not used to improve land abstraction or Ps. Decisions should use the information established
Drainage Area ID	Paved w-in LOD	Compacted w-in LOD	Natural w-in LOD	Contrib Total w-in LOD	Paved outside LOD	Compacted outside LOD	Natural outside LOD	Total outside LOD	SW w-in LOD	/Rv outside LOD	Hydro Soil Group	Hot Spot Concern Found? Describe	Preservation of Mature better	e Trees which are in fair or r condition	Land Conversion or BMP Opportunity?	Describe obstacles to Land Conversion or BMP (Attach narrative if necessary)
	SF	SF	SF	SF	SF	SF	SF	SF	CF	CF	A, B, C, D or Urban Land	Y/N	# of trees	Ex. Tree Volume Credit (CF)	Y/N - Type	
007 008	3,862 3,601	0	0	3,862 3,601	3,889 1,294			3,889 1,294	367 342	369 123	Urban Land Urban Land	N N	0	0	N N	Limited available PROW Limited available PROW
010 011	9,614 10,381	0 69	0	9,614 10,450	8,316 3,239			8,316 3,239	913 988	790 308	Urban Land Urban Land	N N	0	0	N N	Limited available PROW Limited available PROW
102 103	6,342 0	0	0	6,342 0	16,451 19 764			16,451 19 764	602 0	1563 1878	Urban Land	N	0	0	N	Limited available PROW Existing tree pits
105	55,212	0	0	55,212	20,720			20,720	5245	1968	Urban Land	N	0	0	N	Elevated roadway / bridge deck
115	1,458	0	0	1,458	5,850			5,850	139	556	Urban Land	N	0	0	N	Limited available PROW
116 117	3,704 6,546	0 1,532	272 0	3,976 8,078	16,898 10,868			16,898 10,868	352 660	1605 1032	Urban Land Urban Land	N N	0	0	Y-PT N	Limited available PROW
118 119	5,408 4,291	4,740 53	346 322	10,494 4,666	10,053 11,080			10,053 11,080	632 409	955 1053	Urban Land Urban Land	N	0	0 20	Y-BR+PT Y-BR+PT	
122	6,634 3,592	4,012	656 340	11,302	9,379 10.462			9,379 10.462	731	891 994	Urban Land	N	0	0	Y-BR+PT Y-PT	
125	7,726	4,594	860	13,180	11,117			11,117	849	1056	Urban Land	N	0	0	Y-BR+PT	
126	2,155 10,399	ວວ/ 1,571	204 656	12,626	14,173			14,173	1027	962	Urban Land Urban Land	N N	0	0	Y-BR+PT	
129 131	3,898 5,030	1,783 2,179	724 408	6,405 7,617	9,697 9,706			9,697 9,706	415 532	921 922	Urban Land Urban Land	N N	0	0	Y-BR+PT Y-PT	
132 134	7,620	2,429	792 792	10,841	10,116 9.844			10,116 9.844	785 470	961 935	Urban Land Urban Land	N	0	0	Y-BR+PT Y-BR+PT	
135	7,231	2,941	792	10,964	9,787			9,787	760	930	Urban Land	N	0	0	Y-BR+PT	
141	31,876	2,319	348 340	25,558 34,601	897			897	3088	85	Urban Land	N	0	0	Y-PT	
144 146	15,228 13,141	1,478 780	392 191	17,098 14,112	0			0	1484 1268	0	Urban Land Urban Land	N N	0	0	Y-PT Y-BR+PT	
147 148	19,733 13,910	0 704	136 320	19,869 14,934	0			0	1875 1339	0	Urban Land Urban Land	N N	0	0	Y-PT Y-BR+PT	
149 150	12,847	680	423 586	13,950	0			0	1237	0	Urban Land	N	0	0	Y-BR+PT	
150	6,706	318	136	7,160	1,366			1,366	645	130	Urban Land	N	0	0	Y-PT-PV	
153	10,961 8,157	1,383 885	340 408	12,684 9,450	9,160			10,444 9,160	1076 797	992 870	Urban Land Urban Land	Y Y	0	20	Y-PT Y-PT-PV	Tree pits above potential not spot runoff Tree pits above potential hot spot runoff
155 156	1,355 6,174	218 1,335	68 316	1,641 7,825	3,062 7,112			3,062 7,112	134 620	291 676	Urban Land Urban Land	Y N	0	0	Y-PT Y-BR+LC+PT+PV	Tree pits above potential hot spot runoff
157 158	3,112 4,672	924 1,716	372 520	4,408 6,908	6,857 6,391			6,857 6,391	319 487	651 607	Urban Land Urban Land	Y	0	0	Y-PT Y-BR+LC+PT+PV	Tree pits above potential hot spot runoff
159 160	3,307	915 1 722	444 520	4,666	8,953 7,273			8,953 7,273	337 511	851 691	Urban Land	Y	3	60	Y-PT Y-BR+LC+PT+PV	Tree pits above potential hot spot runoff
162	4,321	196	316	4,833	11,291			11,291	415	1073	Urban Land	N	0	0	Y-PT	
163	6,068	823	408	7,299	9,220			9,226	597	1623	Urban Land	N	0	0	Y-BR+LC+PT+PV	
165 167	26 5,973	0 1,408	0 706	26 8,087	12,648 10,097			12,648 10,097	2 603	1202 959	Urban Land Urban Land	N N	0	0	N Y-BR+LC+PT+PV	Existing tree pits
168 169	3,372 0	1,239 0	384 0	4,995 0	5,084 34,117			5,084 34,117	351 0	483 3241	Urban Land Urban Land	N N	0	0	Y-BR+LC+PT+PV N	Existing tree pits
170 171	4,914 3.088	1,830 440	588 204	7,332	6,833 10,434			6,833 10,434	513 304	649 991	Urban Land Urban Land	N	0	0	Y-BR+LC+PT+PV Y-BR+PT	
172	4,717	1,753	520	6,990	7,167			7,167	492	681	Urban Land	N	0	0	Y-BR+LC+PT+PV	
173	3,468	1,142	68	4,678	2,497			2,497	358	237	Urban Land	N	0	0	Y-LC+PT+PV	
175	5,276 8,603	50 0	136 136	5,462 8,739	4,812 11,380			4,812	817	457	Urban Land Urban Land	N N	0	0	Y-PI Y-PT	
177 178	2,291 8,322	0	136 272	2,427 8,594	2,701 11,099			2,701 11,099	218 791	257 1054	Urban Land Urban Land	N N	0	0 20	Y-PT Y-PT	
179 180	1,956 6,104	0 526	136 136	2,092 6,766	3,670 3,538			3,670 3,538	186 593	349 336	Urban Land Urban Land	N Y	0	0	Y-PT Y-PT	Tree pits above potential hot spot runoff
181 182	7,836 8,582	0	656 204	8,492 8,786	7,784			7,784	744 815	739 1044	Urban Land Urban Land	N Y	0	0	Y-BR+PT Y-PT	Tree pits above potential hot spot runoff
183	896	0	0	896	7,965	-	-	7,965	85	757	Urban Land	N	0	0		Limited available PROW
185	1,307	0	0	1,307	4,378	<u> </u>		4,378	121	416	Urban Land	N	0	0	N N	Limited available PROW
187 188	120 3,481	U 2,104	U 492	6,077	18,596 7,157			7,157	383	680	Urban Land Urban Land	N N	0 0	0	N Y-BR+LC+PT	riopusea aevelopment by others
189 190	0 3,200	0 1,830	0 204	0 5,234	11,134 6,234			11,134 6,234	0 350	1058 592	Urban Land Urban Land	N N	0	0	N Y-LC+PT	Proposed development by others
191 192	0 3,467	0 2,323	0 408	0 6,198	14,524 7,940			14,524 7,940	0 387	1380 754	Urban Land Urban Land	N N	0	0	N Y-PT	Proposed development by others
193 194	2,648 0	2,370 0	452 0	5,470 0	6,787 14.120			6,787 14,120	311 0	645 1341	Urban Land Urban Land	N N	0	0	Y-BR+PT N	Proposed development by others
195	2,805	705	199	3,709	6,884			6,884	284	654	Urban Land	N	1	20	Y-PT	
196 197	0	0	45 0	0	1,414			1,414	0	99	Urban Land	N	0	0	N	Entire DA within travelway pavement
198 199	0 2,632	0	0 140	0 2,772	1,369 11,079			1,369 11,079	0 250	130 1053	Urban Land Urban Land	N Y	0	0	Y Y-PT	Tree pits above potential hot spot runoff
200 301	5,345 0	0	229 0	5,574 0	13,369 7,814			13,369 7,814	508 0	1270 742	Urban Land Urban Land	Y N	0	0	Y-PT N	Tree pits above potential hot spot runoff Limited available PROW
503 504	0	0	0	0	3,859 11,021			3,859 11,021	0	367 1047	Urban Land Urban Land	N N	0	0	N	Limited available PROW Limited available PROW
505	3,810	702	0	4,512	3,881			3,881	380	369	Urban Land	N	0	0	Y-PV	Limited available PROW/
507	2,965	523	0	3,488	2,174	<u> </u>		2,174	295	207	Urban Land	N	0	0	Y-PV	
601 602	0 70	0	0	0 70	6,100 7,557			6,100 7,557	0 7	580 718	Urban Land Urban Land	N N	0	0	N N	Limited available PROW
603 604	491 0	0	0	491 0	3,306 3,720			3,306 3,720	47 0	314 353	Urban Land Urban Land	N N	0	0	N N	Limited available PROW
606 607	0	0	0	0	6,859			6,859 2,804	0	652 266	Urban Land	N	0	0	N	Limited available PROW
608	0	0	0	0	3,593			3,593	0	341	Urban Land	N	0	0	N	Limited available PROW
609 700	3,726 0	0	0	3,726 0	12,537	<u> </u>		12,537	354	1191	Urban Land	N N	0	0	N N	Limited available PROW
704	378	0	0	378	16,796	1	I	16,796	36	1596	Urban Land	N	0	0	N	Limited available PROW

