

APPENDICES

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APPENDIX 1: FIGURES

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Figure 4: Existing Facility Location



Figure 5: Existing Facility

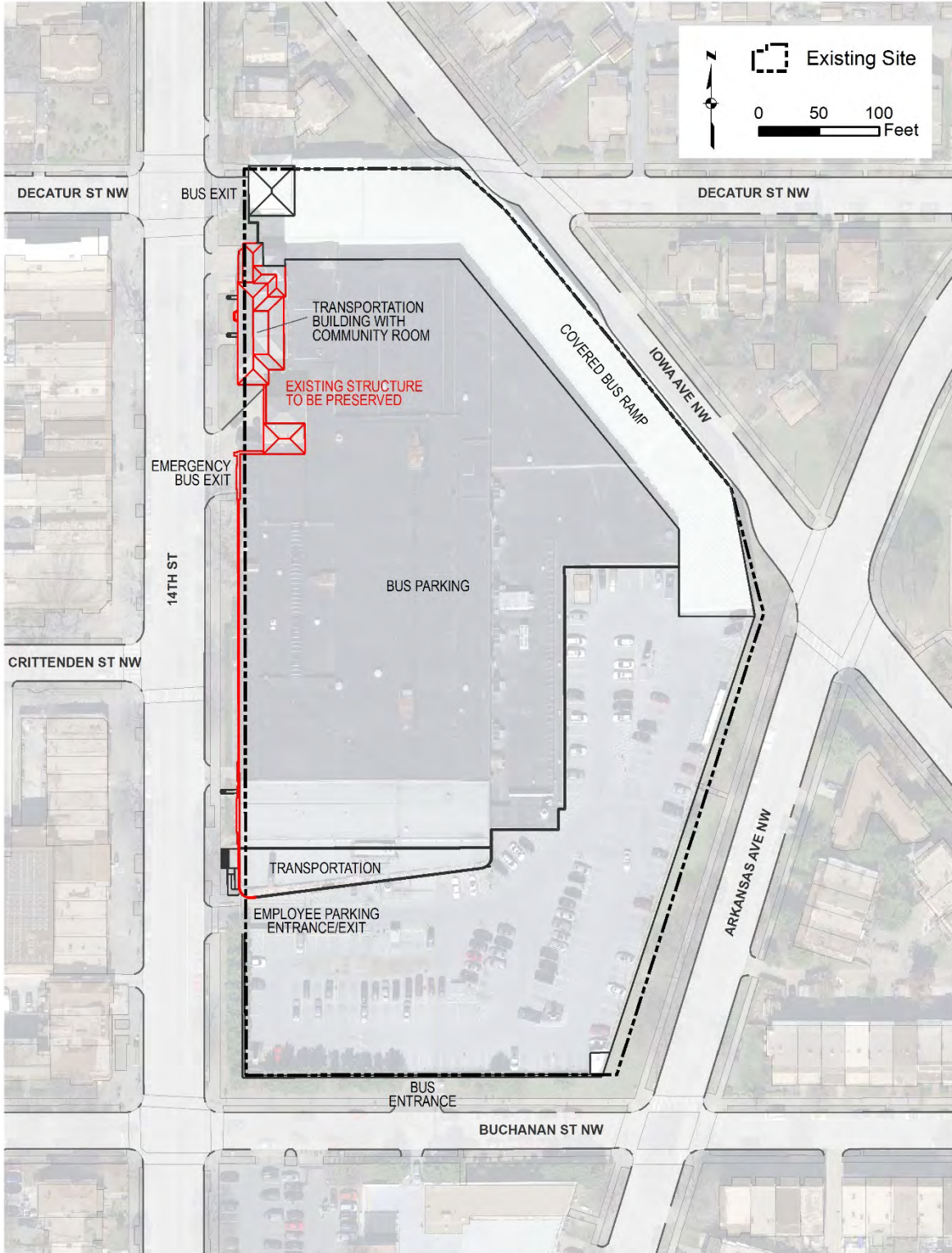


Figure 6: Previous Detailed Project Concept (Proposed Conditions)

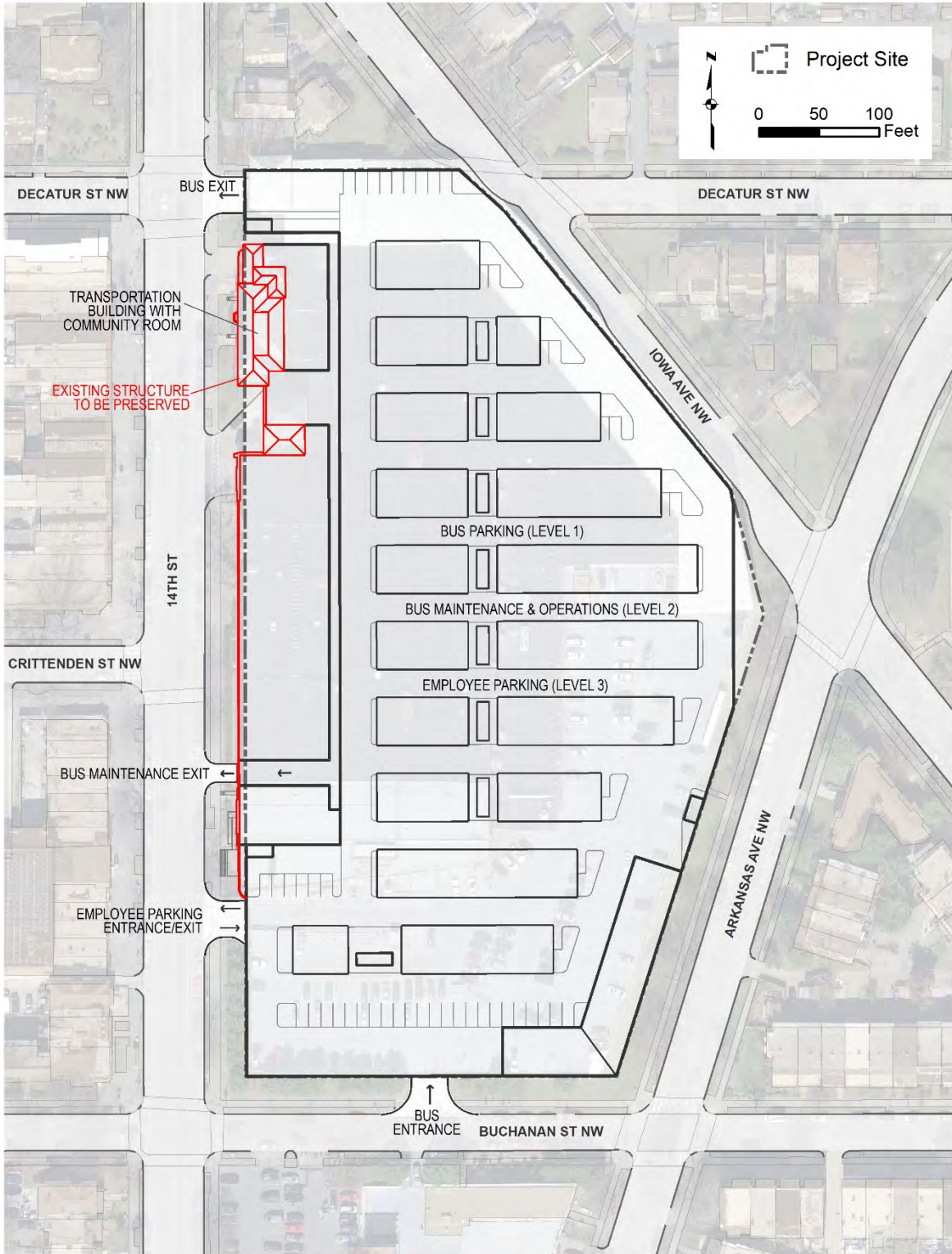
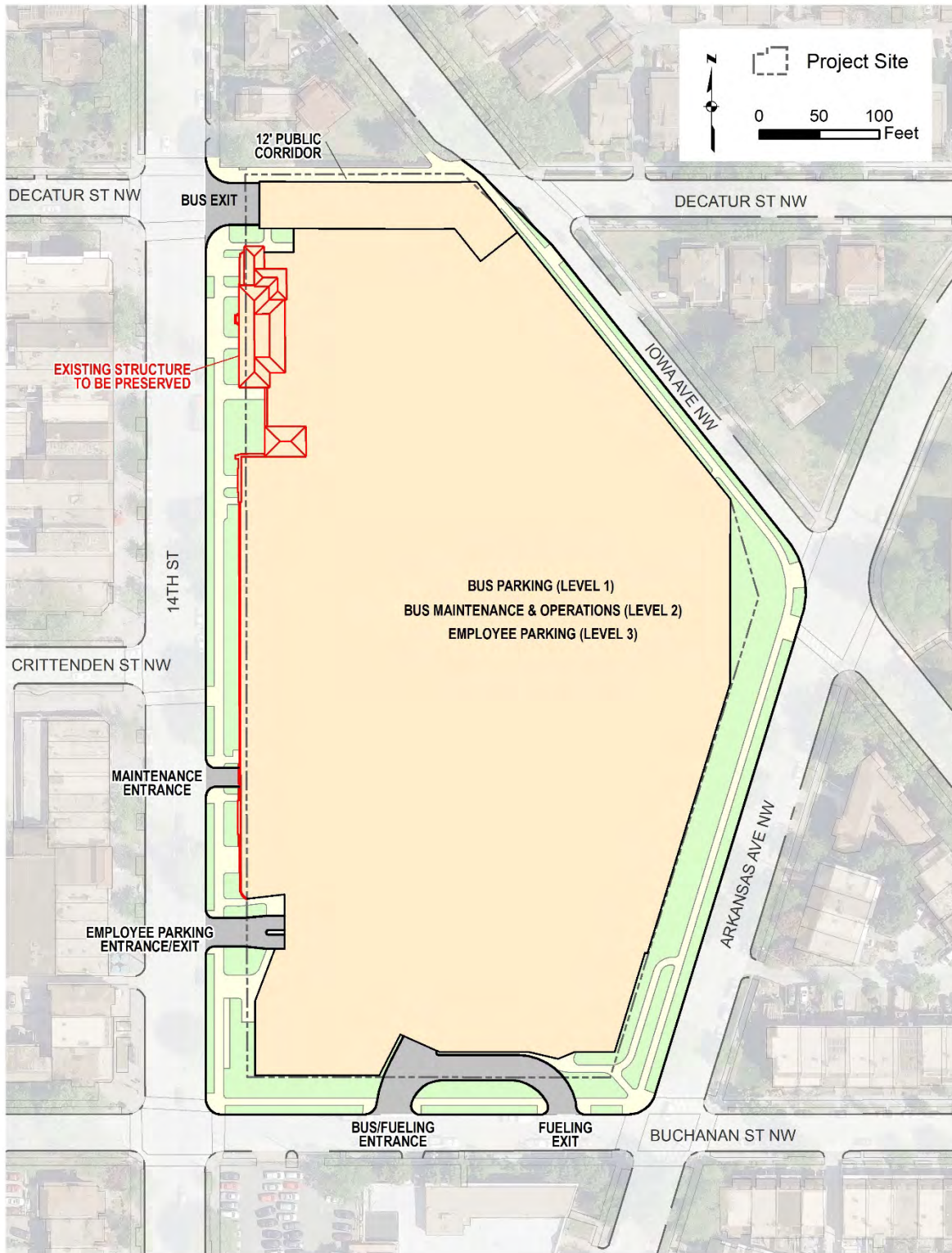


Figure 7: Detailed Project Concept (Proposed Conditions)



APPENDIX 2: COMMUNITY ENGAGEMENT MEETINGS MINUTES

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Northern Bus Garage Replacement Community Engagement Meeting 1 – Tuesday, October 13 6:00PM – 7:30 PM Draft Summary (10/20/20)

1. Overview

The Washington Metropolitan Area Transit Authority (WMATA) conducted a virtual meeting to discuss recent updates on the Northern Bus Garage replacement and provide input on the latest draft design. Based on community feedback and the May concept review hearing before DC's Historic Preservation Review Board (HPRB), WMATA significantly redesigned the project. The design modifications respond to concerns around safety, environmental impacts and aesthetics

The WMATA is seeking to obtain public feedback both during this and future meetings as well as through a survey. Feedback will be taken into consideration as a final design is presented to the public at a future meeting.

The community engagement schedule for 2020 was shared and the team is committed to further engagement in 2021.

If all approvals are obtained in 2021, demolition and construction can begin in 2022 and the project could be complete by 2026.

The meeting presentation was conducted in three segments including:

- Project Redesign
- Floor Plans and Bus Garage Functions
- Exterior Design Options

A questions and answers session was conducted after each segment's presentation.

2. Project Redesign

Presentation

A major value engineering effort was undertaken during the summer of 2020 after an initial cost estimate was higher than budgeted for the project. Community feedback was a second key driver behind this effort and community concerns were taken into consideration in a robust way.

The intent is to offer a final design for review by the Historic Preservation Review Board (HPRB). If approved, the Board refers the design proposal to the Mayor's Agent who makes a final decision on the project called a Record of Decision (ROD). The schedule is dependent on numerous factors and could not be confidently stated at the time of the meeting.

Community and agency feedback led to a significant reduction in building size, with a 15 percent reduction in total gross square footage. Designs also include a significant reduction in the massing and height of street-facing facades.

One major community concern included the need for blasting to remove bedrock. The revised design raises the basement floor by seven feet and eliminates the deepest cut under the historic administration building and tower. These two changes result in a reduction of bedrock removal needs by 80 percent, and the project team expects no blasting to be required. In addition, excavation will be mechanical, with no crushing completed onsite. This will result in considerable avoidance of noise and vibration impacts.

Other community feedback included a strong desire not to have paint and body shops onsite, and WMATA has identified alternative locations for these services so this garage site will not include paint or body shops.

The Metro Transit Police Department (MTPD) office has also moved to the corner of 14th Street NE and Buchanan Street NE to provide a strong police presence for the community and to help activate the neighborhood.

To ensure property owners surrounding the garage site are protected from negative impacts of the reconstruction project, pre- and post-construction surveys will be provided to owners of all properties within 200 feet from the WMATA property line in addition to any other nearby sensitive properties identified in consultation with the community. Surveys will be conducted by a third-party, licensed engineer. Approximately 60 days prior to the start of construction, owners will be asked to schedule a survey at their convenience. All owners will get copies of both pre- and post-construction surveys. The process for any future claims will be laid out in detail at a future date.

Questions and Answers

Q: Will an environmental assessment be completed before choosing the final path of the project?

A: The design will be finalized prior to the project team developing a documented categorical exclusion. Information on the types of environmental review will be presented during a later meeting on environmental aspects of the project. WMATA is following FTA guidance on the category of environmental documentation

Q: What types of buses will be at the facility?

A: Current plans include the bus garage hosting Clean Diesel Buses and Hybrid buses, with future alteration of the garage to service Battery Electric Buses (BEB). Transition to the BEB fleet will be discussed at the environmental meeting.

Q: Will housing be included on this site?

A: No. Two years ago, Metro studied possible site housing. This site was determined to not be a good candidate for both a bus garage and housing. When we issued a Request for Expressions of Interest two years ago, there was little interest from developers. Current zoning does not permit residential development on the site and limits the height to 50 feet. The Historic Preservation Review Board was not amenable to any increased height. Lastly, adding columns to support housing atop the garage would further constrain much needed space inside the garage.

Q: Have you been able to incorporate a wider pedestrian walkway along the north of the bus garage in line with Decatur St?

A: Yes. An exact width has not been determined yet, but the northern façade of the building has been moved to the south, which will allow for a wider walk than currently exists. As the pathway approaches 14th Street NE, it may narrow because the garage exit for buses must maintain alignment with current traffic signals. Additionally, we plan to meet with DDOT and seek recommendations from them on any modifications to the surrounding area, such as sidewalks.

Q: What was WMATA's initial budget for the project?

A: The original target price for the construction contract only (includes design and construction services) was set at \$175 million. This price excludes other expenses such as soft costs, consulting support,

contingencies, etc. With the site complexity, the initial cost proposal did not meet that target, which—along with community feedback—spurred the value engineering effort to revise designs.

Q: Is natural gas currently serving the site?

A: Yes. The building is currently and will continue to be served by natural gas as the principle HVAC fuel source.

Q: When will the garage be totally complete?

A: The exact completion date is dependent on third party approvals required for construction to begin. If these approvals are granted in 2021 then project completion is expected sometime in 2026.

Q: What are the DBE, CBE, and SBE goals?

A: Disadvantaged Business Enterprise (DBE) goals are set for the design phase only and are 25 percent. DBE and other small business type utilization goals will be set for future work once Metro negotiates the construction contract with the contractor.

3. Floor Plans and Bus Garage Functions

Presentation

WMATA presented modifications to the previous floor plan and bus garage functions. The previous design included an entrance at Arkansas Street NE and Buchanan NE, whereas the revised design moves this entrance to center block closer to where the entrance currently exists. An active street front is provided along 14th Street NE with retail space and office space for Uptown Main Street. This space was increased from 300 square feet to 525 square feet and retail space increased to 27,500 square feet, addressing two major community concerns. In addition, the MTPD police office has been moved, as discussed earlier, to the corner of 14th Street NE and Buchanan Street NE.

Bus parking spaces have been slightly reduced from 150 spaces to 143, with most provided on the basement level and approximate 20 on the level above due to the overall smaller footprint of the building that allowed for significant reduction in excavation and elimination of blasting. Bus washes are located in the basement. The bus exit remains in the same location as the previous design. The curved lane on the south side is for fuel delivery truck parking.

The redesign also includes:

- Community room with capacity of up to 150 seating and up to 200 standing
- Office space for Uptown Main Street (525 sq ft)
- Commercial and community space along 14th Street (27,500 sq ft)

The operations and maintenance level will include bus dispatch, training space, lockers, lunchroom and other employee welfare amenities. The community room remains in the same location, but the entrance has been improved to be completely ADA accessible from the sidewalk with no ramp required.

On the rooftop, there will be 326 parking spaces including 20 reserved for retail employees. The rooftop footprint has been significantly reduced and solar panels have moved to a lower roof over the administrative and retail spaces from their original location on canopies over parking spaces. HVAC will be hidden from the street with building components.

The six-foot sidewalk along 14th Street NE will be enlarged as the design is finalized. The number of entrances on 14th Street NE have been reduced due to Historic Preservation Review Board review.

Streetscape improvements will be provided along all sides of the building. The streetscape design is underway and there will be an opportunity to vote for Art-in-Transit along one or more sides of the building.

Questions and Answers

Q: What lighting changes will occur along the walkway on 14th & Decatur Streets along the Metro brick wall.

A: As the project progresses and we obtain all required approvals, we will be coordinating with the District Department of Transportation on all streetscape upgrades, including lighting.

Q: Has there been any interest in the retail space?

A: We have not put out a call to businesses at this point, as it is too early for most retail entities to make location decisions. We have done a market study and demand for retail space, and our strategy includes first recruiting for a small grocery and then recruiting for complementary retailers. If there are not grocers interested in this location, then we would move to recruiting a pharmacy as the anchor tenant and subsequently reaching out to complementary retailers.

Q: Will there be any retail patron parking in the garage? If not, how will impact on the neighborhood be mitigated?

A: No. We will work with DDOT to determine if there are street improvement configurations that might create more parking than what is currently available along 14th Street. Parking demand will also be part of the retail market surveys. However, anticipated uses are likely to be centered around businesses that should attract a neighborhood focused/serving customer base (largely “walk-up” customers). The 14th Street corridor has strong public transit coverage as well.

Q: How will the facility accommodate the original 150-bus capacity?

A: The current design for bus storage has 143 assigned parking spaces. The remaining seven buses will be staged within the maintenance level.

4. Exterior Design Options

Presentation

The project team worked with Historic Preservation Review Board staff and feedback from the community to create three redesigned options. Feedback from today’s meeting and the meeting on November 2 will be used to design the final option. This final option will be presented in a future meeting. The November 2 meeting will also be used to share community survey responses and discuss feedback before moving forward with the final exterior design plan.

In all three redesign options, the building scale has been reduced by keeping the new building elevation lower than the historic building, lowering the height of the bus exit, and keeping the rear portion along Iowa Avenue at the same height or lower than the existing structure. Overall, the building relates better to surrounding buildings.

Additionally, the entrance has been reworked to be at grade, which allows ADA access without a ramp.

The Upper Main Street office entrance has been set back from the sidewalk, allowing for an at-grade entrance and for more of the historic façade to be kept perpendicular to the street.

Note: trees were digitally removed from View 6 to allow the building design to be seen. In reality, the trees obstruct the view of the building and this will continue to be the case after construction is complete as trees will remain intact.

Option 1

This option uses a neutral color palette in the new construction. The main entrance is set back to allow for a covered area in front. The goal was to create a unique pedestrian experience with a large mural. Along Iowa Avenue, the building wall is more in line with buildings across the street in terms of scale.

Option 2

This option uses more variation of color and materials and a horizontal approach. The employee entrance includes a large covered area, designed to fit in with the entrances of buildings across the street. Pedestrians will be able to see bus movements from the street through translucent windows. Along Iowa Avenue, the linear windows follow the bus ramp.

Option 3

This option reflects the historic façade in color and materials to acknowledge the old, but also differentiate from it. Brick detailing was inspired by the historic façade. New construction is set back and angled across the bus entrance as a nod to the original trolley barn design. The whole west facade is set back slightly from the property line and repeating windows on the west and south tie into historic window design. Perforated metal panels at the top of the wall of rooftop parking helps to hide the parking, reduce the scale, and provide interest.

Questions and Answers

Q: Is the Arkansas Avenue side of the building going to be taller than the existing building?

A: No, the majority of the structure facing Arkansas Ave will be lower than the existing building, except for a small portion of the car parking lot access ramp near the center of the block.

Q: What are the plans for the brick wall on 14th St, Decatur St, and Iowa Ave?