705	0	0	0	0	13,340		13,340	0	1035	UIDall Lallu	IN IN	0	0	IN IN	Limited available FICOW
805	0	0	0	0	17,423		17,423	0	1655	Urban Land	N	0	0	N	Limited available PROW
806	0	0	0	0	17,118		17,118	0	1626	Urban Land	N	0	0	N	Limited available PROW
807	2,998	0	0	2,998	1,365		1,365	285	130	Urban Land	N	0	0	N	Limited available PROW
808	844	0	0	844	9,205		9,205	80	874	Urban Land	N	0	0	N	Limited available PROW
809	253	0	0	253	2,903		2,903	24	276	Urban Land	N	0	0	N	Limited available PROW
810	0	0	0	0	4,846		4,846	0	460	Urban Land	N	0	0	N	Limited available PROW
811	1,825	0	0	1,825	3,732		3,732	173	355	Urban Land	N	0	0	N	Limited available PROW
812	1,540	0	0	1,540	6,845		6,845	146	650	Urban Land	N	0	0	N	Limited available PROW
-			DA _{TOTAL}	607,011			878,340	50,525	83,442			14	280		

BMP Legend BR - Bioretention PT - Proposed Tree ET - Existing Tree PV - Pervious Surface LC - Land Conversion



APPENDIX D

Existing Tree Recommendation Summary Tables

				-			
Dian Shoot	Station	I EET (I) /			Condition	Perommended	Mitigation
Number	Number	RIGHT (R)	DBH	Tree Type	Assessment	Action	Requirement
SW/2	110+50	R	18"	Flm	Good		Requirement
SW2	110+0/	D	15"	Elm	Good		
510/2	120+54	D	15"	Elm	Good		
514/2	120+34	n D	1J 2"	Elm	Guu		
5005	122+01	n D	2		Excellent		
SVV3	123+00	ĸ	24	Elm	Good	PRESERVE	
SW3	123+46	ĸ	23	EIM	Good	PRESERVE	
SW3	123+86	ĸ	5	EIM	Good	PRESERVE	
SW3	124+25	ĸ	21"	EIM	Good	PRESERVE	
SW3	127+67	R	18"	Elm	Poor	REPLACE	
SW4	129+95	R	12"	Elm	Fair	REPLACE	
SW4	130+95	R	19"	Elm	Fair	REPLACE	
SW4	132+85	R	18"	Elm	Good	REPLACE	
SW4	133+25	R	18"	Elm	Good	REPLACE	
SW4	133+72	R	18"	Elm	Good	REPLACE	
SW4	134+18	R	18"	Elm	Good	REPLACE	
SW4	134+68	R	18"	Elm	Good	REPLACE	
SW4	135+06	R	18"	Elm	Good	REPLACE	
SW4	135+47	R	18"	Elm	Good	REPLACE	
SW4	135+87	R	18"	Elm	Good	REPLACE	
SW4	136+30	R	18"	Elm	Good	REPLACE	
SW4	136+70	R	18"	Elm	Good	REPLACE	
SW4	137+10	R	18"	Elm	Good	REPLACE	
SW4	137+46	R	18"	Elm	Good	REPLACE	
SW4	137+85	R	18"	Elm	Good	REPLACE	
SW5	138+30	R	18"	Elm	Good	REPLACE	
SW5	138+44	R	18"	Elm	Good	REPLACE	
SW5	138+65	R	18"	Elm	Good	REPLACE	
SW5	146+76	R	6"	Cherry	Good	REPLACE	
SW5	146+80	R	6"	Cherry	Good	REPLACE	
SW5	146+81	R	6"	Cherry	Good	REPLACE	
SW5	146+90	R	15"	Flm	Good	REPLACE	
SW6	151+33	R	<u>_</u> 9"	Flm	Good		
SW6	151+63	R	2"	Flm	Excellent		
SW6	152+36	R	- 25"	Flm	Fair	PRESERVE	
SW6	154+90	1	25	Elm	Good		
SW0	156+32	1	<u>د</u> 5"	Elm	Good		
SW7	156+63	D	2"	Elm	Good		
SW7	156+75	1	2"	Elm	Good		
510/7	150+75	D	5 E"	Elm	Good		
SVV7	157+10		J 10"		Good		
5007	157+27	L	7 <u>0</u> 70		Good		
SVV /	157+42	R.	20 10"		Good		
5007	157+83	L	13		Good		
SVV /	157+90	ĸ	4		Fair		
SW/	158+24	L	5"	EIM	Fair		
SW/	158+31	ĸ	9"	EIM	G000	PRESERVE	
SW/	158+72	К	9"	EIM	Good	PRESERVE	
SW7	159+20	R	2"	Elm	Good	PRESERVE	

New York Avenue NE Existing Tree Recommendation Summary Table

	1	i de la companya de l	1				
SW7	159+51	L	6"	Elm	Good	REPLACE	
SW7	160+11	L	15"	Elm	Good	REPLACE	
SW7	160+23	R	15"	Elm	Fair	REPLACE	
SW7	160+28	R	15"	Elm	Fair	REPLACE	
SW7	161+58	L	15"	Elm	Good	REPLACE	
SW7	161+70	R	10"	Scarlet Oak	Good	REPLACE	
SW7	162+00	L	16"	Elm	Good	REPLACE	
SW7	163+45	L	18"	Elm	Good	REPLACE	
SW7	163+80	L	12"	Elm	Good	REPLACE	
SW7	164+15	L	?	Elm	Good	REPLACE	
SW7	164+50	L	?	Elm	Good	REPLACE	
SW8	165+90	L	12"	Elm	Good	REPLACE	
SW8	166+30	L	9"	Elm	Good	REPLACE	
SW8	166+65	L	7"	Elm	Good	REPLACE	
SW8	167+06	L	9"	Elm	Fair	REPLACE	
SW8	167+49	L	13"	Elm	Fair	REPLACE	
SW8	167+97	L	14"	Elm	Fair	REPLACE	
SW8	168+44	L	14"	Elm	Fair	REPLACE	
SW8	168+84	L	2"	Elm	Poor	REPLACE	
SW8	169+24	L	?	?	?	REPLACE	
SW8	169+63	L	?	?	?	REPLACE	
SW8	169+83	R	6"	Elm	Good	REPLACE	
SW8	170+05	L	12"	Elm	Fair	REPLACE	
SW8	170+45	L	13"	Elm	Fair	REPLACE	
SW8	170+60	R	4"	Elm	Good	REPLACE	
SW8	170+95	L	3"	Elm	Good	REPLACE	
SW8	171+09	R	21"	Elm	Good	REPLACE	
SW8	171+40	L	3"	Elm	Fair	REPLACE	
SW8	171+80	L	14"	Elm	Fair	REPLACE	
SW8	171+89	R	23"	Elm	Fair	REPLACE	
SW8	172+22	L	12"	Elm	Fair	REPLACE	
SW8	172+86	L	4"	Elm	Fair	REPLACE	
SW9	174+42	L	18"	Elm	Fair	REPLACE	
SW9	175+03	L	16"	Elm	Fair	REPLACE	
SW9	175+52	L	16"	Elm	Fair	REPLACE	
SW9	176+24	L	3"	?	Good	REPLACE	
SW9	176+63	L	3"	?	Good	REPLACE	
SW9	177+51	R	23"	Elm	Good	PRESERVE	
SW9	178+76	R	19"	Elm	Fair	PRESERVE	
SW9	179+10	R	18"	Elm	Good	PRESERVE	
SW9	179+99	R	23"	Elm	Good	PRESERVE	
SW10	180+09	L	23"	Elm	Good	REPLACE	
SW10	180+53	L	14"	Elm	Good	REPLACE	
SW10	183+29	L	18"	Linden	Good	REPLACE	
SW10	183+52	R	16"	Linden	Good	REPLACE	
SW10	183+52	L	23"	Linden	Good	REPLACE	
SW10	183+79	R	13"	Linden	Good	REPLACE	
SW10	184+06	R	16"	Linden	Good	REPLACE	
SW10	184+06	L	22"	Linden	Good	REPLACE	
SW10	184+29	L	18"	Linden	Good	REPLACE	
SW11	192+65	R	22"	Elm	Fair	REPLACE	
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SW11	192+72	L	8"	Elm	Good	PRESERVE	
SW11	194+60	L	12"	Elm	Good	PRESERVE	
SW11	195+24	L	8"	Elm	Good	REPLACE	
SW12	197+25	L	2"	Zelkova	Good	REPLACE	
SW15	504+00	L	19"	Elm	Good	REMOVE	
SW15	504+46	L	19"	Elm	Fair	REMOVE	
SW15	504+46	L	10"	Elm	Fair	REMOVE	