A: The existing wall will be removed as part of the reconstruction efforts, but a new wall will be built along a similar alignment that will provide full separate from bus operations. The area will be further enhanced by the introduction of fast acting overhead doors at the exist that will further hep isolate bus operations from the adjacent properties.

Q: Where will the police office be located?

A: The office will be located on the corner with Buchanan, slightly set back where the repeating windows are located on the second floor. In Option 2, the windows are linear. MTPD offices have always existed in the design, but have moved out to the street front in this redesign. All WMATA non-revenue facilities have a police presence to ensure the safety and security of employees and adjacent neighborhoods, so this does not represent an expanded presence in this garage.

Q: Will retail spaces have individual entries or a central corridor?

A: The Historic Preservation Review Board disfavored new doorways in the place of current windows. The HPRB did accept one additional window being converted for fire/life safety requirements. There will still be entrances into the existing historic administration building, near the tower and additionally towards the southern end. The retail area will be another entry.

Q: What is the design for the wider sidewalk along Decatur?

A: The current designs assume a six-foot sidewalk, which is wider than what exists today. It may be wider than six feet in final design, but this will not be known until plans are final. The intent is to widen it compared to existing, but this also depends on DDOT support.

Q: Is the police office for MPD or MTPD?

A: MTPD

Q: Can public art be included in all options?

A: Yes, all three options can accommodate public art.

Q: How will the exterior design survey be distributed to ensure maximum participation?

A: The survey is located online at wmata.com/NorthernBusGarage and available for the public to complete. The link will be sent to the Northern Bus Garage email distribution list, shared with elected officials and community members for distribution through email and social media channels, and posted on Nextdoor. The project team wants as many people as possible to take the survey, so please consider sharing the link with your neighbors and friends.

Q: Does the MTPD plan to move from its current location off of Riggs Road near the Fort Totten Metro Station?

A: No. The Northern Bus Garage Project plans have always included space for an MTPD administrative office. MTPD's current location should remain the primary location for uniformed patrol officers.

Q: What will pedestrians be looking into at Buchanan Street and 14th Street?

A: This area will be a stairwell and an elevator at the corner and the primary entrance and open lobby as you move to the north.

Q: What environmental review is occurring for the project?

A: The Federal Transit Administration (FTA), as lead federal agency for this proposed project, determined that the likely class of action under the National Environmental Policy Act (NEPA) is a documented categorical exclusion (the most common type of NEPA process). More information about categorical exclusions is available on the FTA website at www.transit.dot.gov/regulations-and-guidance/environmental-programs/categorical-exclusion. Concurrently, FTA is leading the Section 106 consultation process focused on effects to historic resources.

Q: Will the 'bus exit' at Decatur be preserved as an exit?

A: This location has been an exit since at least the building renovation in the 1980s. Based on required bus circulation in the new garage, it will continue to be an exit. The building ramp will be fully enclosed and the air in the building will be "scrubbed" prior to the discharge into the environment – this includes the bus ramp portion of the building. There will also be fast-acting overhead doors at the exit, so until the bus is ready to exit, the doors will remain closed. These high-speed exit doors will be used to maintain proper airflow in the building and ensure all vehicle exhaust is treated before exiting into the environment.

5. Additional Questions

Q: What is Metro's community engagement plan for this project?

A: Community feedback has played a major role in the ongoing project redesign and we continue to actively request and value community input, including on the new exterior building design options presented to the community on Tuesday, October 13, 2020. Metro has planned three additional community meetings during the next month, including a meeting of consulting parties under Section 106 of the National Historic Preservation Act. Presentations and meeting recordings are publicly available in the "[Project Updates](#)" section of the project website. Based on project enhancements reflecting community feedback, we plan to participate in another concept review hearing before the Historic Preservation Review Board for this project.

Q: Have you engaged with the new Councilwoman and ANC for Ward 4?

A: Yes. Metro has been in regular communication with Councilmember Brandon Todd, Councilmember-elect Janeese Lewis George, and local ANC Commissioners regarding the latest updates on this Project. We have also asked their assistance in disseminating the exterior design survey throughout the community.

Q: Has the project budget changed?

A: Metro is conducting a budget reevaluation following its receipt of a contractor proposal nearly doubling the original target price. The new proposed budget for this project is being developed and more information will be available in the first quarter of 2021.

6. Next Steps

Over the next few months, the project team will actively engage with the public to conduct the survey, discuss results, and discuss final exterior design. Coordination work with DDOT will begin soon to update staff on the most recent design changes and potential improvements. The final design option is expected to be presented to the Historic Preservation Review Board in December and then to the Mayor's Agent some time after this. The website <https://www.wmata.com/initiatives/plans/northern-bus-garage/> will be updated throughout.

7. Comments

It is believed that the above represents an accurate description of the major events that transpired at this meeting. Your notification of any errors or omissions within five (5) working days of receiving these minutes is important, as the foregoing is intended to be part of the record and is the basis upon which WMATA will proceed.

Respectfully Submitted,



Brian McMahon
HNTB Project Manager

Northern Bus Garage Project Update

Community Meeting

October 13, 2020



Agenda

- I. WMATA Project Team Introductions
- II. Community Meeting Schedule
- III. Project Timeline/Where We Are
- IV. Project Redesign Overview
- V. Exterior Design Options and Public Input
- VI. Next Steps for Project

I. Project Team

Diana Levy
Director, Capital
Delivery (WMATA)

Ann Chisholm
Government
Relations
(WMATA)

Gail Ribas
Senior Director
Communications
(WMATA)

Jim Ashe
Environmental
Coordinator
(WMATA)

David Wehe
Project Manager
(WMATA rep)


Donzell Robinson
Communications
Consultant
(JSA)

Phil Sheridan
Project Director
(CLARK)


Sean Beachy
Senior Architect
(CLARK/WENDEL)

Emily Savoca
Architect
(CLARK/WENDEL)

II. Community Meeting Schedule




Northern Bus Garage Replacement



VIRTUAL COMMUNITY ENGAGEMENT MEETINGS

MEETING #1 Tuesday, October 13 Project & Design Update	MEETING #2 Monday, November 2 Draft Design Conversation
MEETING #3 Tuesday, November 10 Environmental Conversation	MEETING #4 Tuesday, November 17 Final Design Presentation

All meetings begin at 6 pm. For more information, visit wmata.com/NorthernBusGarage.



***Meeting #2 is designated as Section 106 Consulting Parties Meeting*

III. Project Timeline/Where We Are

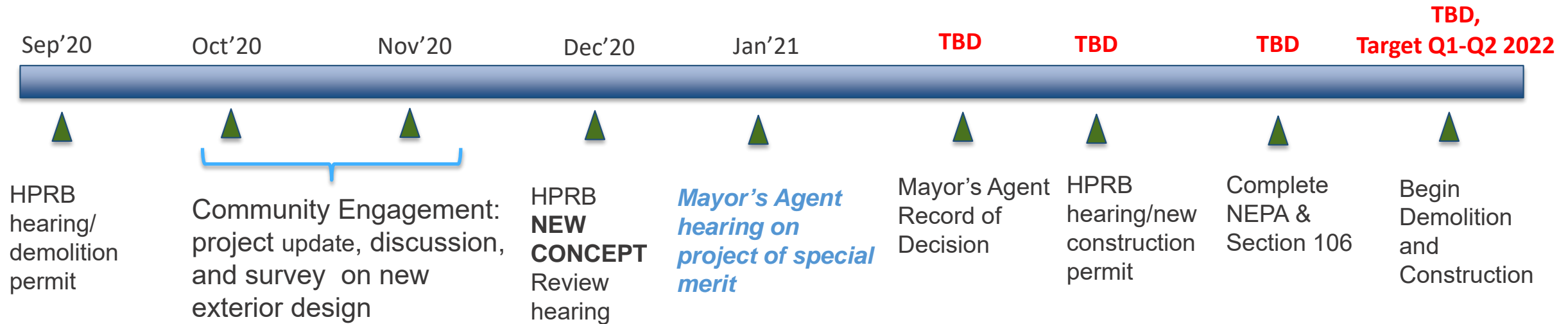
- **May 2020: Historic Preservation Review Board (HPRB) hearing**
 - HPRB concurred with proposed steps to preserve and enhance exterior historic fabric
 - HPRB provided constructive comments on architectural concepts for new construction portion of the bus garage
 - HPRB agreed that Mayor's Agent review needed due to unavoidable demolition of interior historic fabric
- **June 2020: Budget issues identified**
 - Contractor's construction cost estimate based on the original design plans was much higher than Metro's allocated budget
- **June-August 2020: Value Engineering effort undertaken**
 - Project redesign undertaken to reduce cost, optimize bus garage operations, and revise architectural concepts to better align with community and historic preservation recommendations
- **September 2020: HPRB Hearing #2 for demolition permit review**
 - Consent item to formally refer to the Mayor's Agent for review as project of special merit

Current Bus Garage Site Status

- **Bus garage is closed and not operating**
 - Small group of project team members use the office space on a regular basis
 - No construction or any other activities managed by Metro will take place until the project receives all federal and local approvals

- **Washington Gas construction activity at Decatur and 14th Street**
 - Not Metro work
 - Washington Gas Utility Relocation and Improvement project. Current utilities go under the Northern Bus Garage. This project benefits community – increased gas services.

Schedule



HPRB approval of redesign and Mayor's Agent approval of project of special merit must be received before project can begin demolition/construction

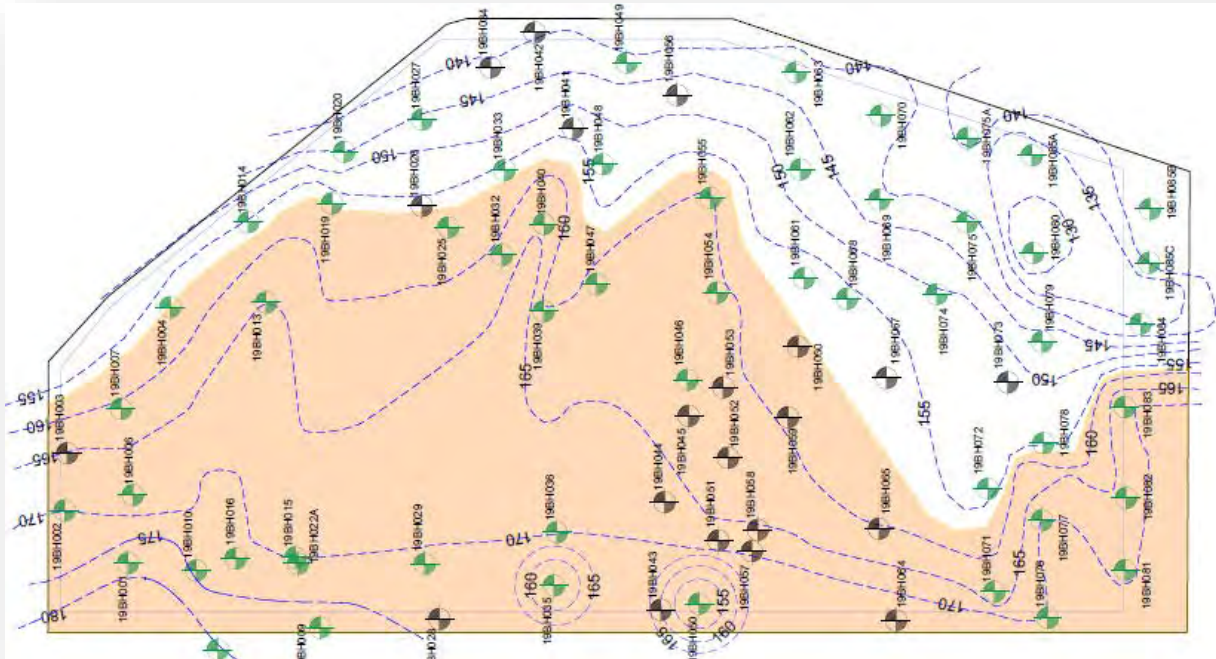
IV. Project Redesign Overview

- Reduced total size of facility by ~15% from the original designs (eliminates some building massing)
- Reduced the quantity of bedrock to be excavated by ~80% (no blasting, less vibration and noise for residents)
- Eliminated paint booth & body shop
- Moved MTPD offices to the corner of Buchanan and 14th Street to further activate neighborhood and anchor corner at the 14th Street
- Developed three revised architectural design options for community review and feedback

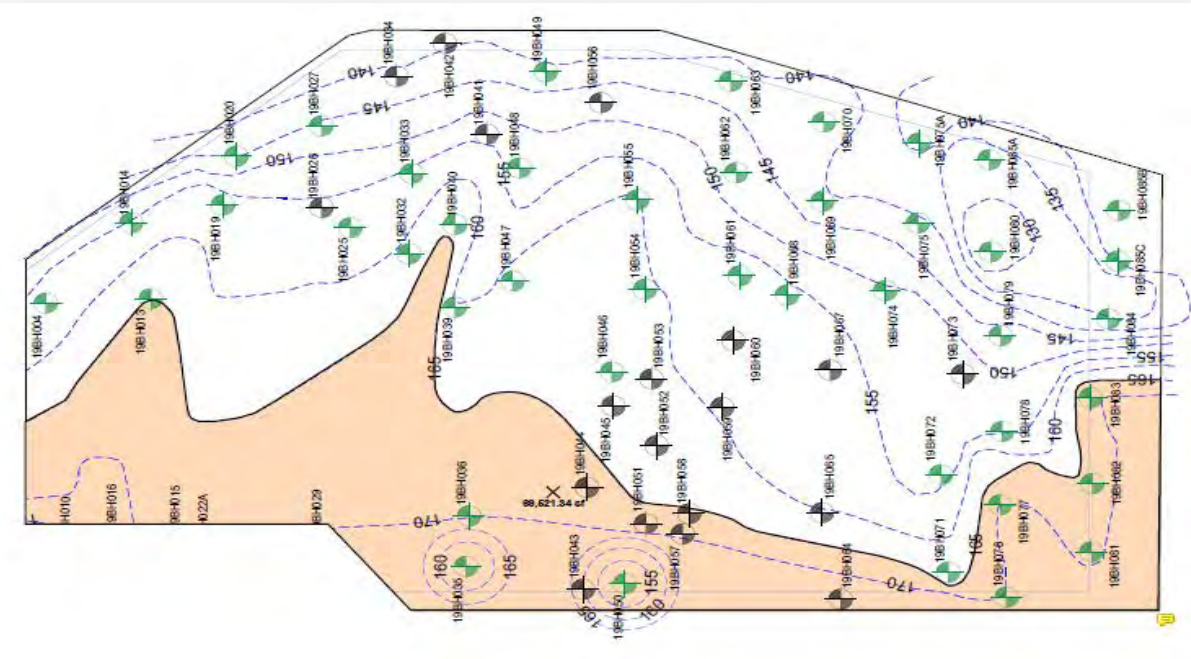
Bedrock Removal

- Reduced quantity of bedrock to be removed by 80%
- Reduced footprint of bedrock excavation by 55% (from ~161,000 to ~70,000 sq ft)
- Reduced depth of rock cutting from 15-20 vertical ft to ~5 ft, resulting in less bedrock to be removed
- All rock removal along 14th St side; no rock removal expected along Iowa or Arkansas Ave sides
- NXBurst excavation technique for rock removal is not expected to be necessary
- Expected that rock removal will be completed using mechanical methods
- No on-site crushing anticipated: all excavated rock will be taken away by dump trucks along DDOT approved routes

Area of Rock Excavation



BEFORE:
~161,000 sf



TODAY:
~70,000 sf

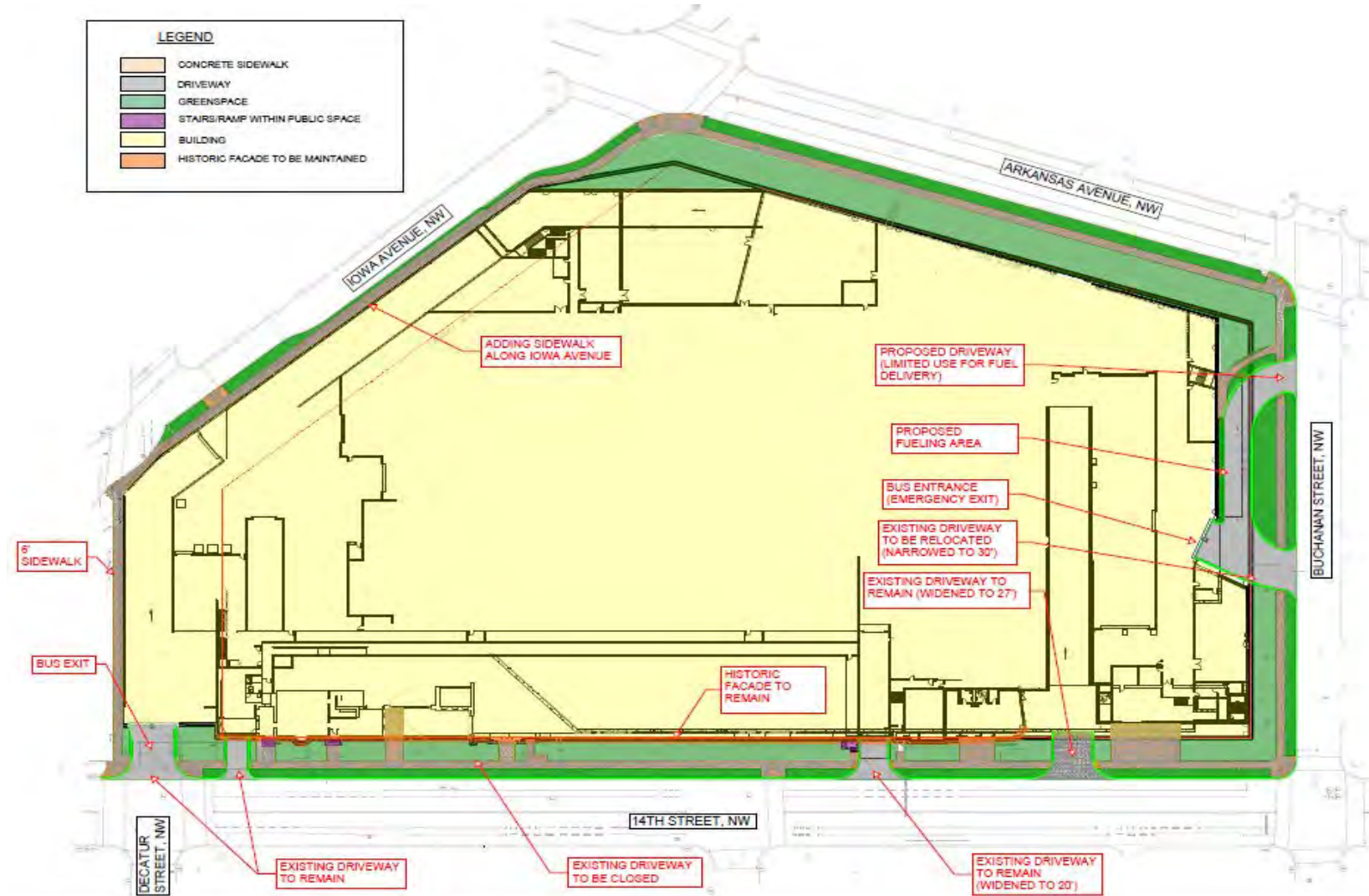
Property Surveys

- Property surveys will be conducted pre- and post-construction
- Final property survey and inspection plan will be developed by the contractor during final design
- Surveys will be performed by a third-party engineer and copy of surveys will be provided to each property owner
- Invitation to register for and schedule surveys will go out 60 days prior to start of construction by certified mail
- Community will be provided resources to understand the claims process, with questions answered throughout
- Roadmap for reporting any issues, damages and/or compensation will be developed jointly by WMATA and the contractor

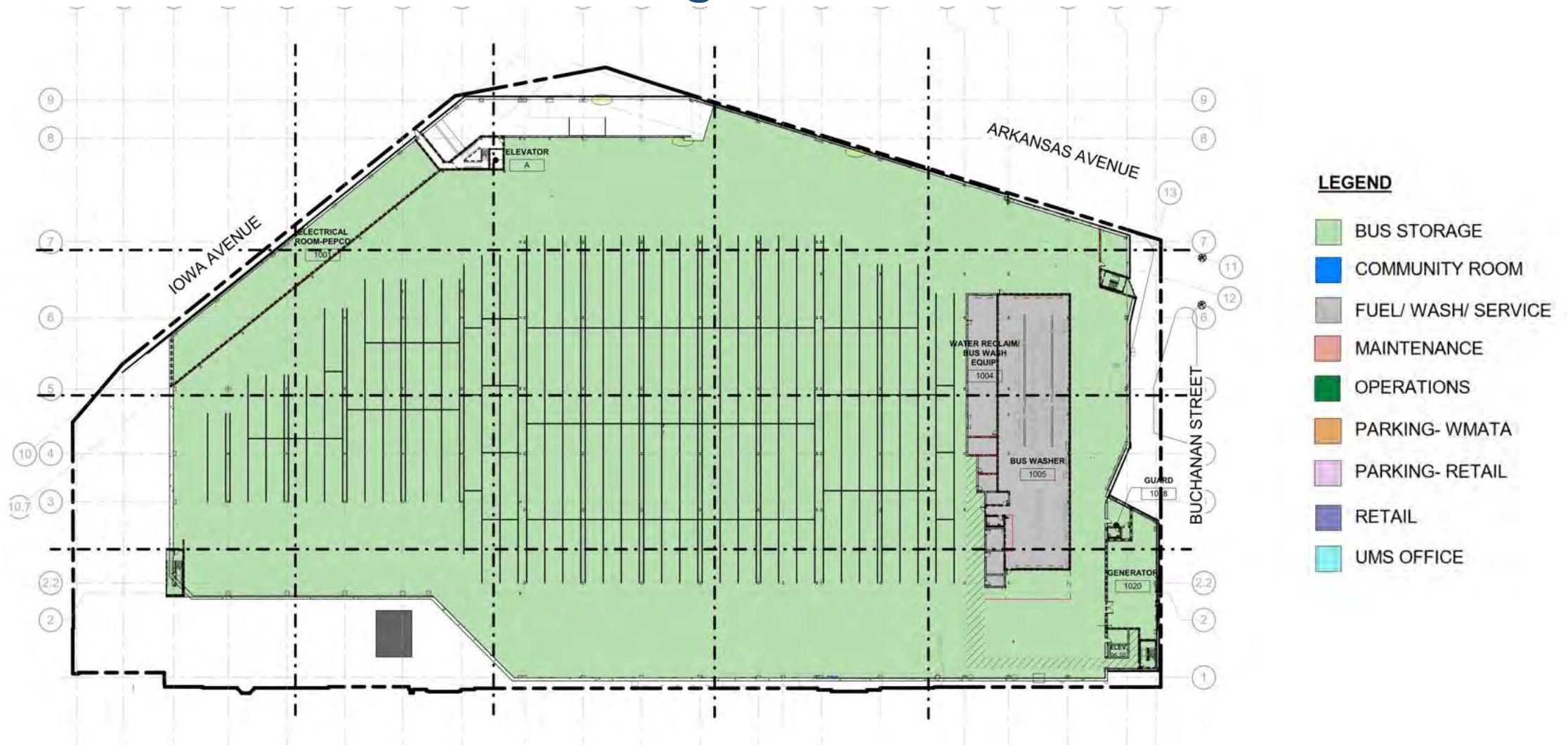
Question and Answer Period: Project Redesign Overview