APPENDIX E

Stormwater Management Plans (30% Design; Half-scale)


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THESE PLANS ARE UNAPPROVED AND ARE NOT TO BE USED FOR THE ACQUISITION OF RIGHT OF WAY OR FOR CONSTRUCTION. LEGEND - LOD - LIMI - DRA ----- EXIS EXIS EAS === EXIS APPROXIMATE EMENT FOR WATER SUBDIVISION BOO PHILADELPHIA BALTIMORE & WASHINGTON RAILROAD COMPANY PAR 014200128 NEW YORK AVENUE N.E. /N 455600 POT POR PAVI FFFF ALL SOILS ON THIS SHEET BELONG TO SOIL TYPE Ub, PRO URBAN LAND WITHOUT A HYDROLOGIC SOIL GROUP DESIGNATION. AND AND 127 ATION OF SEWER PURP 7 AT PAGE 25 PHILAØELPHIA-BALTIMORE-& WASHINGTON FALLPOAD COMPANY TREASURY SERVICES SSL 4102 0821 #1600 NEW YORK AVENUE N.E. N 455600 DA-174 ON SITE - 2,497 SF LOD AREA - 4,678 SF
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## **APPENDIX F**

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# NEW YORK AVENUE NE CORRIDOR TRANSIT SERVICE ASSESSMENT

APPENDIX H

NEW YORK AVENUE NE STREETSCAPE AND TRAIL CONCEPT REPORT



## New York Avenue Corridor Transit Service Assessment



May 2017

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#### Introduction

The New York Avenue (NYA) Corridor, located in the northeast and northwest quadrants of the District of Columbia, connects downtown DC with central Prince George's County, Maryland. The area covered under this assessment is the section between downtown DC and Fort Lincoln in northeast DC. The corridor has been identified in the District's strategic transportation plan as a potential multimodal and intermodal corridor but currently there is no direct transit service along the length of the corridor.

While NYA is classified as a major regional road, it also provides access to a number of residential neighborhoods and a large industrially zoned area of the District. The road provides links and connections to and between the National Arboretum, Gallaudet University, DC Union Market, NoMa, Mount Vernon Square, the Convention Center and downtown. In general, a mixture of land use patterns could be found along and adjacent to the corridor - residential, commercial, industrial (ex. Ivy City Rail Yard), and parks / open space (National Arboretum). Each of these place their own unique transportation demands and needs upon NYA.

Over the last few years the corridor has seen an increase in land use developments and further development plans are in the pipeline. With new land use developments underway and in the pipeline the District Department of Transportation (DDOT) requested that Metro's Office of Bus Planning evaluate the potential for providing a bus service along the NYA Corridor.

#### **Existing Characteristics** Current Metrobus Routes

There are a number of Metrobus routes serving the neighborhoods along the corridor, all of which cross NYA with none providing direct access for residents and business located along NYA. **Table 1** below presents a list of routes currently operating in the area together with their average daily ridership and peak vehicles. **Figure 1** also presents a map of the existing routes.

		Peak	Average Daily Ridership			
Route Number	Line Name	Vehicles	Weekday	Saturday	Sunday	
80	North Capitol Street Line	17	7,097	2,486	1,895	
90,92	U Street – Garfield Line	26	13,973	8,520	5,766	
B2	Bladensburg Road – Anacostia Line	17	9,234	4,292	3,462	
B8,B9	Fort Lincoln Shuttle Line	3	504	-	-	
D4	lvy-City – Franklin Square Line	5	1,668	807	749	
D8	Hospital Center Line	10	4,393	2,122	1,379	
E2	lvy-City – Fort Totten Line	3	1,224	480	333	
H6	Brookland – Fort Lincoln Line	4	1,479	787	567	
X3	Benning Road Line		534	-	-	
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 Table 1: Existing Routes Operating Near New York Avenue



#### **Growth Forecast and Planned Development Activity**

The District Office of Planning prepared a long-range forecast for employment, household, and population growth covering from 2015 to 2045. Overall, the forecast showed within the 30 year time period, on the average, population will increase by 1.6%, households by 1.3% and employment by 1.0% annually. This forecasted growth is used to project the growth of population, employment and households for the NYA Corridor, and further used to outline recommendations.



**Table 2** below presents the forecast for population, households, and jobs in the NYA Corridor (quarter mile buffer radius) within the Traffic Analysis Zone abutting the corridor. It should be noted that, the NYA Corridor has a much higher growth forecast, when compared to the rest of the DC region, with a population growth of 2.3% and household at 2.2% annually.

The Office of Planning also provided a development activity shape file that is used to map development activities in the vicinity of NYA Corridor. Figure 2 presents a map of the development activities for the District. The development activities have various status including those that are completed, under construction, planned, conceptual and new neighborhoods. The development activities include hotel, Industrial, mixed use, office, residential, retail, etc. Development activities are concentrated in the neighborhoods of Fort Lincoln, Ivy City, Florida Market, Eckington, and NoMa Gallaudet.

	2010	2015	2020	2025	2030	2035	2040	2045		
Household	28,303	36,882	40,301	47,240	53,164	55,486	58,508	61,530		
Population	55,218	71,008	77,400	89,744	100,571	106,458	113,097	120,043		
Employment	189,109	208,376	221,263	241,736	253,724	260,911	268,292	275,673		
									Total 20 [°]	15 - <mark>20</mark> 45
	Average Annual Percentage Growth									
			Average	Annual F	rencentay	e Growin			NYA	DC
Household	-	6.1%	1.9%	3.4%	2.5%	0.9%	1.1%	1.0%	<b>NYA</b> 2.2%	DC 1.3%
Household Population	-	6.1% 5.7%	1.9% 1.8%	3.4% 3.2%	2.5% 2.4%	0.9% 1.2%	1.1% 1.2%	1.0% 1.2%	NYA 2.2% 2.3%	DC 1.3% 1.6%
Household Population Employment	-	6.1% 5.7% 2.0%	1.9% 1.8% 1.2%	3.4% 3.2% 1.9%	2.5% 2.4% 1.0%	0.9% 1.2% 0.6%	1.1% 1.2% 0.6%	1.0% 1.2% 0.6%	NYA 2.2% 2.3% 1.1%	DC 1.3% 1.6% 1.0%

Table 2: NYA Corridor Population, Household and Employment Growth Forecast

Figure 2: Development Activity



#### **Service Options**

Two route configurations were considered for the corridor. The first route would provide direct service between Fort Lincoln and Franklin Square via NYA, and the second option would provide direct service between Fort Lincoln and Franklin Square via NYA with a diversion to serve the Ivy City and Union Market areas with stops more proximate to the center of those neighborhoods. Both new route options are described in detail below.

#### 1. New Route Option One

The proposed route under this option will operate from Fort Lincoln as follows: Market St NE, Fort Lincoln Drive NE, 33rd PI (31st PI northbound), South Dakota Ave NE, Bladensburg Rd NE, New York Ave NE, New York Avenue NW, 6th Street NW, Massachusetts Ave NE, K St NW, New York Ave NW, I St NW and Franklin Square (see **Figure 3**). In the following sections the areas demography, employment, trip modal split and transit propensity will be reviewed. The source of information for this analysis is the 2010 Census and 2015 American Community Survey.

- A. Population The total population residing within the census tract abutting the NYA Corridor is estimated at 59,000, out of which over 46% of the residents live within a quarter mile distance of the corridor. The mid-section of the corridor is bounded on one side with railroad tracks (on the northwest side) which would limit access to any service provided on NYA. However, due to the size of the population residing in the area and the absence of bus transportation, there is a latent transit demand that will generate ridership with the start of a new direct bus service. Figure 4 5 present total population distribution and area population within a quarter mile of the NYA Corridor.
- B. Population Density The population density of the NYA Corridor varies from one end to the other. In the southwest portion, population density is very high due to a large concentration of residential buildings while in the north east portion, density tend to be lighter as a result of large portions of the area occupied by rail tracks, a concentration of warehouses and industrial infrastructures. See Figure 6 for more detail.
- C. Minority Population The NYA Corridor is predominantly a minority population area. The size of the minority population varies from one end to the other. The concentration of minority population along the corridor is lighter in the southwest portion but it gets larger in the northeast quadrant. Close to two thirds of the population is estimated to be minority. The share of minority population northeast of Florida Avenue NE is close to 90% while this share goes down to 55% southwest of Florida Avenue NE. See Figure 7 for details.
- D. Poverty and Low Income Poverty threshold is used to count the number of households at or below the federal poverty line. The federal poverty line is variable depending upon the number of children and seniors within each household. Based on the 2015 ACS data an

estimated 18 % of the population residing within the census tract abutting the NYA Corridor have income level that is within the poverty threshold. This number increases to 21% for those residing within a quarter mile radius of the corridor. Areas with the highest percentage of below poverty line households are the neighborhoods of Brentwood and the surrounding areas of Ivy City. See **Figure 8** for details.

E. Total Trips and Mode of Transport – Based on the 2015 ACS data, there are 32,850 average trips to and from the census tract abutting the NYA Corridor, of which 14,612 trips (45%) are within the quarter mile radius. As shown in Table 3 below, the share of transit is 33%, cars 32%, while walking accounts for 29% of the trips. Bus modal share is 10%. The number of trips made northeast of Florida Avenue NE accounts for only 21% while the remaining trips are made southwest of Florida Avenue NE. As indicated on Figure 9, the total trips northeast of Florida Avenue are relatively low.

Mada	North of Florida	Percent	South of Florida	Percent	Total	Percent
wode	Avenue NE	Share	Avenue NE	Share	Trips	Share
Car	1,571	52%	3,101	27%	4,672	32%
Bus	477	16%	1,032	9%	1,509	10%
Metrorail	664	22%	2,701	23%	3,365	23%
Walk	169	6%	4,062	35%	4,231	29%
Other	141	5%	694	6%	835	6%
Total	3,022		11,590		14,612	

Table 3: New Route Option One – Trips Modal Share within Quarter Mile Radius

- F. Household Number and Car Ownership The total number of households within the census tract abutting the NYA Corridor is estimated at 29,000, out of which 13,700 (47%) are within a quarter mile distance of the corridor. The number of households without a car, for the census tract abutting the corridor, is estimated at 13,200 (45%) of which 6,400 (47%) are within the quarter mile radius. Figure 10 shows zero car ownership households within the quarter mile radius of NYA Corridor. As shown on the map, the areas surrounding Bladensburg Road NE has the lowest households with zero car ownership while neighborhoods south of Montana Avenue NE have a higher percentage of households with zero car ownership.
- **G. Employment** The total number of employment within the census tract abutting the NYA Corridor is estimated at 32,000, out of which 14,400 (47%) are within a quarter mile distance of the corridor. **Figure 11** presents the distribution of employment within quarter of mile radius of the corridor.

H. Transit Demand and Propensity – The 2015 ACS data was used to identify areas that are more likely to use transit service. Households with low car ownership and income, high proportion of elderly or young, minority population size and total employment in the area are general indicators to identify groups that are more likely to be transit users. A cursory transit propensity analysis is used to map out the areas with potential transit demand. The transit propensity information is calculated using a formula developed by Dr. Steve Polzin of the Center for Urban Transportation Research (CUTR) at the University of South Florida. The equation is:

**Score** = 1.0 * Population in zone + 0.5 * Total employment in zone + 1.75 * Number of households with zero vehicles + 0.75 * Service employment in the zone. Transit supportive zones would be places with higher scores.

Applying the above equation to the ACS data a map identifying the areas with high transit demand is plotted. **Figure 12** shows the transit propensity of the areas within quarter mile radius of the corridor. As shown in the map, areas with households of higher zero car ownership tends to have higher transit propensity than those with higher car ownership. **Table 4** below summarizes the demographic and car ownership data.

	Full Census Tract	Quarter Mile Radius	Percent
Households	29,043	13,723	47.3%
Population	58,828	27,271	46.4%
Minority	36,291	17,483	48.2%
Poverty	12,467	5,468	43.9%
Employment	31,954	14,420	45.1%
Zero Car Households	13,204	6,413	45.5%

 Table 4: Route Option One – Demographic Data Summary





Figure 4: New York Avenue Corridor Population Distribution







Figure 7: New York Avenue Corridor Minority Population



#### Figure 8: New York Avenue Corridor Percent of Population Below Poverty Line



#### Figure 9: Total Number of Trips Within Quarter Mile Radius



#### Figure 10: Percentage of Zero Car Households within Quarter Mile Radius



#### Figure 11: Area Employment within Quarter Mile Radius



Figure 12: Transit Propensity within Quarter Mile Radius

#### 2. New Route Option Two

The proposed route under this option will operate along the same alignments as New Route Option One except for a slight diversion to serve Ivy City and Union Market as follows: From Fort Lincoln Market St NE via Fort Lincoln Drive NE, 33rd PI (31st PI, northbound), South Dakota Ave NE, Bladensburg Rd NE, West Virginia Ave NE, Mount Olivet Rd NE, Brentwood Pkwy NE, Penn St NE, New York Ave NE, New York Avenue NW, 6th Street NW, Massachusetts Ave NE, K St NW, New York Ave NW, I St NW and Franklin Square (see **Figure 13**). The following section will review the areas demography, employment, trip modal split and transit propensity similarly to New Route Option One above, but parts that don't have significant difference have been left out.

- A. Population The total population residing within the census tract abutting the New Route Option Two Corridor is estimated at 61,000, of which over 47% of the residents live within a quarter mile distance of the corridor, similar to New Route Option One. The slight increase in the population size is a reflection of the proposed diversion to better serve Ivy City and Union Market.
- **B.** Population Density No change to population density from New Route Option One.
- **C.** Minority Population Minority population is similar to New Route Option One.
- D. Poverty and Low Income Poverty in the area is similar to New Route Option One.
- E. Total Trips and Mode of Transport Trip modal splits for the census tract abutting New Route Option Two is more or less similar to the one shown in New Route Option One. The only difference being there is a slight increase in the total number of trips and share of transit. Table 5 below summarizes the trip modal split northeast and southwest of Florida Avenue NE. It is interesting to note that northeast of Florida Avenue NE, the share of bus and car trips are almost twice as high as those to the southwest of Florida Avenue NE. Overall the share of transit is 34%, cars 32%, while walking accounts for 28% of the trips.