- Please submit your questions via the 'Q&A' feature located at the bottom of your screen
- If the project team is unable to respond to your question during this meeting, you may contact us at MCAP_NBG_Reconstruction_Project@wmata.com
- Summary of the Q&A will be posted to: wmata.com/northernbusgarage

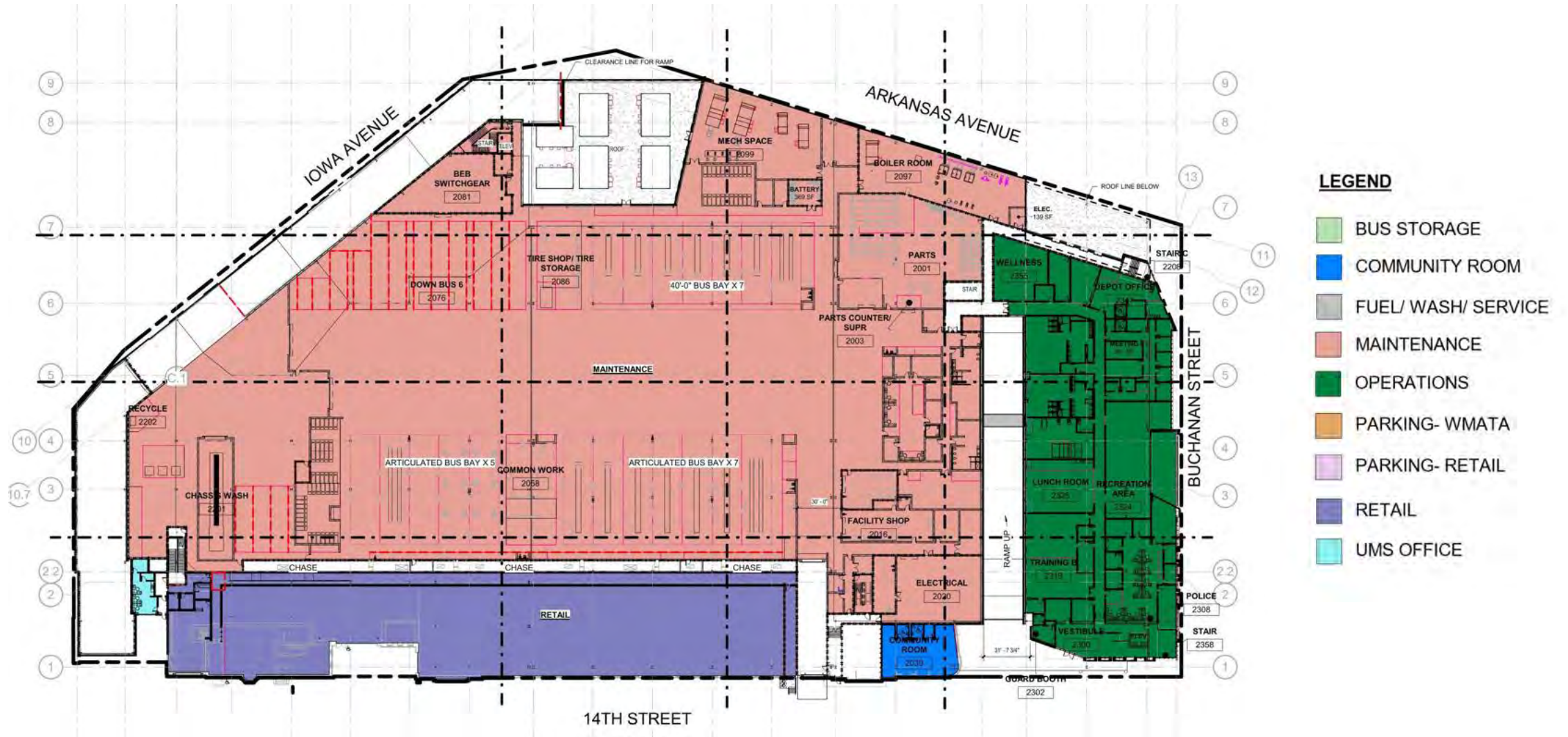
Proposed Site Plan



Basement Plan/Bus Storage



Operations and Maintenance Level Plan

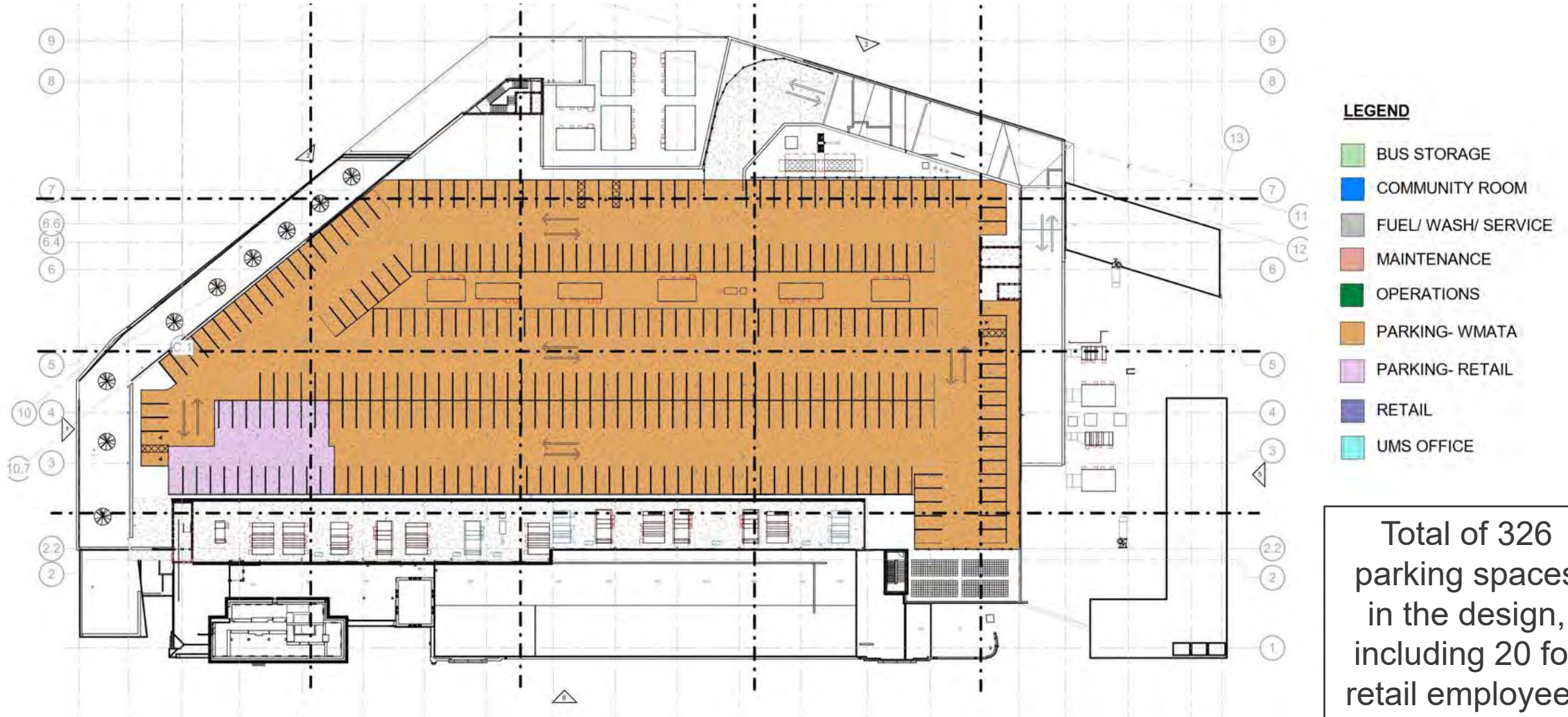


LEGEND

- BUS STORAGE
- COMMUNITY ROOM
- FUEL/ WASH/ SERVICE
- MAINTENANCE
- OPERATIONS
- PARKING- WMATA
- PARKING- RETAIL
- RETAIL
- UMS OFFICE



Rooftop WMATA Parking Deck



Community Amenities

- Community room with capacity of up to 150 seating and up to 200 standing
- Office space for Uptown Main Street (525 sq ft)
- Commercial and community space along 14th Street (27,500 sq ft)
- Streetscape improvements along all sides of the building
- Art-in-Transit project can be included along one or more building sides
- On-site Metro Transit Police (MTPD) sub-station at corner of Buchanan and 14th Street

Question and Answer Period: Floor Plans and Bus Garage Functions

- Please submit your questions via the 'Q&A' feature located at the bottom of your screen
- If the project team is unable to respond to your question during this meeting, you may contact us at MCAP_NBG_Reconstruction_Project@wmata.com
- Summary of the Q&A will be posted to: wmata.com/northernbusgarage

V. Exterior Design Options & Public Input

- On-going coordination with State Historic Preservation Office (SHPO)
- **Three new design options prepared for review and feedback**
 - Developed following HPRB, SHPO & community recommendations
 - All options attempt to reflect architectural fabric of the community
- Metro will gather public input prior to developing the final exterior design proposal
- New concept for exterior design is targeted to be presented to HPRB in December

Public Survey on Exterior Design Options

- Metro developed survey to gather public input on new exterior design
- Questions ask for customer preference on three designs and provide opportunities for open feedback
- Survey responses will be presented and discussed at Community Meeting #2 on Monday, November 2

Take the survey at wmata.com/NorthernBusGarage

- **Opens:** Tuesday, Oct. 13 at 6 p.m.
- **Closes:** Tuesday, Oct. 27 at 6 p.m.



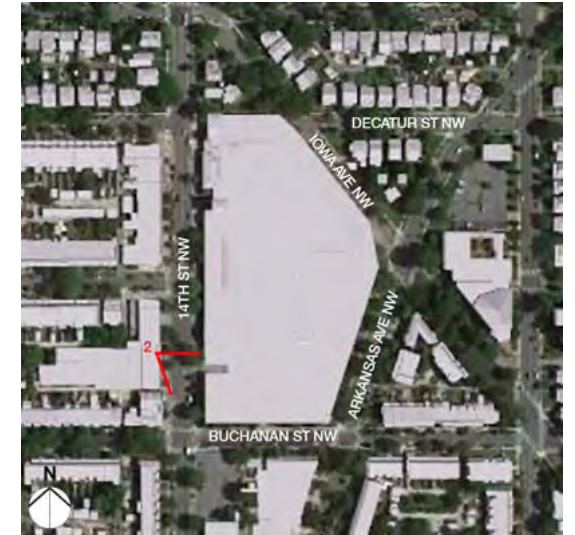
View 1 – Corner of Buchanan St NW and 14th St NW



OPTION 1 - VIEW 1



View 2 – On 14th St NW facing Southeast



OPTION 1 - VIEW 2



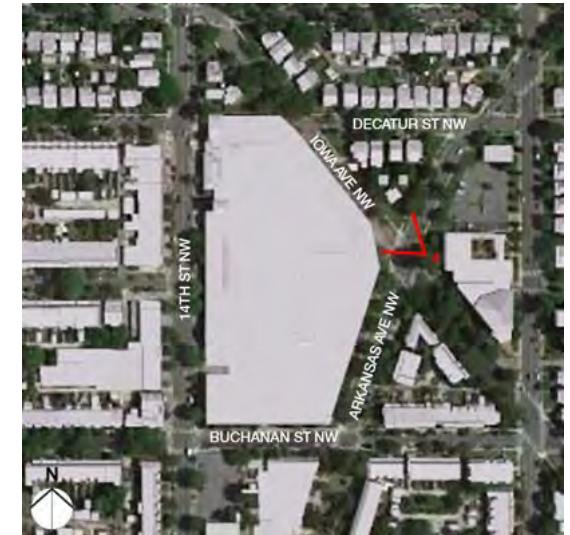
View 3 – Corner of 14th St NW and Decatur St NW



OPTION 1 - VIEW 3



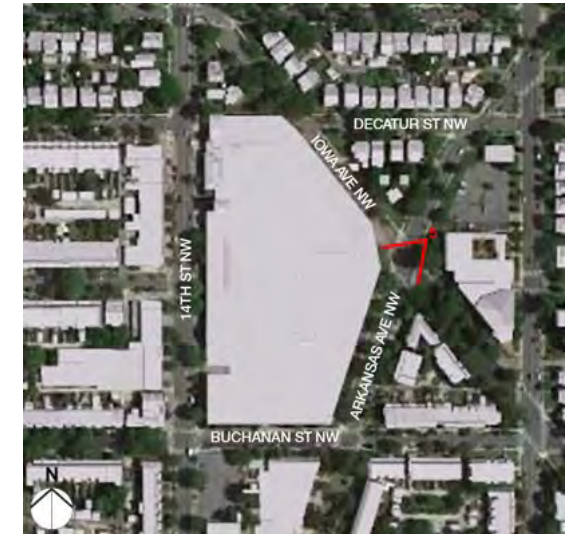
View 4 – Corner of Iowa St NW and Arkansas Ave NW facing Northwest



OPTION 1 - VIEW 4



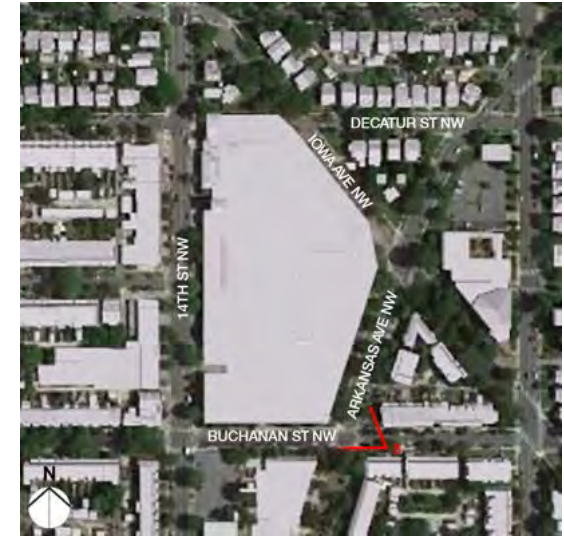
View 5 – Corner of Iowa St NW and Arkansas Ave NW Facing Southwest



OPTION 1 - VIEW 5



View 6 – Corner of Buchanan St NW and Arkansas Ave NW

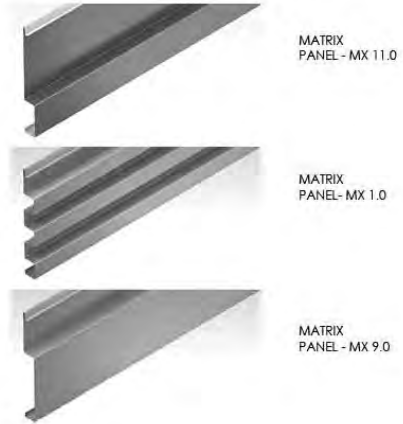


OPTION 1 - VIEW 6



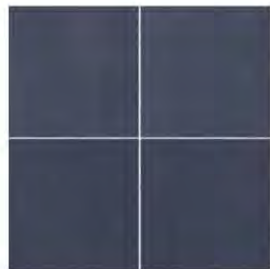
Option 1 - Materials

MORIN METAL PANELS- MATRIX SERIES
INSTALLATION #1 - MATRIX 1.0 TO MATRIX 9.0 TO MATRIX 11.0



MORIN COLOR - SLATE BLUE

MORIN METAL PANELS- MONUMENTAL SERIES
INSTALLATION #2 - STACK BOND, HORIZONTAL ORIENTATION



MORIN COLOR - REGAL BLUE

(THE IMAGES ABOVE ARE REPRESENTATIVE OF TEXTURE ONLY
COLORS ARE INDICATED TO THE RIGHT OF THE VERTICAL LINE)

HOLLOW METAL DOORS AND FRAMES



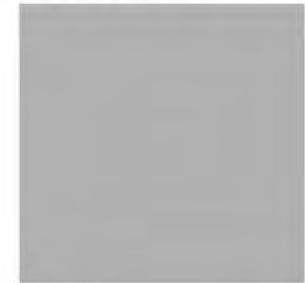
BENJAMIN MOORE - CABIN FEVER 1540

ALUMINUM CURTAINWALL SYSTEM



KAWNEER FINISH - DARK BRONZE ANODIZED

ALUMINUM BANDING



FINISH - DOVE GRAY

BRICK



GLEN-GERY - SILVERBROOK RUNNING BOND, MODULAR BRICK. TEXTURE- ROCKFACE

CAST STONE



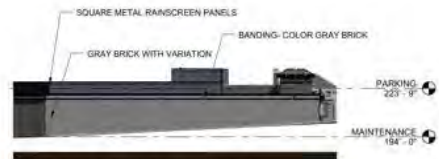
READING ROCK - CRYSTAL WHITE WALL CAPS AND WATER TABLES

GROUND FACE



BELDEN - GF 56 RUNNING BOND, MODULAR BRICK

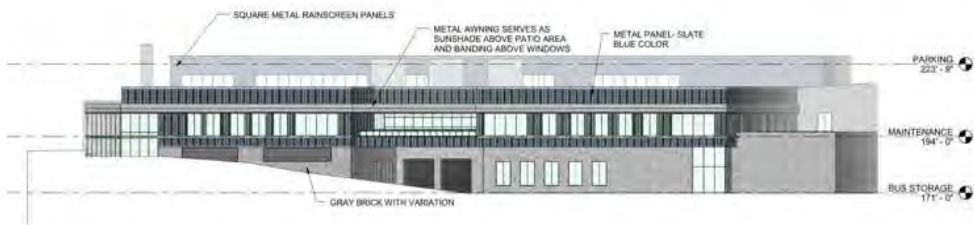
NBG Exterior Design Options: OPTION 1



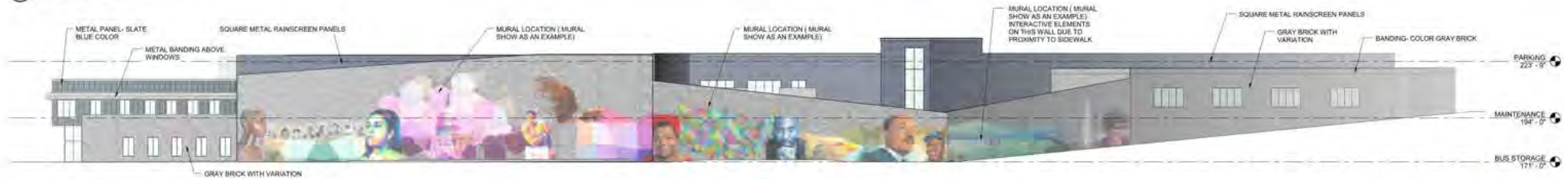
1 ELEVATION - OVERALL - NORTH
132' = 1-0"



2 ELEVATION - OVERALL - WEST
304' = 1-0"

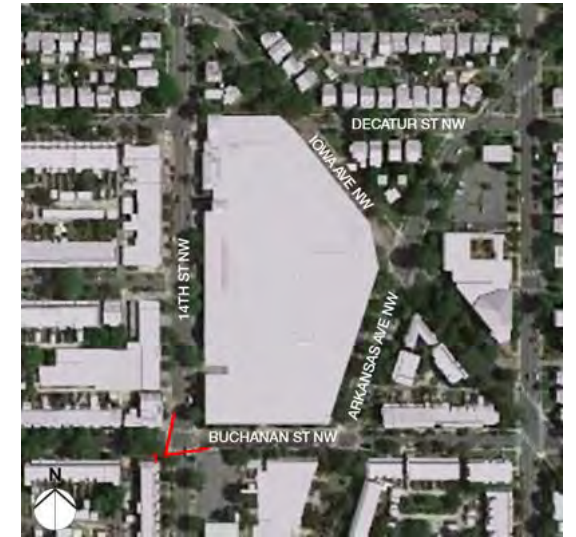


3 ELEVATION - OVERALL - SOUTH
304' = 1-0"



4 ELEVATION - OVERALL - EAST
304' = 1-0"

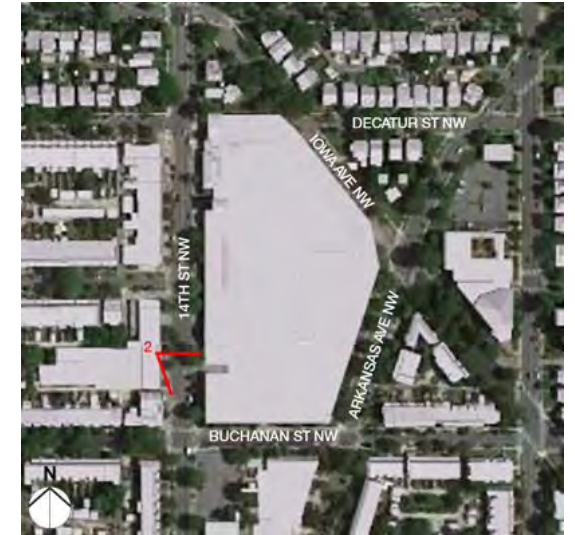
View 1 – Corner of Buchanan St NW and 14th St NW