Mode	North of Florida	Percent	South of Florida	Percent	Total	Percent
mode	Avenue NE	Share	Avenue NE	Share	Trips	Share
Car	1,805	50%	3,101	27%	4,906	32%
Bus	667	19%	1,032	9%	1,699	11%
Metrorail	749	21%	2,701	23%	3,450	23%
Walk	212	6%	4,062	35%	4,274	28%
Other	150	4%	694	6%	844	6%
Total	3,583		11,590		15,173	

#### Table 5: New Route Option Two – Trip Modal Share within Quarter Mile Radius

- F. Household Number and Car Ownership The total number of households within the census tract abutting New Route Option Two is estimated at 29,800, of which 14,300 (48%) are within a quarter mile distance of the corridor. The number of households with zero car ownership is estimated at 13,500 (45%) of which 6,700 (49%) are within the quarter mile radius. The concentration of higher car ownership households are located in the same neighborhoods as shown in New Route Option One. Areas at the northeastern end have the highest car ownership households while neighborhoods southwest of Montana Avenue NE have a higher percentage of households with zero car ownership.
- **G.** Employment There is no major difference in the number of employment from that shown in Route Option One.
- H. Transit Use and Propensity Figure 14 15 shows the transit modal share and propensity within a quarter mile radius of the corridor. As shown on Figure 14, the neighborhoods of South Central, Ivy City, Union Market, Trinidad, Brentwood, and NoMa Gallaudet have a higher percentage of trips using transit. Figure 15 also shows the neighborhoods with less car ownership tends to have a higher transit propensity than those with higher car ownership. Table 6 below summarizes the demographic and car ownership data.

	Full Census Tract	Quarter Mile Radius	Percent
Households	29,837	14,306	47.9%
Population	61,004	28,841	47.3%
Minority	40,892	20,153	49.3%
Poverty	13,652	5,878	43.1%
Employment	32,871	15,023	45.7%
Zero Car Households	13,516	6,666	45.3%

 Table 6: New Route Option Two – Demographic Data Summary





#### Figure 14: Transit Modal Share within Quarter Mile Radius



#### Figure 15: Transit Propensity within Quarter Mile Radius

#### 3. Extend Route D4 to Fort Lincoln

Another consideration is the extension of existing Metrobus Route D4 to Fort Lincoln via New York Avenue, Bladensburg Road and South Dakota Avenue NE. This option has the advantage of using an established route which would reduce the estimated cost of operation and subsidy, and it would connect the growing Ivy City and Trinidad neighborhoods to commercial and residential destinations in Fort Lincoln. This option, however, would not offer direct service along the NYA corridor to downtown DC, and would not generate enough new ridership within the growing neighborhoods, as Route D4 serves areas south of Ivy City, Trinidad and K Street, leaving large segments of NYA unserved and further away from the corridor activity centers. The proposed extension of Route D4 to Fort Lincoln is presented on **Figure 16**.



Figure 16: Route D4 Extension to Fort Lincoln

**Table 7** below presents a list of the strength and weaknesses of the different options assessed above.

	New Route Option 1	New Route Option 2	Extend Route D4
Strengths	<ul> <li>Most direct corridor service.</li> <li>Direct routing is more likely to attract new residents and other commuters with downtown, decreasing SOVs and congestion on NYA.</li> <li>Connections between downtown, NoMa, Ivy City, and Fort Lincoln.</li> </ul>	<ul> <li>Direct service to growing neighborhoods and commercial centers.</li> <li>Relatively direct routing is more likely to attract new residents and other commuters with downtown, decreasing SOVs and congestion on NYA.</li> <li>Connections between downtown, NoMa, DC Union Market, Gallaudet University, Ivy City, and Fort Lincoln.</li> </ul>	<ul> <li>Corridor service only between lvy City and Bladensburg Road.</li> <li>Provides access to Fort Lincoln commercial centers for lvy City, Trinidad, and K Street.</li> </ul>
Weaknesses	<ul> <li>Parallels railroad right-of-way along the northern corridor border.</li> <li>Peak period, peak direction traffic congestion.</li> <li>Lack of existing bus stops.</li> </ul>	<ul> <li>Parallels railroad right-of-way along the northern corridor border.</li> <li>Peak period, peak direction traffic congestion.</li> <li>Lack of existing bus stops.</li> </ul>	<ul> <li>Does not directly serve the corridor southeast of Ivy City (D4 serves Trinidad and K Street).</li> <li>Longer travel time and route to downtown.</li> <li>Non-direct routing may not attract new residents and commuters to transit, increasing SOVs on NYA.</li> </ul>

Table 7: Perceived Strengths and Weaknesses of Each Option

#### **Preferred Option and Ridership Estimate**

New Route Option Two is the preferred option as it provides more direct connections between the Ivy City, Union Market, NoMa and Gallaudet neighborhoods, downtown, and the growing commercial center at Fort Lincoln. The recommendation is to have a Framework type of service with a minimum service frequency and span of service as shown on **Table 8** below.

Day Туре	Frequency		Span Of Sorvico	
	Peak	Off-Peak	Span Of Service	
Weekdays	20 Minute	30 Minute	6:00 AM to 10:30 PM	
Saturday	60 Minute All Day		6:30 AM to 10:00 PM	
Sunday	60 Minute All Day		7:00 AM to 10:00 PM	

#### Table 8: Preferred Option Ridership Demand Estimate

#### **Ridership Demand Estimate**

The following assumptions are used to estimate the potential new ridership that could be generated from providing a new service along NYA Corridor.

- 1. For the section north of Florida Avenue NE:
  - a. 15% of trips that are currently using cars will be transferred to the new service
  - b. 10% of households with zero car will be making one trip a day on the new service
- 2. For the section southwest of Florida Avenue NE
  - a. The section below Florida Avenue is very well served with Metrorail and Metrobus and as a result it is assumed that the level of new trips generated would be significantly less. Therefore, new trips generated in this section is assumed to be a quarter of the trips generated northeast of Florida Avenue NE.

**Table 9** below presents a conservative ridership demand estimates based on the above assumptions. As the Ivy City and Union Market communities continue to grow, Metro anticipates a higher percentage of zero car households would use a direct transit connection to and from downtown and Fort Lincoln if it were available as households were established; complementing the Route D4 service in Ivy City and encouraging these households to rely on transit for their travel needs versus adding to SOV travel along NYA at some point in the future.

North of Florida Avenue	Trips	
1 - 15% Car Trips	271	
2 - 10% Zero Car Households	667	
Sub Total	937	
South of Florida Avenue		
25% of North of Florida Trips	234	
Total Trips	1,172	

#### Table 9: Preferred Option Ridership Demand Estimate

In addition, DDOT should also consider the extension of Metrobus Route D4 (at its current span and frequency) to Fort Lincoln, providing access to and between Fort Lincoln, Ivy City, Trinidad and K Street. The New Route Option Two and Route D4 extensions would provide the connections to the growing Fort Lincoln area from the southwest, including downtown, which do not exist today. Bus service to Fort Lincoln is provided to and from the northwest, with connections to the Rhode Island Avenue and Brookland Metrorail stations.

Metro's Office of Bus Planning will further refine these recommendations pending further consultation with DDOT and progress of the New York Avenue Streetscape and Trail project.

#### **Resource Requirements**

- Number of Bus Stops The preferred Route Option Two has a one way distance of 5.3 miles. Using WMATA's Bus Stop Guidelines of 4 5 stops per mile spacing, 21 26 bus stops will be needed in one direction. Route D4 extension to Fort Lincoln has a 1.8 mile distance. The extension will require 7 9 bus stop in one direction. Some of these stops will be new installations and some of them share existing stops. The new stops will further require basic bus stop amenities, shelters and real time information displays depending on the number of boardings.
- **Number of Peak Buses** Route Option Two will have 7 and Route D4 extension 2 Peak Vehicle Requirements (PVR).

Total annual revenue hours and platform hours is estimated for Route Option Two and Route D4 Extension to Fort Lincoln as shown on **Table 10** below.

	New Route Option Two			Route D4 Extension to Fort Lincoln		
Day Type	Revenue Hours	Platform Hours	Operating Cost	Revenue Hours	Platform Hours	Operating Cost
5 51	(Annual)	(Annual)	(Annual)	(Annual)	(Annual)	(Annual)
Weekdays	34,000	42,500	\$4,930,000	7,395	9,244	\$1,072,275
Weekends	2,640	3,300	\$382,800	2,200	2,750	\$319,000
Total	36,640	45,800	\$5,312,800	9,595	11,994	\$1,391,275

#### Table 10: Estimated Revenue Hours and Operating Cost

## NEW YORK AVENUE NE BRIDGE NO. 534 MEMO

NEW YORK AVENUE NE STREETSCAPE AND TRAIL CONCEPT REPORT



### MEMORANDUM

Date: October 17, 2017

To: Katherine Youngbluth	Work Order Number: 31925-003
Strategic Transportation Planner	
and	
Michael Alvino	
Bicycle Program Specialist	
From: Matthew Werder	Contract Number: DCKA-2013-T-0146
<b>Subject:</b> New York Avenue Bridge (DC Bridge No. 534) over Rail Road Tracks N.E.	<b>Project:</b> New York Avenue Streetscape and Trail
CC: Brian Riffel, Jim Guinther, Chris Curtis	

#### BACKGROUND

In May of 2017, as part of the New York Avenue Streetscape and Trail project and the District Department of Transportation's (DDOT) plan to improve the bicycle and pedestrian access along the New York Avenue N.E. corridor, DDOT requested that Whitman, Requardt & Associates, LLP (WRA) investigate what modifications could be made to the layout of the existing New York Avenue Bridge (DC Bridge No. 534) over the railroads and the Metropolitan Branch Trail that would allow for an enhanced bicycle and pedestrian experience as they traveled across the bridge.