OPTION 2 - VIEW 1



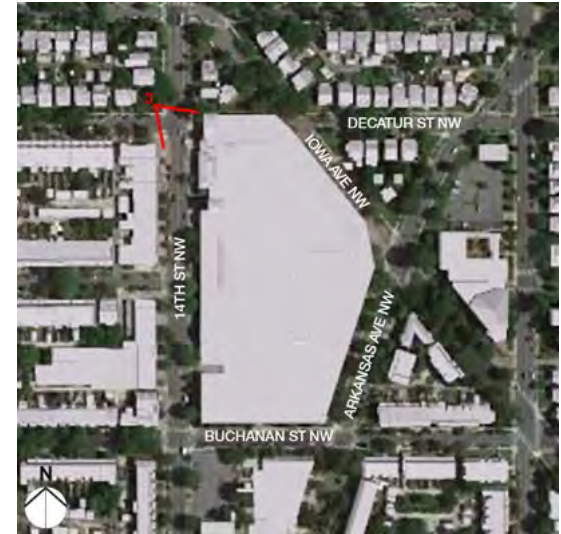
View 2 – On 14th St NW facing Southeast



OPTION 2 - VIEW 2



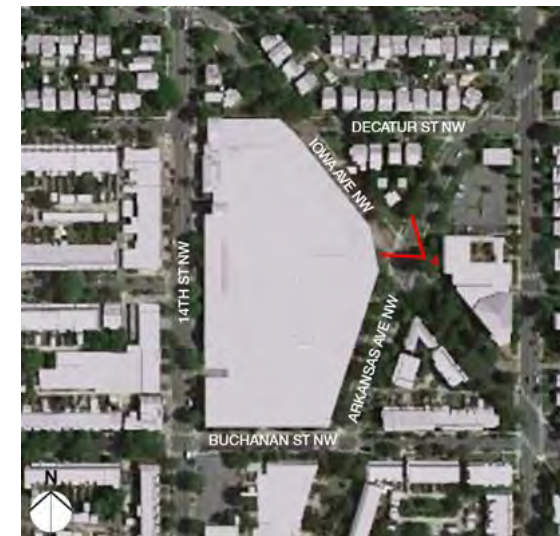
View 3 – Corner of 14th St NW and Decatur St NW



OPTION 2 - VIEW 3



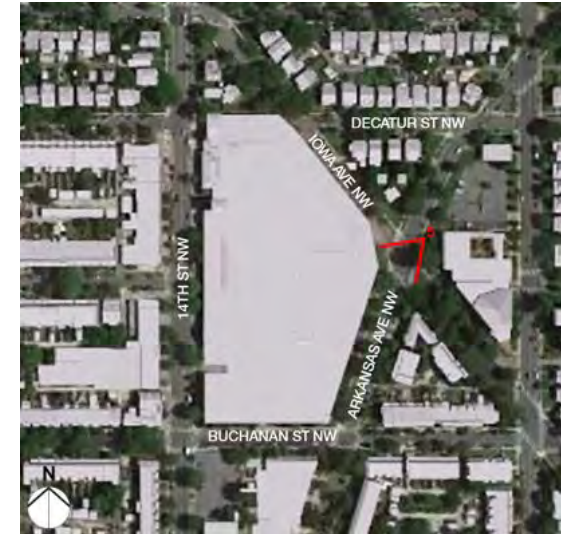
View 4 – Corner of Iowa Ave NW and Arkansas Ave NW facing Northwest



OPTION 2 - VIEW 4



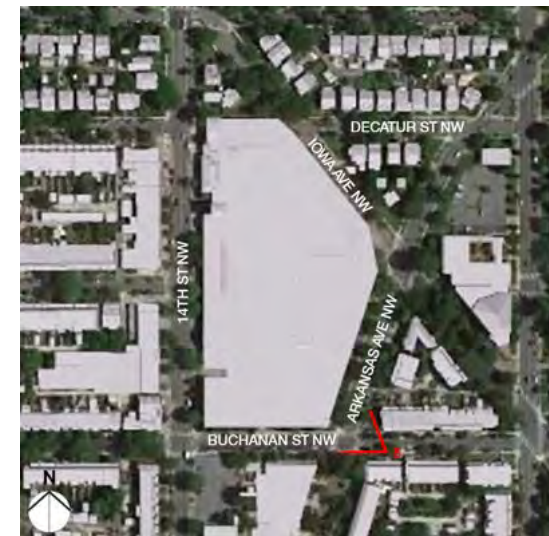
View 5 – Corner of Iowa Ave NW and Arkansas Ave NW Facing Southwest



OPTION 2 - VIEW 5



View 6 – Corner of Buchanan St NW and Arkansas Ave NW



OPTION 2 - VIEW 6



Option 2 – Materials

MORIN MATRIX SERIES GALVALUME PANELS: GRAYS AND BLUES
INSTALLATION #1 – MX-1 AND MX-4 PANELS. VERTICAL ORIENTATION



MORIN
MX-1



MORIN
MX-4

MORIN MATRIX SERIES GALVALUME PANELS: GRAY MIX
INSTALLATION #2 – HORIZONTAL ORIENTATION



MORIN
MX-6



COLOR
COMET
BENJAMIN MOORE



COLOR
COMET
BENJAMIN MOORE



COLOR 2
GLACIER ICE
VALSPAR



MORIN
COLOR - DOVE GRAY



MORIN
COLOR - CHROMIUM
GRAY

ALUMINUM CURTAINWALL SYSTEM



KAWNEER
FINISH - CHAMPAGNE ANODIZED

HOLLOW METAL DOORS AND FRAMES



BENJAMIN MOORE - CABIN FEVER 1540

INSULATED WINDOW PANELS



MAPES
FINISH - LIGHT BRONZE ANODIZED

BRICK



BELDEN - 310 BELCREST
RUNNING BOND, MODULAR BRICK

GROUND FACE



BELDEN - 661 SMOOTH
RUNNING BOND, MODULAR BRICK

CAST STONE



READING ROCK - CRYSTAL WHITE
WALL CAPS AND WATER TABLES

EXTRUDED
ALUMINUM TRIM



MORIN
COLOR - SLATE BLUE

WINDOW SILL DETAIL
COLOR

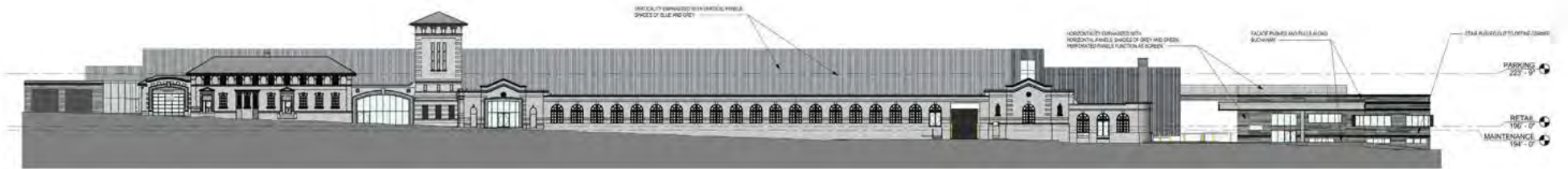


MORIN
COLOR - REGAL BLUE

NBG Exterior Design Options: OPTION 2



1 ELEVATION - OVERALL - NORTH
3/8" = 1'-0"



2 ELEVATION - OVERALL - WEST
3/8" = 1'-0"



3 ELEVATION - OVERALL - SOUTH
3/8" = 1'-0"



4 ELEVATION - OVERALL - EAST
3/8" = 1'-0"

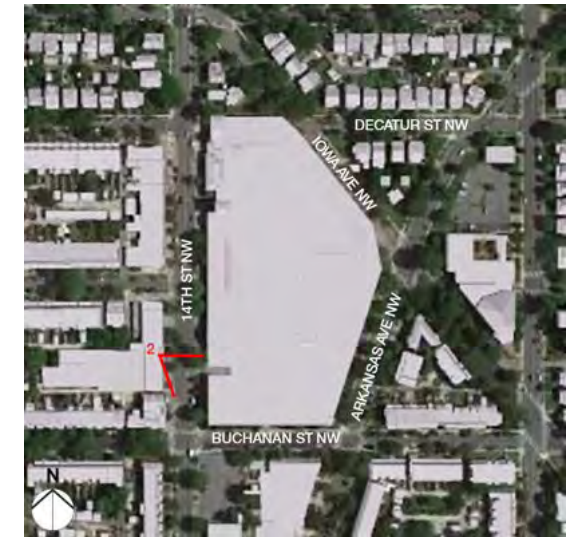
View 1 – Corner of Buchanan St NW and 14th St NW



OPTION 3 - VIEW 1



View 2 – On 14th St NW facing Southeast



OPTION 3 - VIEW 2



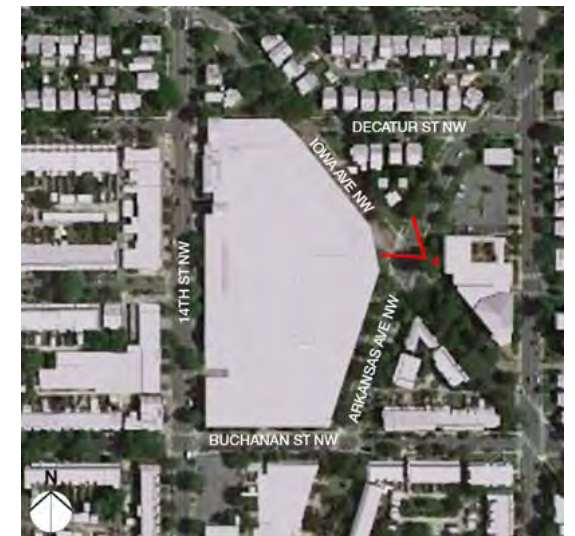
View 3 – Corner of 14th St NW and Decatur St NW



OPTION 3 - VIEW 3



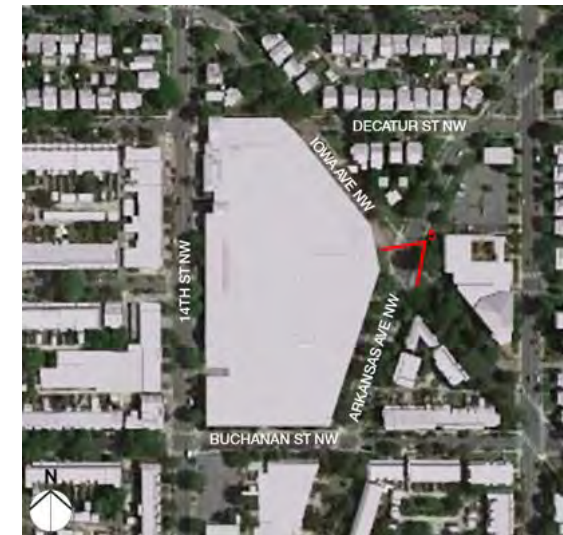
View 4 – Corner of Iowa Ave NW and Arkansas Ave NW facing Northwest



OPTION 3 - VIEW 4



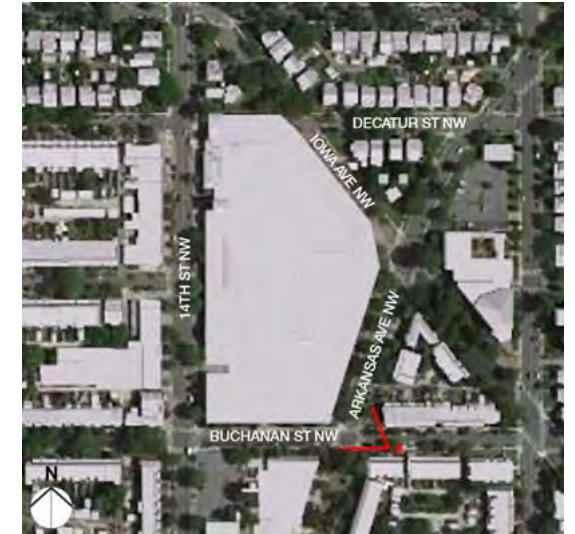
View 5 – Corner of Iowa Ave NW and Arkansas Ave NW Facing Southwest



OPTION 3 - VIEW 5



View 6 – Corner of Buchanan St NW and Arkansas Ave NW



OPTION 3 - VIEW 6



Option 3 - Materials

MORIN METAL PANELS- MATRIX SERIES
INSTALLATION #1 - PANEL COLORS



RED PANEL 1

RED PANEL 2

RED PANEL 3

INSTALLATION #1 - PANEL PROFILES



MORIN - MX 6.0



MORIN - MX 9.0

MORIN METAL PANELS- MATRIX SERIES
INSTALLATION #2 - PANEL COLORS



GREY PANEL

HOLLOW METAL DOORS AND FRAMES



BENJAMIN MOORE - CABIN FEVER 1540

ALUMINUM CURTAINWALL SYSTEM



KAWNEER
FINISH - CHAMPAGNE ANODIZED

INSULATED WINDOW PANELS



MAPES
FINISH - LIGHT BRONZE ANODIZED

GROUND FACE



BELDEN - 461 SMOOTH
RUNNING BOND, MODULAR BRICK

BRICK



GLEN-GERY - EBONITE SMOOTH
RUNNING BOND, MODULAR BRICK



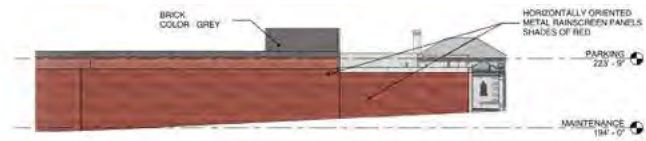
GLEN-GERY - EBONITE VELOUR
DETAILING LOCATIONS, MODULAR BRICK

CAST STONE



READING ROCK - LIGHT GRAY
WALL CAPS AND WATER TABLES

NBG Exterior Design Options: OPTION 3



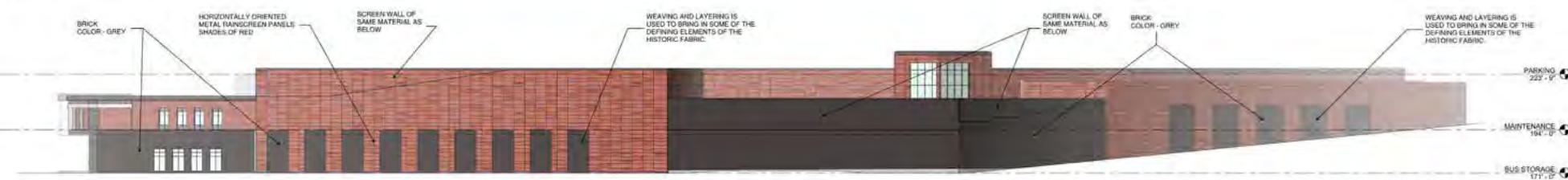
1 ELEVATION - OVERALL - NORTH
300' x 10'



2 ELEVATION - OVERALL - WEST
280' x 10'



3 ELEVATION - OVERALL - SOUTH
300' x 10'



4 ELEVATION - OVERALL - EAST
300' x 10'

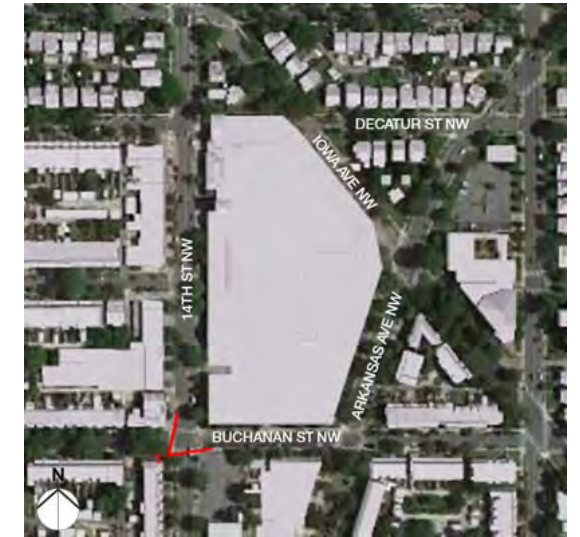
BUCHANAN ST AND 14TH ST CORNER IS SET BACK, ALLOWING FOR AN OUTDOOR COVERED PATIO SPACE. LARGE WINDOWS PROVIDE THE OPPORTUNITY FOR ART IN THE LOBBY TO BE VISIBLE TO THE PUBLIC.



Site Sections



View 1 – Corner of Buchanan St NW and 14th St NW



EXISTING - VIEW 1



View 1 – Corner of Buchanan St NW and 14th St NW



PREVIOUS DESIGN – VIEW 1



OPTION 1 - VIEW 1



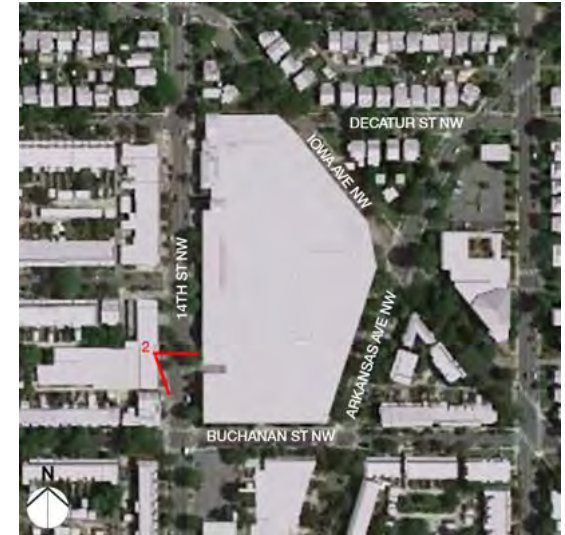
OPTION 2 - VIEW 1



OPTION 3 - VIEW 1



View 2 – On 14th St NW facing Southeast



EXISTING - VIEW 2



View 2 – On 14th St NW facing Southeast



wendel

EXISTING - VIEW 2

CLARK STV 100



wendel

OPTION 1 - VIEW 2

CLARK STV 100



wendel

OPTION 2 - VIEW 2

CLARK STV 100

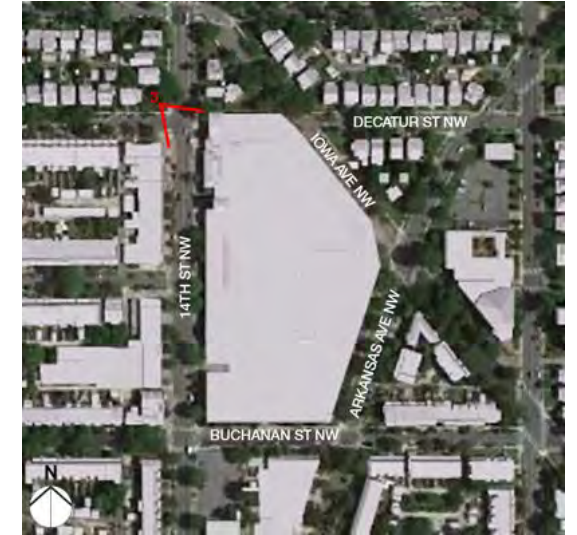


wendel

OPTION 3 - VIEW 2

CLARK STV 100

View 3 – Corner of 14th St NW and Decatur St NW



EXISTING - VIEW 3



View 3 – Corner of 14th St NW and Decatur St NW



wendel

PREVIOUS DESIGN - VIEW 3

CLARK CONSTRUCTION STV 100 Years



wendel

OPTION 1 - VIEW 3

CLARK CONSTRUCTION STV 100 Years



wendel

OPTION 2 - VIEW 3

CLARK CONSTRUCTION STV 100 Years

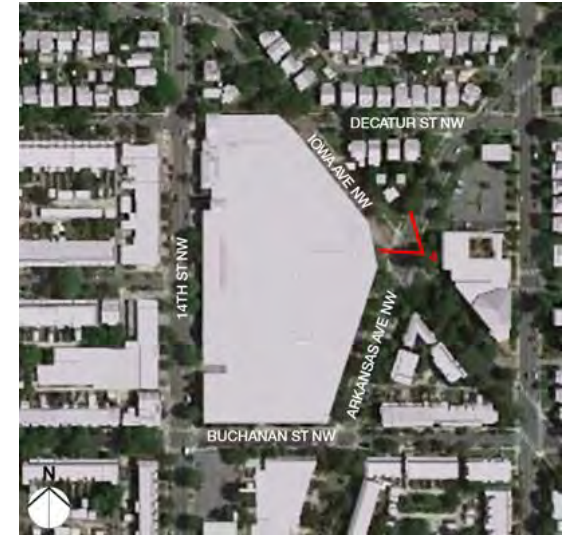


wendel

OPTION 3 - VIEW 3

CLARK CONSTRUCTION STV 100 Years

View 4 – Corner of Iowa Ave NW and Arkansas Ave NW facing Northwest



EXISTING - VIEW 4



View 4 – Corner of Iowa Ave NW and Arkansas Ave NW facing Northwest



wendel

EXISTING - VIEW 4

CLARK STV 100



wendel

OPTION 1 - VIEW 4

CLARK STV 100



wendel

OPTION 2 - VIEW 4

CLARK STV 100

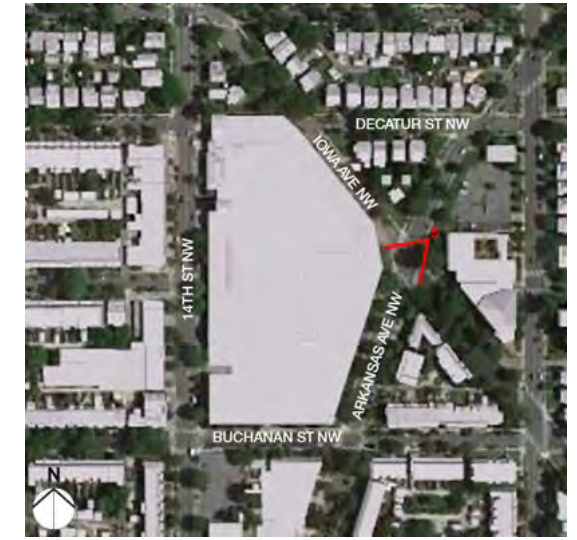


wendel

OPTION 3 - VIEW 4

CLARK STV 100

View 5 – Corner of Iowa Ave NW and Arkansas Ave NW Facing Southwest



EXISTING - VIEW 5



View 5 – Corner of Iowa Ave NW and Arkansas Ave NW Facing Southwest



PREVIOUS DESIGN – VIEW 5



OPTION 1 - VIEW 5



OPTION 2 - VIEW 5



OPTION 3 - VIEW 5



View 6 – Corner of Buchanan St NW and Arkansas Ave NW



EXISTING - VIEW 6



View 6 – Corner of Buchanan St NW and Arkansas Ave NW



wendel

PREVIOUS DESIGN - VIEW 6

CLARK CONSTRUCTION STV 100 Years



wendel

OPTION 1 - VIEW 6

CLARK CONSTRUCTION STV 100 Years



wendel

OPTION 2 - VIEW 6

CLARK CONSTRUCTION STV 100 Years



wendel

OPTION 3 - VIEW 6

CLARK CONSTRUCTION STV 100 Years

Question and Answer Period: Exterior Design Options & Public Input

- Please submit your questions via the 'Q&A' feature located at the bottom of your screen
- If the project team is unable to respond to your question during this meeting, you may contact us at MCAP_NBG_Reconstruction_Project@wmata.com
- Summary of the Q&A will be posted to: wmata.com/northernbusgarage

VI. Next Steps for Project

**October-
November 2020**

Conduct series of virtual community meetings and collect feedback

November 2020

Engage w/ DDOT and provide update on the Garage designs

December 2020

Present final revised design concept to Historic Preservation Review Board

January 2021

Begin Mayor's Agent process on demolition permit

- Updates posted to wmata.com/NorthernBusGarage and shared via email
- Email MCAP_NBG_Reconstruction_Project@wmata.com to join the project's community contact list or request additional information.