There has been a large amount of public support for the bridge to accommodate improved bicycle and pedestrian movements. The project team received comments from the public at all Public Meetings and Public Engagement Events asking about how this project could accommodate improved bicycle and pedestrian facilities across this bridge. DDOT also received letters from the Sierra Club and the Washington Area Bicyclist Association (WABA) on 5/17/2017 and 5/19/2017 respectively, specifically discussing how the existing conditions on the bridge are unacceptable for bicyclists and pedestrians.

On 6/12/2017, WRA provided DDOT with the results of their initial investigation via email correspondence. In performing this initial investigation, WRA developed some project constraints based on engineering judgement which included avoiding impact to the existing scupper drainage system along the bridge and reluctance to have a travel lane span the existing bridge joint in the middle, as the bridge is crowned, and it is typically considered unsafe to have a travel lane span a crowned roadway in the permanent condition. This initial concept narrowed the travel lane widths to 11'-0" wide, removed the existing raised median, and provided 5'-0" wide one-way cycle tracks in each direction with a 2'-0" buffer from vehicle traffic. Specific protection type was not determined, but utilizing some type of protection for bicyclists within this 2'-0" buffer was discussed as a possibility. This initial concept was presented internally to DDOT at the project's Interagency Meeting #3 on 6/21/2017 and to the public at the project's Public Meeting #3 on 6/29/2017.

On 6/28/2017, email correspondence from DDOT's Transportation Operations Administration expressed their safety concern with the initial concept for the following reasons:

- Given the vertical crest and roadway volumes we cannot support an undivided cross section. Physical separation must exist to prevent head-on and opposite direction sideswipe crashes. A narrower footprint for this separation would be considered.
- The lane widths of 11' are acceptable but we cannot support a reduction below 11" due to the high heavy vehicle volumes.

801 South Caroline Street

Baltimore, Maryland 21231

October	17	2017	
OCIODEI	17,	2017	

• We caution against the use of buffered bicycle lanes due to high volumes, speeds and heavy vehicle percentages. We encourage physical separation between bicycles and vehicles for the safety of cyclists.

On 8/8/2017, DDOT provided WRA with as-built plans for the New York Avenue Bridge and requested that WRA review the plans to determine whether improvements to the bridge for pedestrians and bicyclists was feasible. The direction stated that this evaluation should include potential impacts to the existing bridge, structural elements, conduits, and other elements as well as associated costs. In addition, WRA should also examine a new, separate bridge for bicyclists and pedestrians only that runs parallel to the existing bridge. These potential concepts could then be compared to the no-build scenario.

On 9/11/2017, WRA submitted a draft version of the New York Avenue Bridge Pedestrian and Bicycle Improvements memo to DDOT, which included a total of six (6) potential concepts. On 9/12/2017 and 9/14/2017, DDOT provided comments on WRA's draft version of the memo.

On 10/2/2017, WRA submitted this revised version of the New York Avenue Bridge Pedestrian and Bicycle Improvements memo to DDOT.

The purpose of this memo is to evaluate options to improve pedestrian and cyclist access over the combined Right-Of-Way of Amtrak, WMATA (Red Line), CSX, and The Metropolitan Branch Trail located under the New York Avenue Bridge. Five (5) design solutions have been examined to better accommodate the movements over the New York Avenue Bridge Structure (the "Bridge") that is located between Florida Avenue and 4th Street Northeast, including an option for designing and constructing a new pedestrian and bicycle bridge over the existing railroad right of way adjacent to the existing bridge.

The New York Avenue Streetscape and Trail Project Team (the "team") has used engineering judgement and design guidance from the AASHTO LRFD Bridge Design Specifications, AASHTO Guide for the Development of Bicycle Facilities (2012), NACTO Urban Bikeway Design Guide (2011), and DDOT's Design and Engineering Manual – July 2017. The select policies listed above in combination with engineering judgement were used to examine risk to the existing bridge structure. To determine the recommended sidewalk or pathway width, the following policies were followed:

- AASHTO recommends a width of 10'-0" to 14'-0" for a shared use path, but states that a reduced width of 8'-0" may be for short distances due to physical constraints (AASHTO Guide for the Development of Bicycle Facilities (2012) on page 5-3 in Section 5.2.1). AASHTO recommends a minimum width of 2'-0" for clearance from lateral obstructions, but allows for a lesser clearance of 1'-0" where "smooth" features such as railings or fences are introduced with appropriate flaring end treatments (AASHTO Guide for the Development of Bicycle Facilities (2012) on page 5-5 in Section 5.2.1).
- NACTO recommends a minimum width of 5'-0" for buffered bike lanes with a buffer width of at least 2'-0" (NACTO Urban Bikeway Design Guide (2011) on page 20).
- DDOT's required minimum width for a shared use path is 10'-0" (DDOT's Design and Engineering Manual (2017) on page 29-8 in Section 29.4.1) with a required minimum 2'-0" offset between the path edge and any vertical obstructions (DDOT's Design and Engineering Manual (2017) on page 29-8 in Section 29.4.2).
- DDOT's preferred minimum width for a protected bike lane is 5'-0" ((DDOT's Design and Engineering Manual (2017) on page 29-5 in Section 29.3.3).


# EXISTING BRIDGE FEATURES

The New York Avenue Bridge is comprised of two (2) separate parallel structures separated by a 1" open longitudinal joint. The typical section of the bridges are symmetrical about centerline of the longitudinal joint. In addition, each section of each bridge consists of a 6'-4" wide sidewalk, 38'-0" clear roadway (3 lanes @ 12'-0"), and a 3'-0" wide raised median. Exhibit 1 depicts the existing bridge cross-section described in detail below. Details about the bridge, including the structural elements of the bridge and the roadway design are outlined below:

- Existing Structural Elements:
  - The westbound structure is a six (6) span structure comprised of spans measuring 90'-1¾", 44'-11¼", 66'-9¼", 87'-2½", 83'-8½", and 94'-11½" for a total length of 467'-9", measured from centerline of bearing to centerline of bearing.
  - The eastbound structure is a five (5) span structure compromised of spans measuring 90'-1½", 72'-1¼", 75'-11", 73'-1¼", and 80'-3¼" for a total length of 391'-6 ½", measured from centerline of bearing to centerline of bearing.
  - The bridge skew varies from approximately 46 degrees at the west abutment to approximately 66 degrees at the east abutment.
  - Each structure is composed of a precast concrete deck slab post tensioned in both the transverse and longitudinal directions. The deck slab is supported on conventional steel plate girders with steel shear studs. The girders are spaced at approximately 12'-10", center-to-center.
  - The exterior bridge deck overhang is 11'-4" and supports a 6'-0" tall transparent fence mounted on a 1'-6" wide by 1'-0" tall concrete pedestal. The interior bridge deck overhang supporting the raised median is 12'-10".
  - The light post pedestals and the traffic barrier are monolithic and are connected to the precast deck slab by rebar couplers spaced to avoid the post tensioning ducts. The post tensioning ducts are shown in the attached Exhibits.
  - The raised median's reinforcement is cast into the deck pour.
- Existing Roadway & Sidewalk Design:
  - The roadway and the sidewalk of each bridge are separated by a 1'-2" wide concrete light pedestal and a 1'-0" wide traffic barrier.
  - The traffic barrier is comprised of a 2'-11/4" tall concrete pedestal and a 2'-6" tall railing.
  - The approach roadways consist of three (3) 11'-0" lanes from the east and three (3) 12'-0" lanes from the west. There are ten (10) light post concrete pedestals along the length of the westbound bridge and eight (8) on the eastbound.
  - The concrete light pedestals have reduced the clear sidewalk distance from 6'-4" to 5'-2".
  - The traffic barriers each contain one (1) 3" PVC conduit for the walkway lighting.
  - The eastbound raised median contains 4-3" PVC utility conduits.

Each bridge is supported by a series of concrete pier column bents and abutments on pile foundations. These substructures were originally constructed in 1966 and modified in 2014 to accommodate the new beam configuration.









# **DESIGN OPTIONS**

As part of the New York Avenue Streetscape and Trail project, the Project Team examined the ability for the existing bridge structure to handle a greater number of pedestrians and bicycles along New York Avenue. The existing post-tensioned deck does not readily lend itself to conventional widening methods and is vulnerable to modifications. Therefore, widening the existing bridge was not considered and any option involving modification to the existing bridge will involve a large amount of risk during construction. The risks during demolition and construction of the light post pedestals, traffic barrier, and raised median are as follow:

- Vibration during demolition and construction may loosen the duct grout or weaken the anchorage of the tendons.
- Demolition and construction compromising the life and serviceability of the structure due to unforeseen construction damages or miss location of post-tensioning ducts or rebar, installation of tie downs; mechanical or dowels drilled and grout.
- Damage to the post-tensioning tendons, which are difficult to retrofit once compromised due to the fact that here are no spare ducts.
- Damage to the deck reinforcing steel during barrier or pedestal removal and/or installation due to the steel being mislocated or operator error during removal/installation.
- The reconstructed barriers may be precast concrete or cast in place and mechanically fastened to the deck. Mechanical fasteners must be spaced to avoid conflicts with the existing post-tensioning ducts and reinforcing steel in the deck.

Many design options were examined and five (5) potential design solutions are described below. The five (5) options proposed to accommodate improved pedestrian/cyclist access include two (2) pathway widening options, two (2) separate bicycle facility options, and a new Bike/Pedestrian bridge parallel to the existing bridge. Options I, II, III, and IV require the width of the vehicle travel lanes on the existing bridge to be reduced from 12'-0" to 11'-0". The DDOT Transportation Operations Administration does not support a reduction of travel lane widths below 11'-0" due to the high volume of heavy vehicles on this section of New York Avenue NE. The five (5) options examined are considered to be a thorough representation of potential solutions but not comprehensive.

#### PATHWAY WIDENING OPTIONS

Options I and II examined widening the existing 5-foot sidewalk pathway to accommodate a widened sidewalk without increasing the bridge footprint, but by making construction modifications to the existing raised median, light post pedestals, and traffic barrier. Options I and II are depicted on Exhibit 2 and described below.

#### Option I – 8'-2" Wide Multiuse Path:

Option I details a 8'-2" foot multiuse path. To widen the existing 5'-0" sidewalk, the existing light post pedestals and traffic barrier on the north side of the westbound structure would be demolished and reconstructed 3'-0" to the south of their current configuration to accommodate a widened sidewalk.

Option I Advantages:

- No impact to raised median.
- Preferred bicycle access point (north side) to the Metropolitan Branch Trail below.
- No impact to the existing eastbound raised median which contains 4-3" PVC utility conduits.

Option I Disadvantages:

- High risk of damaging the bridge and compromising the life and serviceability of the structure during demolition of existing barrier and light post pedestals.
- High risk of damaging the bridge and compromising the life and serviceability of the structure during drilling for new barrier connections.



- Potential need for additional external post-tensions or strengthening due to light post pedestal and/or barrier relocation.
- Drainage scuppers would either need to be relocated or drainage would need to pass through the barrier. The
  reduced roadway width and the need for the drainage to pass through the barrier would affect the spread on
  the roadway (spread is defined as the width of gutter flow, measured laterally from the face of the curb/barrier).
  Relocating the scuppers would be highly problematic due to the configuration of the precast deck panels and
  location of the existing drainage piping.
- The multiuse path design width is limited to 8'-2" which does not meet DDOT's required minimum width of 10'-0".
- The multiuse path design does not include offsets between the edge of the trail and vertical obstructions which does not meet DDOT's required minimum offset width of 2'-0".
- The multiuse path design width is limited to 8'-2" which exceeds AASHTO's absolute minimum recommended width of 8'-0", but without meeting the recommended clearances from obstructions.

#### **Option II – 10'-3" Wide Multiuse Path:**

Option II details a 10'-3" multiuse path. To widen the existing 5'-0" sidewalk, the existing light post pedestals and traffic barrier on the north side of the westbound structure would be demolished and reconstructed 5'-2" to the south of their current configuration to accommodate the widened sidewalk. In addition, this option requires partial demolition and reconstruction of the existing eastbound raised median.

Option II Advantages:

- The multiuse path design width of 10'-3" exceeds DDOT's required minimum width and AASHTO's recommended minimum width of 10-0".
- The multiuse path design width of 10'-3" which exceeds AASHTO's absolute minimum recommended width of 8'-0" with 1'-0" recommended clearances from obstructions.
- Preferred bicycle access point (north side) to the Metropolitan Branch Trail below.
- No impact to the existing eastbound raised median which contains 4-3" PVC utility conduits.

Option II Disadvantages:

- High risk of damaging the bridge and compromising the life and serviceability of the structure during demolition of existing barrier and light post pedestals.
- High risk of damaging the bridge and compromising the life and serviceability of the structure during drilling for new barrier connections.
- Potential need for additional external post-tensions or strengthening due to light post pedestal and/or barrier relocation.
- Drainage scuppers would either need to be relocated or drainage would need to pass through the barrier. The
  reduced roadway width and the need for the drainage to pass through the barrier would affect the spread on
  the roadway (spread is defined as the width of gutter flow, measured laterally from the face of the curb/barrier).
  Relocating the scuppers would be highly problematic due to the configuration of the precast deck panels and
  location of the existing drainage piping.
- The multiuse path design width is limited to 10'-3" which exceeds DDOT's required minimum width of 10'-0", but without meeting the required offsets from obstructions of 2'-0".







**EXHIBIT 2** 

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#### SEPARATE BICYCLE FACILITY OPTIONS

Options III and IV examined providing separate bicycle facilities within the existing roadway on the bridge without impacts to the existing sidewalk, light post concrete pedestals, and traffic barrier. Options III and IV require making construction modifications to the existing raised median. Options III and IV are depicted on Exhibit 3 and described below.

#### **Option III – 5'-0" Wide One-Way Cycle Tracks:**

Option III details 5'-0" wide one-way cycle tracks protected from the outside travel lane and buffered from the outside barrier of each existing bridge. To accommodate the necessary 6'-11½" width (5'-0" wide cycle tracks, 1'-11½" buffer from traffic, and 1'-0" buffer from barrier), the existing raised medians would be demolished and the travel lanes would be narrowed to 11'-0" wide. The existing 4-3" PVC utility conduits located in the eastbound raised median would need to be relocated in this option. The one-way cycle tracks would be separated from vehicle traffic with a combination of parking stop bars and vertical 28" white flexible channelizers centered within the buffer between the travel lane and the cycle track. While this separation is similar to other situations within the District of Columbia, including on Pennsylvania Avenue NW, it does not actually provide protection for the bicyclists from vehicle traffic. A protection option would be to use temporary barrier with epoxy bolt downs. A key consideration when evaluating potential protection/separation options was the need to maintain drainage toward the existing scupper locations. While the use of temporary barrier would provide a much greater level of protection, it would also create a maintenance issue with maintaining the drainage openings in the barrier as well as likely increasing the risk during construction by adding more drilling for the barrier connections to the bridge deck.

Option III Advantages:

- No impact to concrete light pedestals and traffic barriers.
- No impact to drainage scuppers.
- Separate pedestrian and bicycle facilities.
- The one-way cycle tracks width of 5'-0" meets DDOT's preferred minimum width and NACTO's recommended minimum width of 5'-0" for buffered/protected bike lanes.
- The 1'-0" buffer from the traffic barrier meets AASHTO's minimum clearance from "smooth" features of 1'-0".

**Option III Disadvantages:** 

- High risk of damaging the bridge and compromising the life and serviceability of the structure during demolition of existing raised median.
- High risk of damaging the bridge and compromising the life and serviceability of the structure during drilling for new barrier connections.
- The buffer width between bicyclists and motor vehicles is limited to 1'-11½" which does not meet NACTO's recommended minimum width of 2'-0".
- Requires relocation of existing 4-3" PVC utility conduits located in the eastbound raised median. These relocation costs could be significant, as installing them under the existing bridge is not an option due to multiple 12.6KV Amtrak's Overhead Catenary System (OCS).
- Protection for bicyclists provided by parking stop bars and channelizers is less than what is provided by an existing or relocated traffic barrier.
- Undivided roadway cross section on bridge is not supported by DDOT Transportation Operations Administration (TOA) due to the vertical crest and roadway volumes. DDOT TOA states for safety that physical separation must exist to prevent head-on and opposite direction sideswipe crashes.