Northern Bus Garage Replacement Community Engagement Meeting 2 – Monday, November 2 6:00PM – 8:00 PM Summary

1. Overview

The Washington Metropolitan Area Transit Authority (WMATA) conducted a virtual meeting to gather comment from Consulting Parties as required by Section 106 of the Historic Preservation Act. Based on community feedback and the May concept review hearing before DC's Historic Preservation Review Board (HPRB), WMATA significantly redesigned the project. The design modifications respond to concerns around safety, environmental impacts, and aesthetics.

The WMATA is seeking to obtain public feedback regarding design options to inform the final design concept to be presented at Community Engagement Meeting 4 on November 14th. This meeting served as an opportunity to do so. The on-line survey was another avenue through which the community provided feedback.

Additionally, the meeting provided an opportunity to present results of the community engagement survey that gathered feedback on the three design options presented at Community Engagement Meeting 1. All information and a meeting summary from Community Engagement Meeting 1 are online at <https://www.wmata.com/initiatives/plans/northern-bus-garage/index.cfm>.

The community engagement schedule for 2020 was shared and the team is committed to further engagement in 2021.

If all approvals are obtained in 2021, demolition and construction can begin in 2022 and the project could be complete by 2026.

The meeting presentation was conducted in three segments including:

- Section 106 Historic Preservation
- Exterior Design Concept Survey Results
- Art in Transit

A questions and answers session was conducted after each segment's presentation.

2. Section 106 Historic Preservation

Presentation

The primary purpose of the meeting was to gather feedback on impacts to the historic structure, particularly related to “adverse effects” as defined in law. Section 106 of the Historic Preservation Act requires the Federal Transit Administration (FTA) to consider project impacts on historic properties. There is one facility involved in this project, the bus garage building, and the public and Consulting Parties are invited to comment.

It has been deemed that the proposed reconstruction of the bus garage constitutes an adverse effect and the goal is to identify ways to minimize and mitigate adverse effects. The process will conclude with a Memorandum of Agreement the documents the minimization and mitigation measures.

The presentation included an image outlining the original historic Decatur Street streetcar barn structure as well as structures that have been added since.

Questions and Answers

Q: Please outline the rules/guidance involved in integrating historic and new structures for those not familiar. Is the new not allowed to match the historic in material or color?

A: The most important thing is to minimize adverse effect to the historic structure. At the same time, it is also important to have a design that complements the existing historic façade, but is clearly distinguished from the original existing historical facade. This explains the difference between the colors or materials that are used.

Q: WMATA has stated that not all space is needed for the bus facility and has included community space in the revised design. With not all space needed, why is most of the structure being torn down? This could instead be repurposed for retailers and could attract tourists.

A: Bus garage operations will take place in the area behind the historic building. To make these operations safe and efficient and to support the load of buses, walls of the historic building further from 14th Street need to be removed to install maintenance bays and connecting ramps to move buses between levels. The administration building and tower will be preserved in their entirety and all frontage along 14th Street will be saved. Retail space provided will be on the ground floor of the administration building and the corner room will be for community use.

Q: The components of the historic structure being saved seems superficial. Streetsense wants to build pedestrian traffic on that side of 14th Street but the bus exit is being kept there which seems dangerous. This should be moved to Arkansas or Buchanan, similar to how parking garage entrances in Columbia Heights are on side streets.

A: The project team has met with DDOT and the principle reason for retaining the bus exit on 14th Street at its existing location is because there is a signalized intersection at this location that allows a controlled means of movement out of the garage and creates a safe way to interact with other users of the area. The bus entrance remains on Buchanan.

Q: Older presentations showed that previous demolitions occurred around the 1980s. How much of the original structure remains currently?

A: Large portions were removed behind the façade, but left 20 feet of roof adjacent to it. Essentially everything inside the red walls was renovated in the 1980s with the exception of the tower and administration building.

3. Exterior Design Concept Survey Results

Presentation

WMATA presented results from the survey used to gather feedback from the community regarding the exterior design options presented at Community Engagement Meeting 1. The agency received 282 total responses, though a larger number of individuals viewed the survey.

The primary finding was that design option 3 was most preferred by those who responded to the survey. This preference was dominant for most of the side-by-side views provided in the survey with at least 70 percent of respondents selecting option 3. This option was less dominant in View 4 and View 5. The project team indicated these results were due to the presence of public art (murals) featured in the other options in these views. It was clear through the survey that public art was important to respondents and that art in transit should be included in the final design.

A considerable number of comments were received in the open-ended comment question and much of these focused on the integration of the historic façade with the new construction. These comments will be posted alongside survey results on the project website.

Questions and Answers

Q: On view 4, the wall elevation is different between the views. What are the heights from the parking deck?

A: View 4 of the exterior design options presented the wall along Iowa Avenue in a different manner based on the overall design. Design option 3 was selected as the preferred overall design based on community input, and the wall height shown in view 4 was lowered for the final design based on additional public feedback.

Q: Is there an option to use brick or masonry for the red part instead of metal as long as it's a different color from the original structure?.

A: The Historic Preservation Review Board and SHPO have emphasized the importance of having a design that complements the existing historic façade, but is clearly distinguished from the original existing historical façade. To differentiate the two materials, the design incorporates another type of masonry material based on feedback so that the building could blend in color but differentiate in scale of the material from the historic façade. In fact, the coloring was one topic in the draft designs that received a significant number of positive comments. During consultation, the community indicated a preference for a stone, brick, or concrete material, rather than metal panels that were originally proposed.

Q: The survey was too limited and there is considerably more feedback that members of the community want to provide. Why is WMATA limiting input into the design?

A: WMATA welcomes any feedback you have. Some significant changes have been made based on community feedback received so far, which were listed and discussed during Meeting 1. This meeting is related to historic preservation and Section 106, but the team is open to feedback on other topics too.

Q: The survey did not clearly show what was historic and what was being removed. It would be nice to see the detailed architectural drawings/designs to see where HVAC, venting, and other items will be placed to enable the community to provide feedback.

A: The design submittal to HPRB shows the extent of the historic structure that will be removed. Removal of these features is necessary to achieve the project's purpose and need. Design details may change based on continued feedback from the HPRB and community.

Q: Entry and exit of diesel buses should be on 14th Street and not on any residential streets like Buchanan Street.

A: One of the main reasons for retaining the Decatur Street exit at 14th Street is that it has a signalized intersection. This provides safe means and control of movement in the garage and interfacing with pedestrians, bikes, and vehicles.

Q: Many people voted for option 3 because renderings can be misleading or people apply their own desires to them. The warm color palette looks like the right material, but it is metal rather than brick. There

are concerns over the shade and gloss of the red metal panels. The project team should look at other masonry options beyond brick. If this building is designed to last 100 years, metal panels will not last.

A: Comment.

4. Art in Transit

Presentation

A WMATA representative presented information about the Art in Transit program that coordinates artist installation of artwork throughout agency-owned properties.

The process begins with a call for artists. Interested artists submit portfolios of past work, which are reviewed by the Artwork Review Panel consisting of both agency and community representatives. In addition to community involvement as part of the panel, selected artists are requested to have regular interaction with the community to ensure the resulting piece is reflective of community interests. However, creative license also plays a role and neither the agency nor the community can exactly dictate the result. At the same time, the agency and community agree to aesthetic criteria early in the process so all parties agree to the parameters.

The goal is for the resulting artwork to be evocative of the area or site, use material in an exciting way, and be durable and not require costly upkeep.

Examples of previous installations through the Art in Transit program were presented. None of these examples were intended to suggest what would be installed at the bus garage, but provided a variety of materials, styles, etc. for the community to see.

- Takoma Metro Station by artist Sam Gilliam, 2011.
- Shepherd Parkway Bus Facility by artist Anne Gardner, 2012.
- MTPD District II by artist Volkam Alkanoglu, 2014.

Community feedback is welcomed and encouraged about what is desired at the bus garage. There are a number of walls, which provide opportunity for murals, but this does not have to be the form it takes. Also, not all walls would be covered. The key thing is community input; size, visibility, theme, and other information will be important to receive.

Questions and Answers

Q: Many questions and concerns are being raised, but WMATA is not considering them. The community is being dismissed and the engagement process is not working. The microphone is being controlled and the only way to ask a question is by putting it in the chat box. Questions about the materials being used keep coming up and are continually deflected. Part of the reason the building is falling apart is because the building was exposed to diesel fumes from buses and the plan is to put the same diesel buses back. The survey also allowed the same person to respond multiple times, which makes the results flawed.

A: The project team is considering materials used to ensure they have a long lifespan. The greatest contributor to degradation is the sun and the panels will be designed to be durable. FTA and WMATA have material longevity requirements and both parties want the facility to last. Diesel fumes will not degrade over the short term before the battery electric bus conversion occurs. In the interim, four air exchangers will achieve close to 100% scrubbing to reduce impacts.

Q: WMATA has a long history of not maintaining its systems, being sued in the past for faulty materials and paying fines at eight facilities. How can the community trust that systems will be maintained so scrubbers achieve that level?

A:

Q: Reduction in project budget suggests cheaper and less durable materials will be used.

A: WMATA realized that \$175 million, the original amount budgeted for the project, was too little to complete the project. Most likely the end total will be in the \$300 million range. The original target price for the construction contract was established at \$175 million. WMATA wanted a design builder to design to that amount following all design specifications and requirements. This was in early 2019. A proposal was received for a price nearly double this, triggering a return to facility design to benefit the community and be more affordable to WMATA.

Q: Why has the project budget changed? (asked by a Section 106 consulting party)

A: In February 2020, Metro established a Target Price for design and construction of \$175m (this figure does not include any soft costs or consulting support costs). However, a contractor's cost proposal in the Summer 2020 indicated a cost that was more than double the Target Price. Since the re-design effort took place, many changes were made to the project scope. Metro intends to develop a revised independent cost estimate by the end of January 2021.

Q: Clarification provided by Andrew Lewis from the Historic Preservation Review Board regarding material guidance.

A: Guidance requires that new construction differentiates from the historic while being compatible. There is no moratorium against brick and the review board is willing to entertain brick usage if the community feels strongly about it. Aesthetic and durability/longevity concerns would possibly be addressed by doing so. Differentiation could be achieved by other means such as through windows and different architectural details. The historic also contains some stone. Using exclusively brick for new construction would probably not be a good idea, but could use a combination of materials like brick with metal panels for details. Terra cotta panels look like brick and could satisfy both concerns.

Q: What has artist guidance been about themes? Can the community have input on the realm of themes that could be proposed on? One recommendation is the history of the site from wild space to a nursery for a federal building, to trolley barn, to bus barn. This evolution could be interesting to capture.

A: The program usually obtains community input. One way is through the call for artists so ideas and themes are clear from the start. Another way is to encourage the artist to work directly with community representatives to make sure pieces resonate. What comes out is a little out of agency control because creative license is allowed, but input and exchange is important. Please send ideas on subject matter or sources of inspiration that the artist should explore.

Q: Are there opportunities for artwork to be something other than a mural? Sculpture, playable art, or placemaking items should be explored. (asked by a Section 106 consulting party)

A: The primary "Art in Transit" opportunity for this project includes murals on the facility walls, particularly since the walls come close to the edge of the property line, leaving little space for additional art pieces. However, we will consider other possible art opportunities beyond murals, but any such art proposals will require a closer review for feasibility.

Q: The modernization of West Elementary is a good example of how well art can be integrated into projects. There was a theme around seasons of the year and this provided a great result in this case. A variety of media was used, which was less static than a mural.

A: Comment.

Q: Option 3 was understood to be brick when completing the survey. It was hard to tell in the survey what the material actually was. Community members in general feel strongly about using brick or other masonry, particularly on the front and along Buchanan. It is good to know this is possible after HPRB clarification.

A: Option 3 did include brick, but not on the front of the building. Colors were similar so wanted to differentiate with metal there.

Q: It is important to have art around the whole building, not just on one side. This will improve aesthetics and allow the art to reach as many people as possible.

A: Comment.

Q: It is good that changes are being made that are complementary to the neighborhood and it is exciting that retail is being attracted. History is important to preserve.

A: Comment.

Q: Recommendation for art that would accent the community history and the nature of the 1906 building and how its purpose has evolved, particularly highlighting the original use of the building and its contribution as the first transit hub in the area. There seem to be no visual adverse impacts, but could the restoration efforts for the historic pieces to be retained be discussed in more detail?

A: The administration building, tower, arches, arched windows, gable entry, and chimney will be retained. Full preservation efforts will be undertaken for anything that is retained. All of the façade will be fully restored with historically accurate, matching windows but with modern materials. A new slate roof will be installed on the administration building and tower roof. Limestone and brick repairs will be completed.

Q: The original building is Italian renaissance period/style. Is there any consideration of extending that style to the new building?

A: Cantilever rooflines are intended to be complementary to the large arch treatments on the administration building and the tower. There is an effort to bring in complementary features like similar proportions in scale and repetition of elements like windows, but designs are not allowed to copy the original.

Q: Why can't more historic pieces be preserved? Are there choices for other architectural firms? .

A: The goal of the project is to ensure a functional bus facility that can accommodate the transportation needs of the community for decades to come, while maximizing historic preservation. Much of the historic building has already been substantially modified and no longer features its original integrity. The remaining historic fabric in the interior of the bus garage cannot accommodate the future operational demands of the facility and bus fleet. The design plans, however, enhance the exterior historic fabric including along the 14th Street façade. Multiple experienced engineering firms are working on this project, in addition to the Clark Construction team, to produce designs that are sensitive to preservation of historic resources.

Q: What is the budget for the conversion to the electric fleet? Is it by any chance cheaper to build the garage today with electric infrastructure?

A: The budget for conversion to an electric fleet has not been established. The Northern Bus Garage project incorporates several design choices that will facilitate electric bus technology conversation in the future, including:

- Space to accommodate Switch Gear and Transformers
- Plans for conduit to feed the future chargers
- Adequate ceiling height to allow overhead electric bus charging.

We are also working with Pepco to identify long-term power sources and electric grid improvements to support not only Metro's future bus electrification needs but also across the region.

Q: Is the community invited to the HPRB meeting in December?

A: Yes, Historic Preservation Review Board meetings are open to the public. A public notice of the meeting date and time will be posted on their website and anyone interested in attending will be able to join the meeting. A public notice will also be posted on the Northern Bus Garage site with details of the hearing.

Q: Can you confirm HPRB does not support housing on site?

A: Housing is not part of the program because the focus is a bus facility. HPRB has not weighed in on use.

Q: What are the standards used for determining historic compatibility?

A: The Department of the Interior guidance document will be posted on the project website.

Q: What is the intention with the brick wall along Iowa Ave? What about lighting and the pathway that goes from 14th Street to Decatur to Iowa?

A: The current non-historic northernmost wall along the Decatur cut-through will be removed as part of the project. A new fire-rated wall will be built in a similar location. This wall will integrate light fixtures that will follow DDOT requirements for sidewalk lighting. In addition, the project will provide an opportunity for Art in Transit along the wall. Metro is also working with DDOT to provide a wider path than the existing walkway. The team will further refine the streetscape plans in coordination with respective District government agencies.

Q: How tall will the above wall be? The current one has been a major benefit in reducing noise for residents.

A: The new wall will be more robust. Doors will be at the bus exit and air inside will be heavily filtered prior to roof exhaust. All of these elements will contribute to addressing historic problems of bus exhaust and noise.

Q: It looks like the exit on Decatur got smaller from the February original design. Why do the doors have such a low-class look to them?

A: The façade has been lowered based on comments regarding the scale of the building and requests for it to more closely reflect the adjacent neighborhood. The doors shown in the renderings reflect a high-speed coiling door. These doors would help maintain an energy efficient building by allowing a minimal amount of exterior air to infiltrate the building by opening and closing quickly as a bus approaches and exits the building. The building is negatively pressured so that interior air does not escape to the exterior without going through the scrubber system.

Q: How much money is FTA contributing to the project? (asked by a Section 106 consulting party)

A: The amount of Federal funding for this project remains to be determined, but could range from 0% to 50% of the total project cost. Metro is seeking Federal funds from the Federal Transit Administration (FTA). As a result, the project is subject to Section 106 of the National Historic Preservation Act. Section 106 requires FTA to consider views of invited Consulting Parties and the public on identification of historic properties and the effects of the project on historic properties, and to seek concurrence with the State Historic Preservation Office. Community Meeting #2 on November 2 served as a Section 106 "Consulting Parties Meeting." FTA also is the Federal agency overseeing the environmental review process regarding the Northern Bus Garage Reconstruction Project. FTA must review and approve Metro's Documented Categorical Exclusion before project demolition and construction can begin.

Q: Can FTA representatives attend the environmental meeting (Meeting 3)?

A: It is unlikely they will attend. FTA representatives attended this meeting specifically because of the Section 106 process.

Q: Can public input be provided during the Mayor's Agent process?

A: The process has not been publicized yet, so little information is known about how the community can provide input, but input is able to be provided.

5. Next Steps

Over the next few months, the project team will actively engage with the public to discuss environmental impacts (Community Engagement Meeting 3) and the final exterior design (Community Meeting 4). Coordination work with DDOT will begin soon to update staff on the most recent design changes and potential improvements. The final design option is expected to be presented to the Historic Preservation Review Board in December and then to the Mayor's Agent in January, 2021 if all goes as planned. The website <https://www.wmata.com/initiatives/plans/northern-bus-garage/> will be updated throughout.

6. Comments

It is believed that the above represents an accurate description of the major events that transpired at this meeting. Your notification of any errors or omissions within five (5) working days of receiving these minutes is important, as the foregoing is intended to be part of the record and is the basis upon which WMATA will proceed.

Respectfully Submitted,



Brian McMahon

HNTB Project Manager

Northern Bus Garage Reconstruction Project

VIRTUAL COMMUNITY MEETING #2:
SECTION 106 CONSULTING PARTIES
MEETING – DRAFT DESIGN CONVERSATION

11/02/2020



Agenda

- I. Project Team Introductions
- II. Community Input Process
- III. Federal Transit Administration Role
- IV. Exterior Design Survey
- V. Metro's Art in Transit Program
- VI. Next Steps



I. Project Team

Diana Levy
Director, Capital
Delivery
(WMATA)

Ann Chisholm
Government
Relations
(WMATA)

Gail Ribas
Senior Director
Communications
(WMATA)

Jim Ashe
Environmental
Coordinator
(WMATA)

Laurent Odde
Art in Transit
Program Manager
(WMATA)

Dan Koenig
Community
Planner
(FTA)

David Wehe
Project Manager
(WMATA rep)

Donzell Robinson
Communications
Consultant
(JSA)

Phil Sheridan
Project Director
(CLARK)

Sean Beachy
Senior Architect
(CLARK/WENDEL)

Emily Savoca
Architect
(CLARK/WENDEL)

II. Community Input Process

Meeting #1: Project Design Update

- Introduced three exterior design options; launched public survey
- Meeting presentation, video and Q&A posted online at wmata.com/NorthernBusGarage

Meeting #2: Draft Design Conversation

- Meeting serves two purposes:
 - Request public comment on exterior design options
 - Request invited Section 106 Consulting Parties to comment on historic properties
- Environmental issues will be the focus of Meeting #3
- Final survey results, meeting presentation and video will be posted online

Meeting #4: Final Design Presentation

- New exterior design concept (based on community input) scheduled to be presented to community
- Following meeting, new concept scheduled to be presented at Historic Preservation Review Board (HPRB) meeting in December



Northern Bus Garage Replacement

VIRTUAL COMMUNITY ENGAGEMENT MEETINGS

MEETING #1 Tuesday, October 13
Project Design Update **COMPLETED**

MEETING #2 Monday, November 2
Draft Design Conversation

MEETING #3 Tuesday, November 10
Environmental Conversation

MEETING #4 Tuesday, November 17
Final Design Presentation

All meetings begin at 6 pm.
For more information, visit wmata.com/NorthernBusGarage.

Public participation is solicited without regard to race, color, national origin, age, gender, religion, disability or family status. To request special accommodations under the Americans with Disabilities Act, ASL or other language interpretation services (free of charge), contact JSA, LLC at 202-610-0005 or send a message to info@jсалc.com at least 48 hours prior to the meeting date, so necessary arrangements can be made.



Federal Transit Administration (FTA) Role

- WMATA is seeking federal funds from FTA; therefore, the project is subject to Section 106 of the National Historic Preservation Act
- Section 106 of the National Historic Preservation Act requires FTA to consider views of invited Consulting Parties and the public on identification of historic properties and the effects of the project on historic properties, and to seek concurrence with the State Historic Preservation Officer
- FTA is specifically seeking comment as it relates to the adverse effect pursuant to the National Historic Preservation Act on the Northern Bus Garage

Section 106 Process

COMPLETED ACTIONS

- Section 106 initiated (April 2019)
- Consulting parties identified and invited
- Area of Potential Effects identified (April 2019)
- Determination that proposed reconstruction would constitute an “Adverse Effect” on the Northern Bus Garage, which is listed on the National Register of Historic Places as the Decatur Street Car Barn (April 2019)

REMAINING STEPS

- Identify potential minimization and mitigation measures in response to the “Adverse Effect” determination
- Receive and consider Consulting Party comments
- Execute a Memorandum of Agreement to document mitigation and minimization measures to resolve adverse effects

Existing Conditions



Discussion Period 1

- Seeking comments about the effects to the historic structure and proposals to mitigate and minimize effects to the structures from Consulting Parties
- Seeking questions and comments about the exterior design from the community
 - Please submit your questions or a request for comment via the 'Chat' feature located at the bottom of your screen. You will be called on to ask your question live in the meeting.
 - If the project team is unable to respond to your question during this meeting, you may contact us at MCAP_NBG_Reconstruction_Project@wmata.com
 - Summary of the Q&A will be posted to: wmata.com/northernbusgarage

Exterior Design Survey

- Presenting interim findings based on responses received October 13 – 27 (233 survey responses)
- Survey responses indicate Option 3 is the most preferred design option
- High preference for options with public art murals
- View that includes the historical façade chosen as most impactful to overall design assessment
- Final survey results, including summary of open-ended comments, will be available at wmata.com/NorthernBusGarage

Northern Bus Garage Reconstruction: Exterior Design Survey

Preference for View 1 – Corner of Buchanan St NW and 14th St NW



wendel

EXISTING - VIEW 1

CLARK CONSTRUCTION STV 100 Years



15%

wendel

OPTION 1 - VIEW 1

CLARK CONSTRUCTION STV 100 Years



4%

wendel

OPTION 2 - VIEW 1

CLARK CONSTRUCTION STV 100 Years



81%

wendel

OPTION 3 - VIEW 1

CLARK CONSTRUCTION STV 100 Years

Preference for View 2 – On 14th St NW, facing Southeast



wendel

EXISTING - VIEW 2

CLARK CONSTRUCTION STV 100 years



12%

wendel

OPTION 1 - VIEW 2

CLARK CONSTRUCTION STV 100 years



5%

wendel

OPTION 2 - VIEW 2

CLARK CONSTRUCTION STV 100 years



83%

wendel

OPTION 3 - VIEW 2

CLARK CONSTRUCTION STV 100 years

Northern Bus Garage Reconstruction: Exterior Design Survey

Preference for View 3 – Corner of 14th St NW and Decatur St NW



EXISTING - VIEW 3



OPTION 1 - VIEW 3

14%



OPTION 2 - VIEW 3



9%



OPTION 3 - VIEW 3

77%



Northern Bus Garage Reconstruction: Exterior Design Survey

Preference for View 4 – Corner of Iowa Ave NW & Arkansas Ave NW, facing Northwest



wendel EXISTING - VIEW 4 CLARK STV 100



wendel OPTION 1 - VIEW 4 CLARK STV 100



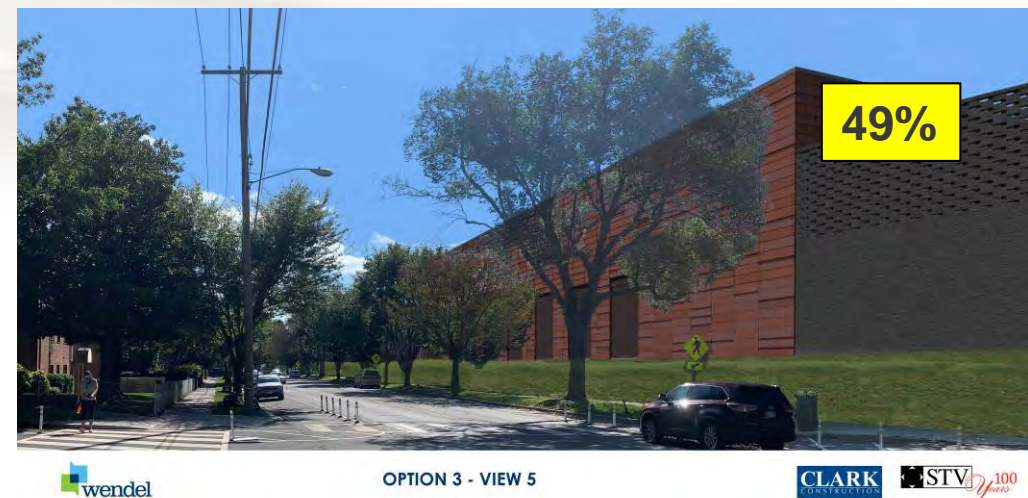
wendel OPTION 2 - VIEW 4 CLARK STV 100



wendel OPTION 3 - VIEW 4 CLARK STV 100

Northern Bus Garage Reconstruction: Exterior Design Survey

Preference for View 5 – Corner of Iowa Ave NW & Arkansas Ave NW, facing Southwest

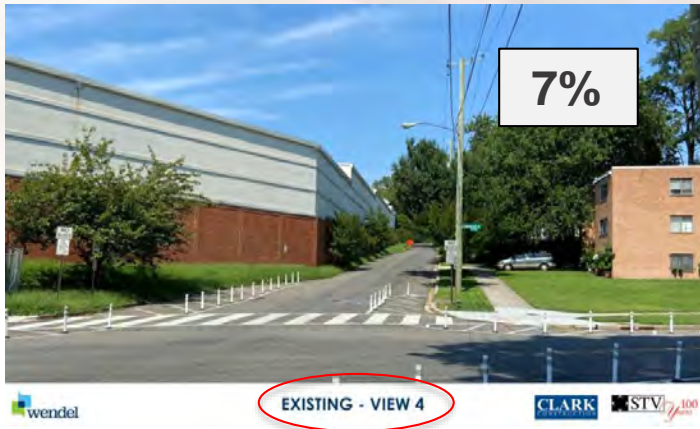
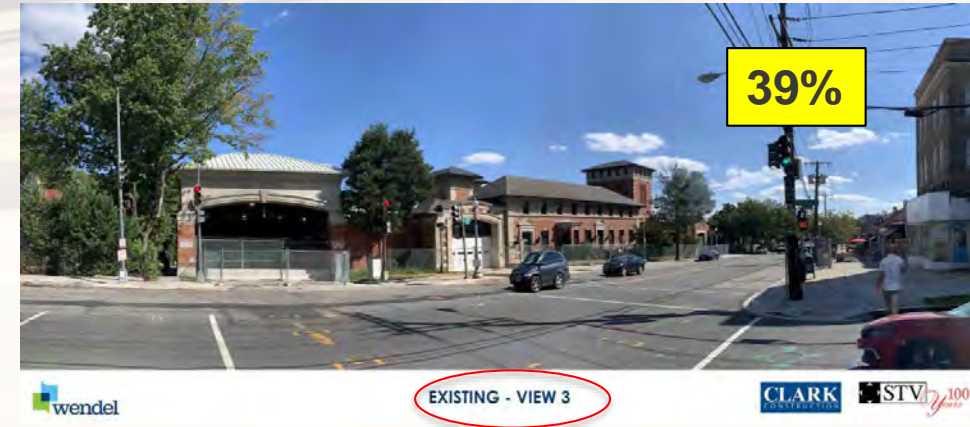
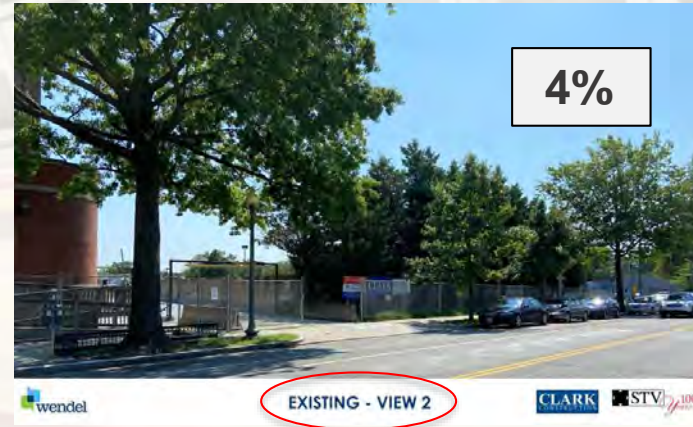
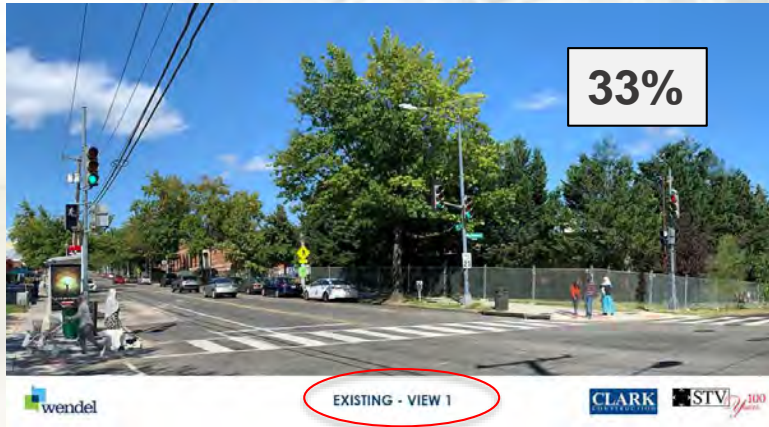


Preference for View 6 – Corner of Buchanan St NW and Arkansas Ave NW



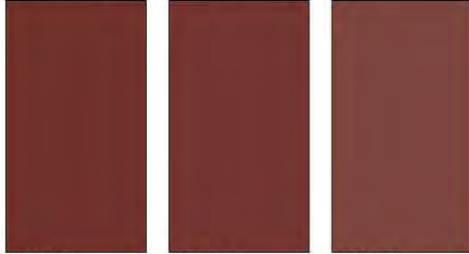
Northern Bus Garage Reconstruction: Exterior Design Survey

Q: Which Perspective is Most Important to your Assessment of the Overall Design?



Option 3 - Materials

MORIN METAL PANELS- MATRIX SERIES
INSTALLATION #1 - PANEL COLORS



RED PANEL 1

RED PANEL 2

RED PANEL 3

INSTALLATION #1 - PANEL PROFILES



MORIN - MX 6.0



MORIN - MX 9.0

MORIN METAL PANELS- MATRIX SERIES
INSTALLATION #2 - PANEL COLORS



GREY PANEL

HOLLOW METAL DOORS AND FRAMES



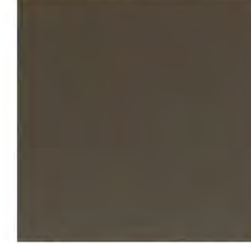
BENJAMIN MOORE - CABIN FEVER 1540

ALUMINUM CURTAINWALL SYSTEM



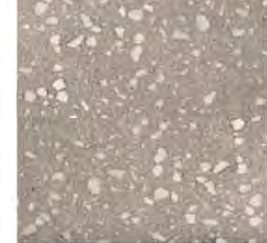
KAWNEER
FINISH - CHAMPAGNE ANODIZED

INSULATED WINDOW PANELS



MAPES
FINISH - LIGHT BRONZE ANODIZED

GROUND FACE



BELDEN - 661 SMOOTH
RUNNING BOND, MODULAR BRICK

BRICK



GLEN-GERY - EBONITE SMOOTH
RUNNING BOND, MODULAR BRICK



GLEN-GERY - EBONITE VELOUR
DETAILING LOCATIONS, MODULAR BRICK

CAST STONE



READING ROCK - LIGHT GRAY
WALL CAPS AND WATER TABLES

Discussion Period 2

- Seeking comments about the effects to the historic structure and proposals to mitigate and minimize effects to the structures from Consulting Parties
- Seeking questions and comments about the exterior design from the community
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 - Summary of the Q&A will be posted to: wmata.com/northernbusgarage

Metro's Art in Transit Program

- Incorporates visual and performing arts at stations and facilities to enhance the experience of the public and transit riders since 1988
- Exhibits aesthetically attractive public artworks that capture the Authority's mission and reflect the artistic, cultural and/or historical interests of the surrounding communities
- Works with visual and performing artists, other arts professionals, architects, engineers, community representatives, jurisdictional arts councils
- The Art in Transit project is not a part of the Section 106 consultation



Selection Process and Criteria for Permanent Artworks

SELECTION PROCESS

- Call for Artists
- Artwork Review Panel
- Recommendation to GM/CEO
- Final approval

CRITERIA

- Quality of the work
- Site-specificity
- Durability of materials
- Originality of approaches and methodologies
- Artist's ability to complete the project

Art in Transit: Sample Artworks

Takoma Metro Station
From Model to Rainbow, 2011
Sam Gilliam



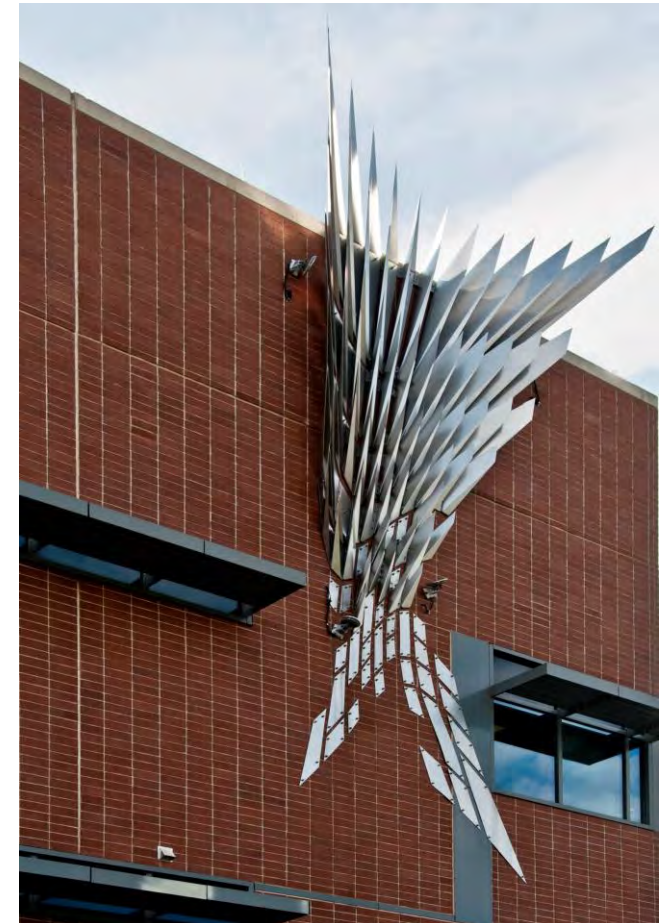
Art in Transit: Sample Artworks

Shepherd Parkway Bus Facility
North Star, 2012
Anne Gardner

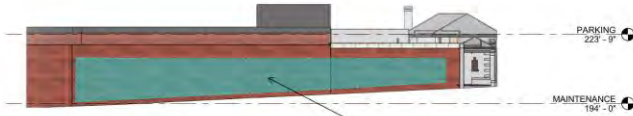


Art in Transit: Sample Artworks

MTPD District II
Plume #3, 2014
Volkan Alkanoglu

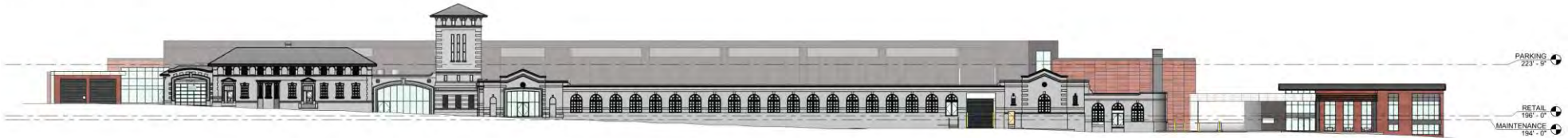


Option 3: Potential Locations for Art in Transit



1 ELEVATION - OVERALL - NORTH
3/8" = 1'-0"

POTENTIAL LOCATION FOR PUBLIC ART

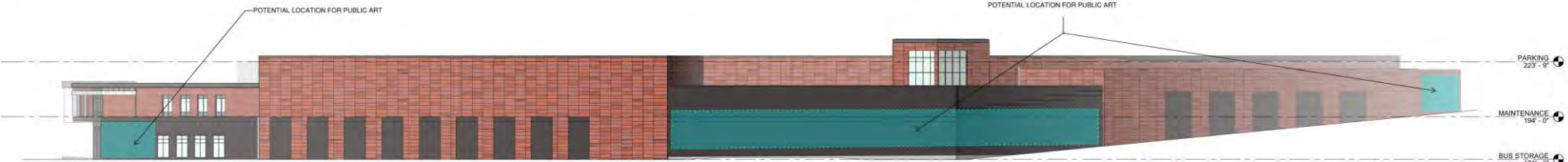


2 ELEVATION - OVERALL - WEST
3/8" = 1'-0"



3 ELEVATION - OVERALL - SOUTH
3/8" = 1'-0"

POTENTIAL LOCATION FOR PUBLIC ART



4 ELEVATION - OVERALL - EAST
3/8" = 1'-0"

POTENTIAL LOCATION FOR PUBLIC ART

POTENTIAL LOCATION FOR PUBLIC ART

Discussion Period 3

- Seeking comments about the effects to the historic structure and proposals to mitigate and minimize effects to the structures from Consulting Parties
- Seeking questions and comments about the exterior design from the community
 - Please submit your questions or a request for comment via the 'Chat' feature located at the bottom of your screen. You will be called on to ask your question live in the meeting.
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 - Summary of the Q&A will be posted to: wmata.com/northernbusgarage

VI. Next Steps for Project

November 2020

Conduct community meetings on environmental issues (11/10) and new design (11/17)

November 2020

Engage w/ DDOT and provide update on the Garage designs

December 2020

Present final revised design concept to Historic Preservation Review Board

January 2021

Anticipated to begin Mayor's Agent process on demolition permit

- Updates posted to wmata.com/NorthernBusGarage and shared via email
- Email MCAP_NBG_Reconstruction_Project@wmata.com to join the project's community contact list or request additional information

Northern Bus Garage Replacement Community Engagement Meeting 3 – Tuesday, November 10 6:00PM – 8:00 PM Meeting Summary

1. Overview

The Washington Metropolitan Area Transit Authority (WMATA) conducted a virtual meeting to gather comment from the community and interested parties regarding potential environmental impacts of the garage reconstruction project. While representatives from the FTA were not present because the meeting was local in nature, staff from the DC Department of Energy and Environment (DOEE) were present along with the WMATA project team.

Based on community feedback and the May concept review hearing before DC's Historic Preservation Review Board (HPRB), WMATA significantly redesigned the project. The design modifications respond to concerns around safety, environmental impacts, and aesthetics.

If all approvals are obtained in 2021, demolition and construction can begin in 2022 and the project could be complete by 2026.

The meeting presentation was conducted in three segments including:

- Planning and Design Phase Overview
- Pollution Minimization
- Site Remediation
- Environmental Design
- Metrobus Fleet Update

A questions and answers session was conducted after each segment's presentation.

2. Planning and Design Phase Overview

Presentation

The reconstruction project will likely obtain grant funding from the Federal Transit Administration (FTA) and one requirement of using such grant money is completion of the National Environmental Policy Act (NEPA) process. There are various environmental review types that apply depending on the project scope and anticipated impacts; these types were reviewed. The FTA has determined that the likely class of action for this project will be a documented categorical exclusion. The document will be released once complete and approved by FTA.

Prior to the federal review process, a local historic preservation review was undertaken. A design was presented to the Historic Preservation Review Board (HPRB) and the project team was referred to the Mayor's Agent for a demolition permit. In the future, a revised design concept will be presented to HPRB and the Mayor's Agent will hold a public meeting where interested parties can provide input and comment. This meeting has not yet been scheduled.

The planning process will conclude with FTA approval of documentation and an additional period of public review.

Questions and Answers

Q: When did FTA indicate its tentative conclusion regarding use of a Documented Categorical Exclusion?

A: FTA made its determination of the probable class of action in 2017 and has not indicated any change in course is warranted.

Q: Is there any chance the FTA would select the undocumented categorical exclusion path? Can the community know what to expect will come out when the document is released?