#### Option IV – 10'-0" Wide Two-Way Center-Running Cycle Track:

Option IV details a 10'-0" wide two-way cycle track in the center of the travel lanes. This cycle track is protected from the travel lanes with a 1'-0" wide traffic barrier. To accommodate the necessary 12'-0" width (10'-0" wide cycle track,



#### October 17, 2017

two (2) 1'-0" barriers), the travel lanes would be narrowed to 11'-0" wide. This option would remove the need for demolition of the existing raised medians by elevating the propose cycle track over top of it. A plate or deck would be attached to one of the proposed barriers that would allow for the spanning of the existing raised median and removing the open bridge joint hazard for bicyclists while allowing the structural movement of the bridge and the utilities to remain in place.

Option IV Advantages:

- No impact to raised median.
- No impact to concrete light pedestals and traffic barriers.
- No impact to drainage scuppers.
- Separate pedestrian and bicycle facilities.
- The two-way cycle track design width of 10'-0" meets DDOT's required minimum width and NACTO's recommended minimum width of 5'-0" for each bike lane.

Option IV Disadvantages:

- High risk of damaging the bridge and compromising the life and serviceability of the structure during drilling for new barrier connections.
- The two-way cycle track design does not include offsets between the edge of the facility and vertical obstructions which does not meet DDOT's required minimum offset width of 2'-0" or AASHTO's recommended minimum offset width of 1'-0".
- Bicyclists are required to cross vehicle traffic at two (2) locations (4th Street NE and Florida Avenue NE) to
  access a short stretch of a bicycle facility. It is worth noting that both of these intersections are signalized at
  which bicyclists and pedestrians will be crossing.
- East of the New York Avenue Bridge, New York Avenue NE would require widening to the north for about 750' to provide the median width that does not exist today once you are east of the existing bridge.







# **EXHIBIT 3**

#### **NEW BRIDGE OPTION**

Option V examined providing a new pedestrian-bicycle only bridge along the north side of the existing westbound bridge structure. Option V is depicted on Exhibit 4 and described below.

#### **Option V – New Multiuse Bridge Parallel to Existing Westbound Bridge:**

Option V includes a new bridge that will provide a 14'-0" wide multiuse path over the existing railyard below. To minimize the disruption to the rail road's operation a multi - simple span prefabricated steel truss is envisioned. A similar span arrangement as the existing New York Avenue Bridge westbound structure would be required to minimize clearance impacts of the tracks. The railroad tracks are more spread out on the north side of the existing bridge, which would provide a better opportunity for substructure placement. The new bridge would be required to support much less load than the existing bridge, and as such may require less substructures than the existing New York Avenue Bridge. The abutment and the piers would be constructed where feasible by the locations of the railroad tracks, however, no subsurface investigation, coordination with Amtrak, or constructability analysis of the substructure elements has been completed. This would need to be completed prior to further advancement of this option.

Option V Advantages:

- No impact to existing bridge structures.
- No impact to existing 12'-0" travel lanes.
- The multiuse path design width of 14'-0" meets DDOT's required minimum width and AASHTO's recommended minimum width of 10-0" while meeting the required and recommended 2'-0" clearance widths from obstructions.
- Preferred bicycle access point (north side) to the Metropolitan Branch Trail below.

Option V Disadvantages:

- Coordination with railroad and adjacent property owners.
- Disruption to the railroad operations.
- Constructing bridge foundation on an active railroad facility.
- Constructing abutment and piers on an active railroad facility.
- Constructability issues such as girder splice placement.
- Significant increase in cost compared to Options I through IV.
- Requires significant coordination with other parties.
- Requires right of way acquisition, including Air Rights over the railyard.





EXHIBIT 4



## DESIGN OPTIONS CONSIDERED BUT DROPPED FROM FURTHER STUDY

In addition to the five (5) proposed options discussed above, an additional design option that is described below was considered but not deemed viable after further analysis. It was assumed that the existing vehicle travel lanes on the Bridge would be reduced from 12'-0" to 11'-0".

- Westbound Two-Way Cycle Track
  - This option includes demolition of the existing raised median and shifting of all travel lanes to the south to accommodate a 10'-6" two-way cycle track within the limits of the existing westbound roadway.
  - This option was not considered viable due to the condition of the inside westbound travel lane spanning the 1" open longitudinal joint. The open bridge joint would be a hazard for motorcyclists and it is typically considered unsafe to have a travel lane span a crowned roadway in the permanent condition.

### SUMMARY

	EXISTING (No Build)	OPTION I 8'-2" Wide Multiuse Path	OPTION II 10'-3" Wide Multiuse Path	OPTION III 5'-0" Wide One-Way Cycle Tracks	OPTION IV 10'-0" Wide Center Cycle Track	OPTION V New Multiuse Bridge
RISK TO EXISTING BRIDGE*	NONE	HIGH	HIGH	HIGH	HIGH	NONE
PROVIDES SEPARATE BICYCLE FACILITIES	NO	NO	NO	YES	YES	YES
PEDESTRIAN/ BICYCLE FACILITY WIDTHS MEET STANDARDS	NO	NO	YES	YES	YES	YES
PROVIDES PROTECTION FOR BICYCLE FACILITIES	NA	YES	YES	NO	YES	YES
RIGHT OF WAY REQUIRED	NO	NO	NO	NO	NO	YES

*Risks to compromising the life and serviceability of the structure. See Design Process section for further details.

Options I through IV would all have an estimated construction cost within the same order of magnitude of each other, while an estimated construction cost for Option V would be significantly higher. It should be noted that the estimated construction costs for Options I through IV could all be significantly higher due to the difficulties performing the very challenging, high risk work that is associated with modifying the existing bridge structure.

Based on the evaluations discussed above, Options I through IV have a high risk of compromising the life and serviceability of the existing bridge structure. Option V, a New Multiuse Bridge Parallel to Existing Westbound Bridge does not present the same risk of compromising the life and serviceability of the existing bridge structure. This option has its own challenges including significantly high cost of construction, right of way acquisition, significant coordination with other parties, and other risks as detailed above.

Matthew Werder, P.E.



# MONTANA CIRCLE NE LONG TERM PLAN

APPENDIX J

NEW YORK AVENUE NE STREETSCAPE AND TRAIL CONCEPT REPORT





Provides two-way sidewalk level cycle track and connections to future facilities on West Virginia Avenue, NE to the southwest, Montana Avenue, NE to the southeast, and New York Avenue, NE to the east. Also includes connection to potential future bicycle facility on New York Avenue, NE to the west.

MassDOT Separated Bike Lane Planning & Design Guide

(C2)

20' rec

(C1)

motorist yield zone 6'-16.5' rec.

20' rec

MassDOT Separated Bike Lane Planning & Design Guide

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Appropriate motorist yield zone, refuge islands, bicycle queuing areas, and pedestrian and motorist crossing of separated bike lanes provided.

Splitter island size reduced on West Virginia Avenue, NE exit to allow large vehicles to make eastbound right-turn movements from New York Avenue, NE

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1

Provides bus stops at their current locations. Includes a pull-out stop for busses leaving the circle on West Virginia Avenue, NE. Sidewalks and twoway cycle tracks designed to provide additional bus stop waiting area, amenities, and sidewalk passage, while also minimizing conflicts with bicycles

Borrowing from roundabout design principles, all legs have appropriate path alignment guiding entering vehicles into the correct circulating lane



Spiral striping guides vehicles from inside circulating lanes to the outside to minimize turning movement conflicts and remove the need for vehicles to change lanes in the intersection

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The lane configuration of the entries, circulating lanes, and exits are aligned. In particular, reducing West Virginia Ave, NE to one lane leaving the circle, and cleaning up the striping near the West Virginia Ave, NE approach allows vehicles in both lanes on Montana Avenue, NE to continue on Montana Ave NE to the south.

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Current striping doesn't allow for vehicles entering the circle from Montana Ave, NE to make a left-turn on to New York Ave, NE, or a U-turn to travel on to West Virginia, NE. Revised striping allows vehicles to intuitively travel from Montana Ave, NE to any exit.

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B Contraction

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