A: Metro does not expect the FTA to lower the course of action determination from the existing Documented Categorical Exclusion to an Undocumented Categorical Exclusion. For reference, topics considered under a Documented Categorical Exclusion are listed on [slide six of the November 10 Community Meeting presentation](#).

For an example of a past Documented Categorical Exclusion regarding a Metro project, please view the Bladensburg Bus Garage Documented Categorical Exclusion here: https://www.wmata.com/initiatives/plans/upload/Bladensburg_EE-2.pdf.

Q: Will the Documented Categorical Exclusion also cover watershed issues given the Piney Branch Rock Creek Park watershed?

A: The review will address impacts to the environment caused by the project. This will include impacts to water resources and water quality.

Q: Will the analysis you are doing be communicated prior to the Categorical Exclusion? Will they allow for the community to share their concerns?

A: The protocols for NEPA analysis are found on the [FTA website](#), and Metro will follow the federal government's guidance and procedures in preparing and publicly sharing documentation since FTA is leading the environmental review.

Comments regarding the FTA's environmental review can be directed to the following individuals at Federal Transit Administration Region 3:

- Dan Koenig, Community Planner, daniel.koenig@dot.gov
- Shauna Haas, Environmental Specialist, shauna.haas@dot.gov

The FTA has directed Metro to not release any documentation until the agency has reviewed the documentation.

Q: Given that the documentation will be done in conformance with FTA guidance, shouldn't FTA be at this meeting to answer questions about their process?

A: FTA was aware of Metro's community meeting and invited to join, but declined to participate.

Q: Will particulate hot spots be assessed even though not specifically listed?

A: A hotspot analysis is not expected as part of this process. The criteria for hotspot analysis are based on one of two possibilities: (1) if the project occurs in a non-conforming area or (2) if there is a projected increase in traffic. FTA regulations do not require a hotspot analysis in other circumstances.

The Washington Metropolitan Region is not a non-conforming region. Further, we are not projecting an increase in traffic with the reconstruction of the bus garage. Rather, we anticipate a decrease in traffic due to the reduced size of the bus fleet at this garage. Therefore, a hotspot analysis is not needed.

Q: It is my understanding that FTA's regulations state that pollutant hot spots can develop where more than 10 buses are coming or leaving a transit facility within an hour, requiring a hotspot analysis. Do you anticipate more than 10 buses coming and going within the hour?

A: We do anticipate more than 10 buses per hour entering and exiting the facility. However, Metro was unable to independently identify this requirement in our review of the FTA guidelines.

3. Pollution Minimization

Presentation

The project team highlighted key features of the reconstruction that will reduce the environmental impact of the facility's functions. Based on community feedback received previously, WMATA has eliminated the paint booth from the garage design.

Air from the enclosed building will be treated prior to release. A dry scrubbing system will be installed on the roof that will first remove particulate matter using a MERV filter, similar in nature to the filters used on home HVAC systems, though professional grade. Following this, gaseous vapors will be captured by chemically bonding the vapors and storing them within the scrubber. The scrubber system noise will be blocked walls included in the roof design.

High-speed doors on the bus entrance and exit will prevent air from escaping prior to scrubbing and will also considerably reduce noise by quickly opening and closing.

Any water runoff that is tracked into the building on bus tires or through other methods will be sent through an oil-water separator and then a sand filter to pretreat water before discharge into the sewer system.

Captured rainwater will be reused for bus washes, which will save both water and cost to WMATA.

For fuel storage, two underground storage tanks will be installed along Buchanan Street. These will be located outside of the building footprint to comply with fire regulations. Tanks will be enclosed within concrete vaults outfitted with leak detection systems. Once the garage is converted to serve an all-electric fleet, tanks and associated systems will be removed.

Questions and Answers

Q: Could you provide the community with general information regarding area air quality?

A: Air quality is managed on a regional basis. In the Washington region, the Metropolitan Washington Council of Governments reviews air quality data and compares it with health criteria to determine whether the area is within health standards. If not, the region must take additional action to bring air quality to conformity. Currently, our region is in conformity.

Q: Have any passive strategies been considered to address Particulate Matter or noise pollution? More green roof materials on the upper deck (roof capacity)? Vertical components?

A: The current design incorporates green roof features; however, there is limited space on the upper deck of the garage for more. The new bus garage roof includes employee parking for Metro employees, as well as retail employees, to address past community concerns of street parking being used by Metro employees. The project team has explored vertical green walls, which were included in the initial concept design submitted to the DC Historic Preservation Review Board (HPRB) in March 2020. However, this design received negative feedback from the community and the HPRB. Based on the latest exterior design solution supported by the community, green walls would not be able to be readily integrated.

Q: The slide presentation shows noise dampers on the 14th St. side, but not where the larger dry scrubbers are; why is that?

A: The large dry scrubbers will meet all noise ordinances and the enclosures will have sound dampening. In addition, there is a parapet wall to screen the units and the design team is working to integrate further noise dampening measures.

Q: How does the dry scrubber system deal with very small particles (PM1, ultrafine nanoparticles)?

A: Although there is no regulatory requirement, the dry scrubber system is designed to remove approximately 75 percent of the PM1 particles. There are two major standards available in the market describing the efficiency of the air filters, MERV/ASHRAE 52.2 and ISO 16890.

- MERV system mostly focuses on the percentage of particles captured at specific particle size ranges as shown in the table 12-1 of the ASHRAE 52.2.

Table 12-1 Minimum Efficiency Reporting Value (MERV) Parameters

Standard 52.2 Minimum Efficiency Reporting Value (MERV)	Composite Average Particle Size Efficiency, % in Size Range, μm		
	Range 1 0.30 to 1.0	Range 2 1.0 to 3.0	Range 3 3.0 to 10.0
1	N/A	N/A	$E_3 < 20$
2	N/A	N/A	$E_3 < 20$
3	N/A	N/A	$E_3 < 20$
4	N/A	N/A	$E_3 < 20$
5	N/A	N/A	$20 \leq E_3$
6	N/A	N/A	$35 \leq E_3$
7	N/A	N/A	$50 \leq E_3$
8	N/A	$20 \leq E_2$	$70 \leq E_3$
9	N/A	$35 \leq E_2$	$75 \leq E_3$
10	N/A	$50 \leq E_2$	$80 \leq E_3$
11	$20 \leq E_1$	$65 \leq E_2$	$85 \leq E_3$
12	$35 \leq E_1$	$80 \leq E_2$	$90 \leq E_3$
13	$50 \leq E_1$	$85 \leq E_2$	$90 \leq E_3$
14	$75 \leq E_1$	$90 \leq E_2$	$95 \leq E_3$
15	$85 \leq E_1$	$90 \leq E_2$	$95 \leq E_3$
16	$95 \leq E_1$	$95 \leq E_2$	$95 \leq E_3$

- The ranges (E1, E2 and E3) are also noted in table below from ASHRAE 52.2:

Table 10-2 Size Range Groups

Average Minimum PSE Designator	Corresponding Size Range Group, μm
E_1	0.30 to 1.0
E_2	1.0 to 3.0
E_3	3.0 to 10

- The second standard is the ISO 16890, which focuses more on the particle size distribution of Particulate Matter (PM). The ISO 16890 testing method is broken down in four different categories:
 - ePM1 (the smallest and most harmful particles)
 - ePM2.5 (used mostly by the WHO and EPA)
 - ePM10 (also used by the WHO and EPA)

- ePM-Course (for very light-duty or pre-filtration applications)
- ASHRAE has developed the table below to capture the comparison between MERV system and ISO 13890:

Approximate Equivalent Ratings for Filters Tested Under ASHRAE Standard 52.2 (MERV) and ISO 16890	
ASHRAE MERV* (Standard 52.2)	ISO 16890 Rating
1-6	ISO Coarse
7-8	ISO Coarse >95%
9-10	ePM ₁₀
11-12	ePM _{2.5}
13-16	ePM ₁

-
- As seen from the table, the MERV 14 filters will capture approximately 75 percent of the PM 1 particles.

Q: The manufacturer for the scrubber products doesn't provide specs on their website. Can you provide them? Why did you select the products that you did? Why not the product targeted for diesel exhaust?

A: There are two particulate filters that are set up as pre-treatments before dry scrubber technology. The total treatment technology is designed to remove 99.5% of contaminants in the exhaust stream. Below is more information regarding the products that will be used.

Particulate matter (PM): Particulate matter is usually understood as the larger particles that are seen in the "soot" of the diesel exhaust. This will be caught in the particulate filtering phase (we are using MERV 8 and 14 filters in this case). The efficiency is typical for any MERV 8 and 14 filter from ASHRAE (about 85% and 90-95%). These different MERV filters are used to address different size particles and is what Purafil suggests in a diesel exhaust situation.

Gaseous components: The design is for a minimum of 99.5% removal efficiency for different gases that are shown on the cart below (Table 2 - referenced "The use of Purafil Media for the Control of Automotive Exhaust Fumes," Published by Purafil) through the gas adsorption phase.

Contaminant Class	Representative Compound	Threshold Limit Value (TLV, ppm)	Odor Threshold (ppm)
Aldehydes	Formaldehyde	1.0	1.0
	Acrolein	0.1	0.2-15
Carbon monoxide	Carbon monoxide	50.0	n.a.
Hydrocarbons	Toluene	200.0	2.14-15.0
	Cyclohexane	300.0	0.41
	Xylene	100	0.47-200
Oxides of nitrogen	Nitrogen dioxide	5.0	5.0
	Nitric oxide	25.0	0.3-1.0
Oxides of sulfur	Sulfur dioxide	5.0	0.47-5.0
Organic acids	Acetic acid	10.0	0.2-2.4
Others	Hydrogen sulfide	20.0	0.00047-4.6
	Ozone	0.1	0.1

Carbon Monoxide (CO): This is an odorless and colorless gas that dissipates in the environment. This is not a concern for diesel environments (see the chart below for CO in diesel fuel vs. typical gas engines - Table 1, referenced "The Use of Purafil Media for the Control of Automotive Exhaust Fumes," Published by Purafil), but we monitor this gas because it is a life safety hazard inside any building.

TABLE 1 Emission Factors	In Pounds Per 1000 Gallons of Fuel	
	Automobiles	Diesel Engines
Aldehydes (RCHO)	4	10
Carbon monoxide (CO)	2300	60
Hydrocarbons ©	200	136
Oxides of nitrogen (NO _x)	113	222
Oxides of sulfur (SO _x)	9	40
Organic acids (as acetic)	4	31
Particulates	12	110

Nitrogen oxides (NOx): Minimum of 99.5% removal efficiency

Hydrocarbons (HC): Minimum of 99.5% removal efficiency

Volatile organic compounds (VOCs): Minimum of 99.5% removal efficiency

For all other chemicals that are included in the diesel, the proposed system typically includes them with a minimum of 99.5% removal efficiency.

Q: Where will the diesel particulate matter be collected and stored? What happens to it after you store it?

A: Particulate matter will be collected in the filter media located on the upper deck of the garage. Periodically, filters and media will be removed and replaced with fresh materials, with the collected materials disposed of safely offsite.

Q: How often will the filters be replaced? How can the community be assured that you all are going to change these filters in a timely matter?

A: We will be monitoring pressure gradients across the filters on a monthly basis, which will give us a sense on how often they will be replaced. We also have similar filter systems at other Metro facilities that are regularly replaced.

Q: Where are the other systems for recurring maintenance activity? In residential communities?

A: Metro has other bus garages in residential communities, including Western Bus Garage and Southern Avenue Bus Garage. Additionally, the police substation at Franconia-Springfield Metrorail station has a major air filtration system similar to the proposed Northern Bus Garage system. A major apartment complex is located immediately adjacent to the police substation.

Q: Over the last 40 years I have lived in the area, each time work has been done on the garage the air quality has improved. Will this project further reduce air pollution? How would you describe that in percentage terms?

A: Yes, the project will further reduce pollution associated with bus operations on the site. While Metro cannot specify a particular percentage projection at present, Metro is striving to incorporate the best available air filtering technology in the new facility. Metro takes seriously its duty to minimize its facilities' adverse impacts to surrounding residential communities. Other bus garages are likewise located in residential communities, including Western Bus Garage and Southern Avenue Bus Garage. Additionally, the police substation at Franconia-Springfield Metrorail station has a major air filtration system similar to the proposed Northern Bus Garage system. A major apartment complex is located immediately adjacent to the police substation.

4. Site Remediation

Presentation

The site has been a streetcar and/or bus maintenance facility for over 100 years and contamination from that use is present. WMATA will identify and manage this contamination. A soil and groundwater investigation has already been completed and contaminants identified are listed in the appendix of the presentation slides posted on the project website.

The agency expects to undertake remediation, which will include closing seven underground tanks, excavating contaminated soil, and removing groundwater. Contaminated soil and groundwater will be treated.

There is potential offsite contamination and WMATA will continue discussion with DOEE about this issue.

Regarding the structure itself, the remaining historic façade will have all lead removed from it. In addition, asbestos floor tiles that remained despite previous asbestos remediation efforts will be removed and PCBs found in light ballasts will be removed as well.

Questions and Answers

Q: Once the DC Department of Energy & Environment (DOEE) has assessed the underground contamination findings and advised on next steps, can the community be briefed on the findings and what further assessments will be done outside of WMATA's property? How will WMATA begin to examine contamination outside of the site? Will they show the findings to the community? What will they do about it?

A: The Department of Energy & Environment (DOEE) is assessing Metro's underground contamination findings at the project site. Metro is in discussions with DOEE about the next steps and further coordination to complete these tests. A DOEE representative was also in attendance at this meeting to address the process. Metro intends to put forward a response plan protective of human health and the environment, with the goal to clean up any contamination that is determined to present a health risk. We must coordinate with DOEE and work with other organizations in the District government, particularly public space personnel who control space around the Northern Bus Garage. Metro will ensure that we comply with all District laws and regulations for cleanup at the site, in concert with DOEE requirements.

Q: Will you be testing properties around the bus garage? How will the public be involved?

A: DOEE will ask Metro to develop a plan that will include DOEE review and guidance/direction for testing of the adjacent public spaces and potential private properties. To clarify, DOEE will not be doing the testing and is not responsible for testing. Affected property owners and stakeholders will be contacted in conjunction with such testing. The public will be involved in the review of the remediation plan as relevant sharable information becomes available.

5. Environmental Design

Presentation

In addition to the scrubbing and HVAC equipment, the roof will also have photovoltaic panels and a green roof. The green roof will consist of both tray boxes and plants installed directly into soil, though the exact arrangement and design remains to be completed as design is conceptual at this point.

The project team is pursuing LEED accreditation for this facility. Other projects have received Gold and Silver level accreditation in the past, and the goal is to achieve the highest level possible for this garage. The team has compiled a predicted scorecard which is included in the appendix of the presentation slides.

Questions and Answers

Q: Is the reduction in solar panel coverage over the parking area a result of the need to cut project costs? And will solar companies be given an opportunity to propose providing full parking area solar panel coverage at their own expense in exchange for controlling the credits?

A: At this point, this is a conceptual plan and we are working through all the details. Metro has had vendors visit other properties and install solar panels at grade.

The conceptual plan was partly driven by the cost savings. The project team continues to work with Metro's energy group to maximize solar panels while maintaining the operational needs. Given the footprint of building and the need for parking, unfortunately we could not create islands for large solar arrays. However, we plan to add as much solar as possible because of long-term operational cost savings for Metro and benefits to the neighborhood.

We will continue to look for ways to maximize solar at the garage with the design-build contractor. Because of the secure nature of the facility and the complex structural issues needed to safely support further solar canopies on the roof, it is unlikely that a third-party entity would be able to come in and install more solar panels at their own expense.

Q: Where will the major penthouse structures be located?

A: The major penthouse structure is envisioned to be along 14th Street. Its walls will be integrated into the western building façade behind the retail space.

6. Metrobus Fleet Update

Presentation

WMATA has continued to maintain compliance with increasingly strict emissions standards from the Environmental Protection Agency over time. Since 2012, the agency has replaced half of its fleet, equal to approximately 800 buses. Fleet renewal is a continuous process, but to convert to fully electric buses, the agency must coordinate with other groups. The utility grid must be upgraded to handle increased loads demanded by bus chargers, energy policy must be updated, and funding for zero-emission buses must be found. WMATA is working with regional partners to understand the cost, needs, and possibilities.

Bus maintenance and engineering offices are closely involved in bus garage design work to ensure the facility will work well once the fleet is fully electric.

Currently, phase one of the electric bus and testing process is complete and by the end of 2022 the agency will have a partial zero-emission bus fleet.

Questions and Answers

Q: Have all costs of diesel buses been considered, including the need for scrubbers, maintenance etc., compared to total cost of ownership for an electric fleet?

A: Yes, we are considering the costs related to housing diesel buses when the garage opens and later transitioning to an electric bus fleet. However, even with an electric bus fleet, there are other maintenance vehicles that would most likely not be electric and would still require the building to be protected with scrubbers and related equipment.

Q: Has a cost assessment been done to compare the cost of building design for diesel structure with intent on going electric over time vs. electric now? Several municipalities have already moved to electric, have case studies been done to compare to this?

A: A cost assessment has not been prepared. Northern Bus Garage service is needed as soon as the bus garage can be restored. The Northern Bus Garage plays a crucial role for transit in DC and Maryland. Metro ceased bus operations at this facility in Summer 2019. Buses that previously operated from this facility have moved to other garages further away, both increasing operational costs for the region and increasing “deadhead” - the amount of distance a bus travels between locations without being in service. Reducing “deadhead” miles not only minimizes fuel consumption, but also reduces emissions associated with the additional travel required between locations. Resuming service from the new Northern Bus Garage will provide an overall benefit for transit usage in the region. It is essential to resume service from the Northern Bus Garage site as soon as possible in order to provide the efficient and reliable service of the routes served by this facility, providing an overall benefit to the area. Meanwhile, the bus garage will be built for the future, incorporating design choices that facilitate future electric bus technology conversion.

Q: Can you provide us with more information regarding the challenges of implementing electric buses?

A: There are several challenges associated with implementing electric buses across the Metrobus fleet, or even at one particular garage. The first is an issue of scale. The largest electric bus fleet in North America currently hosts 60 buses, less than half the size of the fleet projected for the new Northern Bus Garage, let alone for all of Metro.

Furthermore, energy infrastructure investments, policy and rate structures and funding/construction for buses and facility conversion are required for a full-scale zero-emissions bus investment. More information on these challenges are identified in Metro’s Zero-Emission Bus Update available here: <https://www.wmata.com/initiatives/sustainability/Zero-Emission-Bus-Update.cfm>.

Q: Because this is a residential community, why can’t you use this as a site to pilot an electric bus fleet? Why spend money to get LEED certified? If you care about the environment, why not invest that money into electric buses?

A: It’s all about timing. Metro will begin piloting zero-emissions buses at the Shepherd Parkway garage to test where the electric grid is currently available and inform our future plans. This preliminary work can be done now, instead of waiting for the new Northern Bus Garage to open in 2026. This timeline allows us to incorporate lessons learned regarding zero-emissions buses as we contemplate future bus technology conversions.

Q: What is the timing of the pilot program as it correlates to the construction of this project?

A: The electric bus test and evaluation timeline is included on slide 24 of the meeting presentation. Metro is currently in the vehicle and infrastructure design period through Spring 2021. Full performance evaluation is not expected until Winter 2023. Meanwhile, the Northern Bus Garage facility is expected to begin construction before the electric bus test and evaluation is completed.

Metro will begin piloting zero-emissions buses at the Shepherd Parkway garage to test where the electric grid is currently available and inform our future plans. This preliminary work can be done now, instead of waiting for the new Northern Bus Garage to open in 2026. This timeline allows us to incorporate lessons learned regarding zero-emissions buses as we contemplate future bus technology conversions.

Q: How long will it be until the entire bus fleet is electric?

A: No date has been set. Metro is committed to moving toward a zero-emission fleet, which requires the cooperation of local, regional, and federal governments to invest in the infrastructure needed to power electric buses, update policies and rate structures, and support funding to replace vehicles, upgrade garages and maintain the new fleet. The electric bus test and evaluation underway will help Metro identify technologies for adoption, pending funding availability. We will continue working with our regional partners to pursue these opportunities and provide an even more sustainable transportation future.

Q: WMATA left this facility in June 2018 and by their estimations will return sometime in 2025. Why not stay away as long as it takes to come back all electric?

A: Metro ceased bus operations at this facility in Summer 2019. It is essential to resume service from the Northern Bus Garage site as soon as possible in order to provide the efficient and reliable service of the routes served by this facility. Meanwhile, the bus garage will be built for the future, incorporating design choices that facility future electric bus technology conversion.

7. Next Steps

The project team will incorporate all feedback received to date to create a final conceptual design to present to the community at Meeting 4. This final design is expected to be presented to the Historic Preservation Review Board in December and then to the Mayor's Agent in January if all goes as planned. If the Mayor's Agent issues the needed demolition permit, a Section 106 memorandum of understanding will be signed with FTA and the State Historic Preservation Office. Following this, the documented categorical exclusion work will be packaged and submitted for approval by FTA. The website <https://www.wmata.com/initiatives/plans/northern-bus-garage/> will be updated throughout.

8. Comments

It is believed that the above represents an accurate description of the major events that transpired at this meeting. Your notification of any errors or omissions within five (5) working days of receiving these minutes is important, as the foregoing is intended to be part of the record and is the basis upon which WMATA will proceed.

Respectfully Submitted,



Brian McMahon
HNTB Project Manager

Northern Bus Garage Reconstruction Project

VIRTUAL COMMUNITY MEETING #3:
ENVIRONMENTAL CONVERSATION

11/10/2020



Agenda

- I. Project Team & Schedule
- II. Planning & Design Phase Overview
- III. Pollution Minimization
- IV. Site Remediation
- V. Environmental Design
- VI. Metrobus Fleet Update
- VII. Next Steps for Project



I. Project Team

Diana Levy
Director, Capital
Delivery
(WMATA)

Ann Chisholm
Government Relations
(WMATA)

Gail Ribas
Senior Director
Communications
(WMATA)

Jim Ashe
Environmental
Coordinator
(WMATA)


Dave Michels
Vice President
Bus Maintenance
(WMATA)

David Wehe
Project Manager
(WMATA rep)


Donzell Robinson
Communications
Consultant
(JSA)

Phil Sheridan
Project Director
(CLARK)

Community Meeting Schedule




Northern Bus Garage Replacement



VIRTUAL COMMUNITY ENGAGEMENT MEETINGS

<p>MEETING #1 Tuesday, September 13 Project Design Update</p> <p>COMPLETED</p>	<p>MEETING #2 Monday, November 2 Draft Design Conversation</p> <p>COMPLETED</p>
<p>MEETING #3 Tuesday, November 10 Environmental Conversation</p>	<p>MEETING #4 Tuesday, November 17 Final Design Presentation</p>

All meetings begin at 6 pm. For more information, visit wmata.com/NorthernBusGarage.



***Meeting #2 was designated as Section 106 Consulting Parties Meeting*

II. Planning & Design Phase Overview

- The National Environmental Policy Act (NEPA) governs the environmental review process for federally-funded transit projects, including the Northern Bus Garage Reconstruction Project. Three possible classes of action:
 - Categorical Exclusion (undocumented and documented)
 - Environmental Assessment
 - Environmental Impact Statement
- The Federal Transit Administration determined that the project likely would be a Documented Categorical Exclusion.
- Documented Categorical Exclusion document will be released once it is complete and approved by FTA.

NEPA Topics

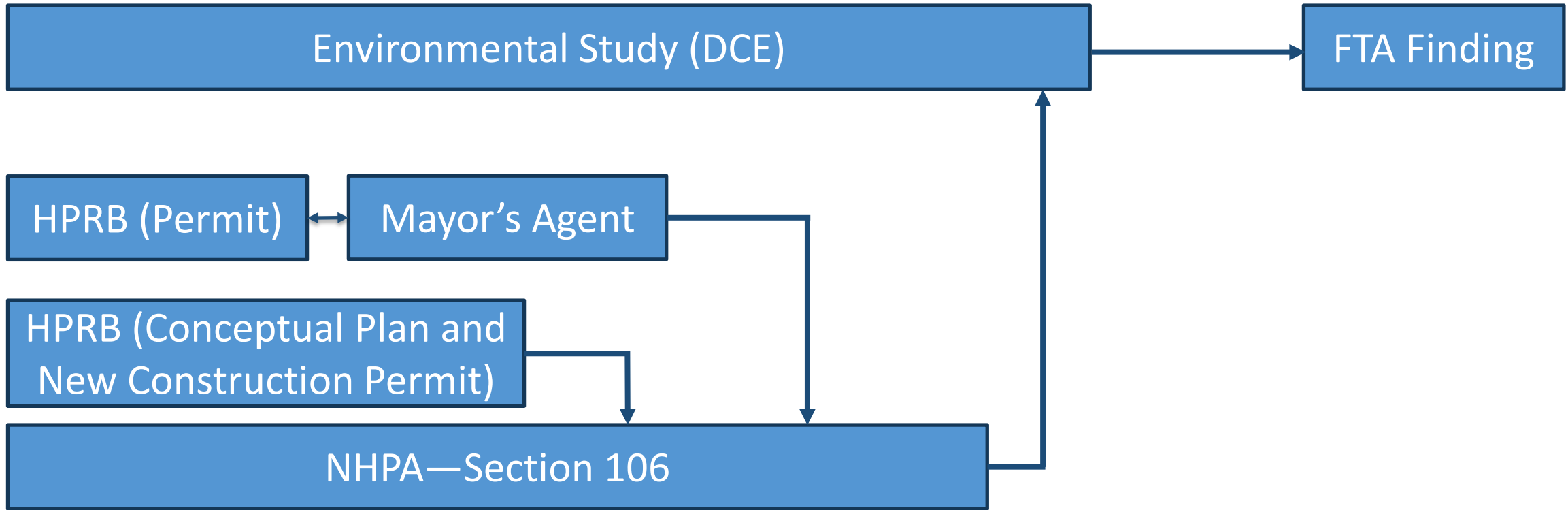
A Categorical Exclusion considers the following topics:

Detailed Project Description	Metropolitan Planning and Air Quality Conformity
CO Hot Spots	Zoning
Traffic Impacts	Cultural Resources
Noise and Vibration	Hazardous Materials
Acquisitions and Relocations	Community Disruption and Environmental Justice
Public Parkland and Recreation Areas	Ecologically Sensitive Areas/Endangered Species
Impacts on Wetlands, Floodplain Impacts, Water Quality, Navigable Waterways, and Coastal Zones	Construction Impacts

Local Historic Preservation Process

- **May 2020:** Metro presented project design to the Historic Preservation Review Board (HPRB) for conceptual plan review.
- **September 2020:** HPRB referred the interior demolition permit application for the project to the Mayor's Agent.
- Metro has requested a hearing before the Mayor's Agent hearing officer.
(This clearance is necessary to obtain a demolition permit.)
- **December 2020:** Metro will present revised design to HPRB for conceptual plan approval.
- **January 2021** (anticipated): Mayor's Agent public hearing. Hearing date has not been set.

Planning Process



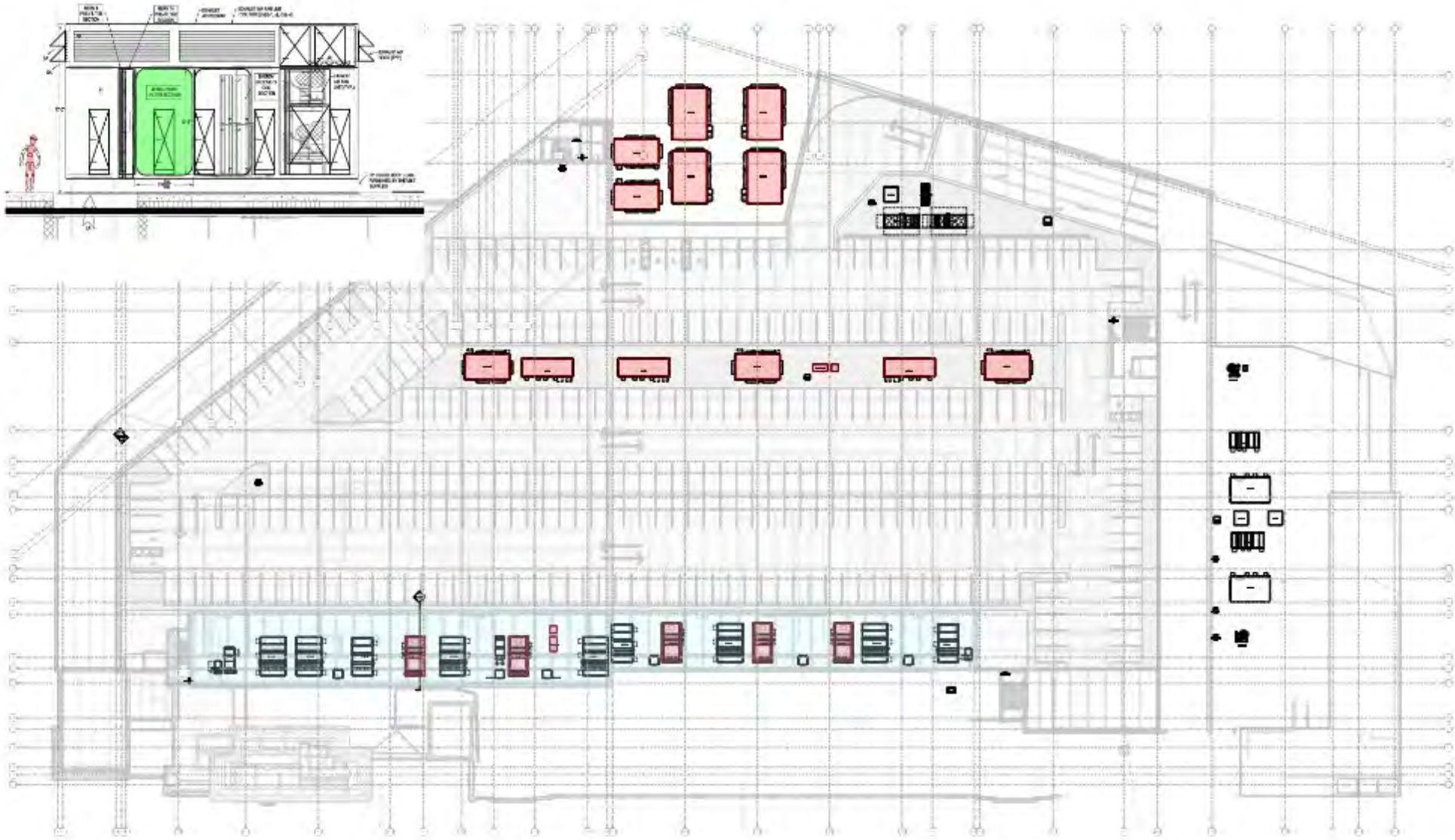
Question & Answer Period: Planning & Design Phase Overview

- Please submit your questions through the meeting chat
- If the project team is unable to respond to your question during this meeting, you may contact us at MCAP_NBG_Reconstruction_Project@wmata.com
- Summary of the Q&A will be posted to: wmata.com/NorthernBusGarage

III. Pollution Minimization (Air Quality & Noise)

- The air in the bus garage will be “scrubbed” prior to leaving the facility
 - Ventilation system is designed to ‘scrub’ the exhaust air using specialized exhaust equipment that filters the air.
 - High-speed vehicle entry/exit doors will be used to maintain proper airflow & ensure bus exhaust is treated before exiting into the environment.
- The overhead doors and the building enclosure at the Decatur Street exit will also help to isolate bus operations from adjacent properties and minimize noise levels in the community.
- Metro has eliminated paint booth from project design following community input.

HVAC & Air Scrubber Locations



- LEGEND**
- EXHUAST UNIT W/ DRY SCRUBBER TECHNOLOGY
 - PENTHOUSE - INDOOR EXHAUST UNIT W/ DRY SCRUBBER TECHNOLOGY

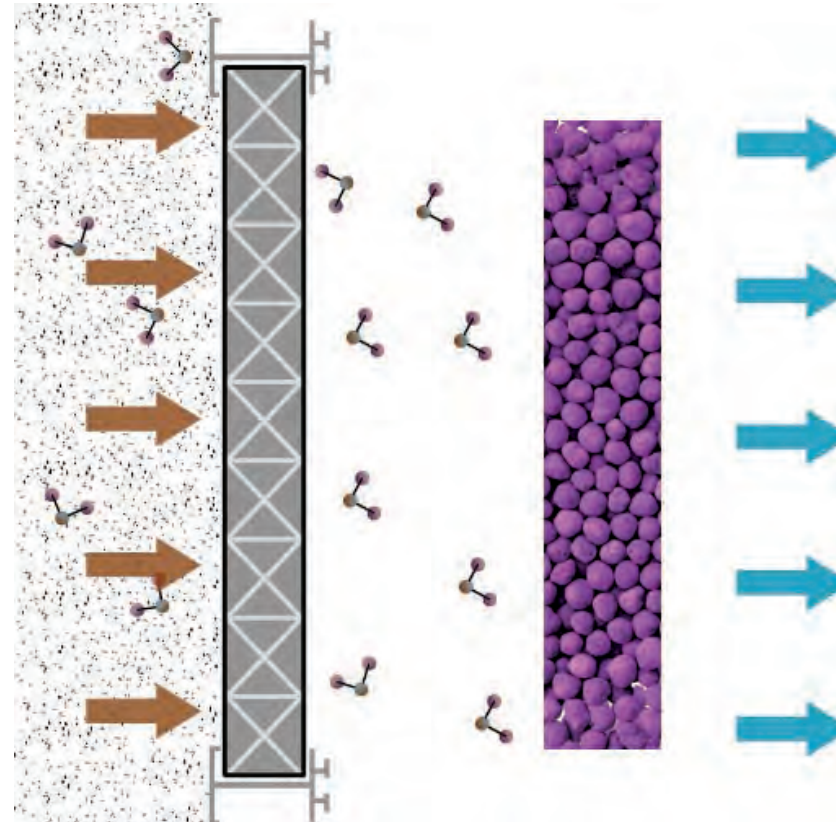
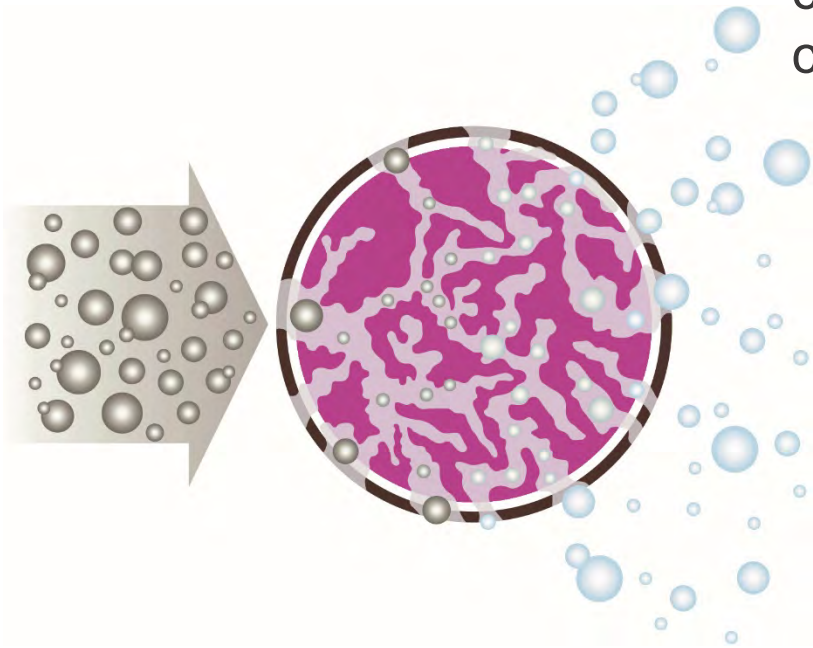
Stormwater Management

- New 120,000-gallon stormwater detention vault to manage storm flows during heavy rain events.
- New Oil-Water Separator and sand filter to pretreat runoff from buses and cars that is tracked into the building before discharge to sewer system.
- New 60,000-gallon vault system to store captured stormwater for reuse in the bus wash system (significantly reduces potable water use for facility)

Air Quality

Gas-phase Adsorption

The dry scrubber in each exhaust fan system includes a filtration process using disposable high efficiency v bank filters in order to extract contaminants. The v bank filters' chemisorptive process will remove contaminant gases by means of adsorption and chemical reaction.



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

Fuel Management

- New double lined fuel tanks (2) located underground along Buchanan Street on Metro property
 - Must be located outside the building (NFPA requirement)
 - Each tank will be installed within a concrete vault (rather than in the ground)
 - Multiple leak detection and fuel monitoring systems per tank/vault
 - Tanks will be removed after facility is converted to full Electric Bus Fleet

- Other fluid dispensing systems will have above ground storage tanks with integral leak detection and capture systems.

Question & Answer Period: Pollution Minimization

- Please submit your questions thorough the meeting chat
- If the project team is unable to respond to your question during this meeting, you may contact us at [MCAP NBG Reconstruction Project@wmata.com](mailto:MCAP_NBG_Reconstruction_Project@wmata.com)
- Summary of the Q&A will be posted to: wmata.com/NorthernBusGarage

IV. Site Remediation

The following contaminants have been identified on the project site and will be removed following all requirements/guidelines:

- Soil and Water Contamination
 - Consistent with site history
 - Discussing next steps with DOEE
 - Remediation anticipated
- Lead Paint — various surfaces
- Asbestos — in floor tiles
- Mercury — in thermostats and fluorescent light bulbs
- PCBs — in light ballasts
- Underground Tanks (7) — Will be removed and 'closed'




[See Appendix](#) for more detailed site remediation information.

Question & Answer Period: Site Remediation

- Please submit your questions through the meeting chat
- If the project team is unable to respond to your question during this meeting, you may contact us at MCAP_NBG_Reconstruction_Project@wmata.com
- Summary of the Q&A will be posted to: wmata.com/NorthernBusGarage

Rooftop Environmental Features

Conceptual plan

- Key**
-  Solar (Photovoltaic) Panels
 -  Green roof features
 -  Green roof features



LEED Accreditation

- Metro is pursuing LEED accreditation for the new Northern Bus Garage
- Recent LEED-certified Metrobus garages projects include:

**Andrews Federal Center
Bus Garage (2020)**
Gold



**Cinder Bed Road
Bus Garage (2018)**
Gold



**Shepherd Parkway
Bus Garage (2012)**
Silver



Question & Answer Period: Environmental Design

- Please submit your questions through the meeting chat
- If the project team is unable to respond to your question during this meeting, you may contact us at MCAP_NBG_Reconstruction_Project@wmata.com
- Summary of the Q&A will be posted to: wmata.com/NorthernBusGarage

VI. Metrobus Fleet Update

- Metro operates a fleet of almost 1,600 buses serving neighborhoods and business districts across hundreds of square miles.
- We're committed to incorporating the latest technologies for the safety of our customers and the communities where we operate.
 - All new Metrobuses meet EPA Greenhouse Gas (GHG) emissions requirements: Phase 1 (2012-2016) and Phase 2 (2017-2025)
 - Metro purchases about 100 buses annually
 - More than 800 buses replaced since 2012 (over 50% of current Metrobus fleet)

Zero-Emission Bus Update

Earlier this year, Metro published a [Zero-Emission Bus Update](#) that outlines zero-emission fleet planning underway. The transition to zero-emission bus service will require significant regional investment and coordination.

Required actions for the region include:

Energy Infrastructure Investments

- Identify, fund and build utility infrastructure required to operate service

Policies & Rate Structures

- Establish regional policies and energy rate structures

Funding for Buses & Facility Conversion

- Increase funding to replace the existing fleet with cleaner buses



Building for the Future

- Results of the zero-emission bus test and evaluation will allow Metro to identify technologies for adoption pending funding availability.
- The Northern Bus Garage project incorporates design choices that will facilitate electric bus technology conversion, including:
 - Space to accommodate Switch Gear and Transformers
 - Plans for conduit to feed the future chargers
 - Adequate ceiling height to allow overhead electric bus charging

Electric Bus Test and Evaluation Timeline

- Phase 1: Electric Bus Summary Report – **COMPLETED**
 - Research to inform test and evaluation. Covering infrastructure, planning, electric bus fleet and estimated financial costs and requirements.
- Phase 2: Electric Bus Test and Evaluation – **IN PROGRESS**
Planned for Shepherd Parkway Bus Garage
 - Vehicle and Infrastructure design: Fall 2020 – Spring 2021
 - Procurement Process: Spring 2021 – Fall 2021
 - Bus build and infrastructure upgrades: Fall 2021 – Fall 2022
 - Performance evaluation: Fall 2022 – Winter 2023
- Phase 3: Further investment in electric bus technology is highly dependent on test/evaluation results, progress on regional policies, grid infrastructure investments, and funding availability ([see Appendix for more details](#))

Question & Answer Period: Metrobus Fleet Update

- Please submit your questions through the meeting chat
- If the project team is unable to respond to your question during this meeting, you may contact us at MCAP_NBG_Reconstruction_Project@wmata.com
- Summary of the Q&A will be posted to: wmata.com/NorthernBusGarage

VII. Next Steps for Project

December 2020	January 2021	TBD	TBD
Present final revised design concept to Historic Preservation Review Board	Begin Mayor's Agent process on demolition permit	Execute a Memorandum of Agreement for Section 106 (Historic Preservation)	Submit Documented Categorical Exclusion to FTA for approval

- Updates posted to wmata.com/NorthernBusGarage and shared via email
- Email MCAP_NBG_Reconstruction_Project@wmata.com to join the project's community contact list or request additional information



Appendix



Appendix A: Planning & Design Phase Overview

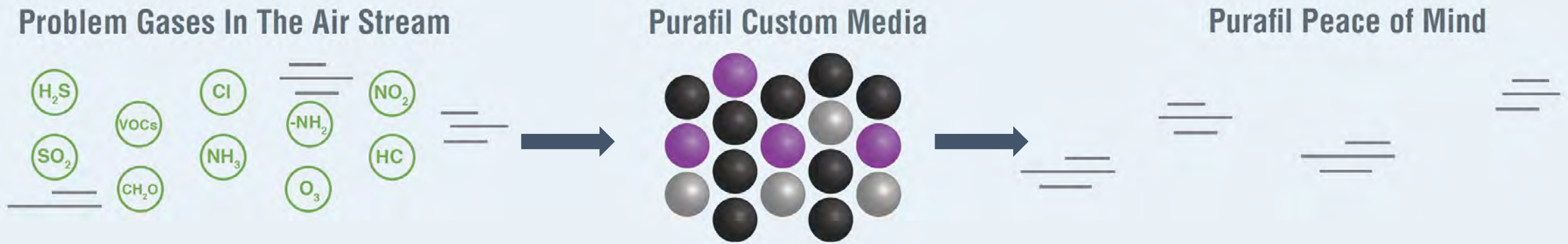
Referenced Reports

Report Description	Released as of 11/9/2020	Report Link	Notes
Documented Categorical Exclusion Report	No	To Be Announced	Not completed; will be completed after HPRB and Mayor's Agent Approvals. Estimated: Late 2021
Zero-Emission Bus Update	Yes	https://www.wmata.com/initiatives/sustainability/upload/WMATA_Zero_Emission_Bus_Update-02122020-FINAL.pdf	
Site contamination report (bus garage footprint only)	No	To Be Announced	Will be released after DOEE completes its review

Appendix B: Air Emissions Minimization

Air Quality

Removing Exhaust Fumes Through Chemisorption

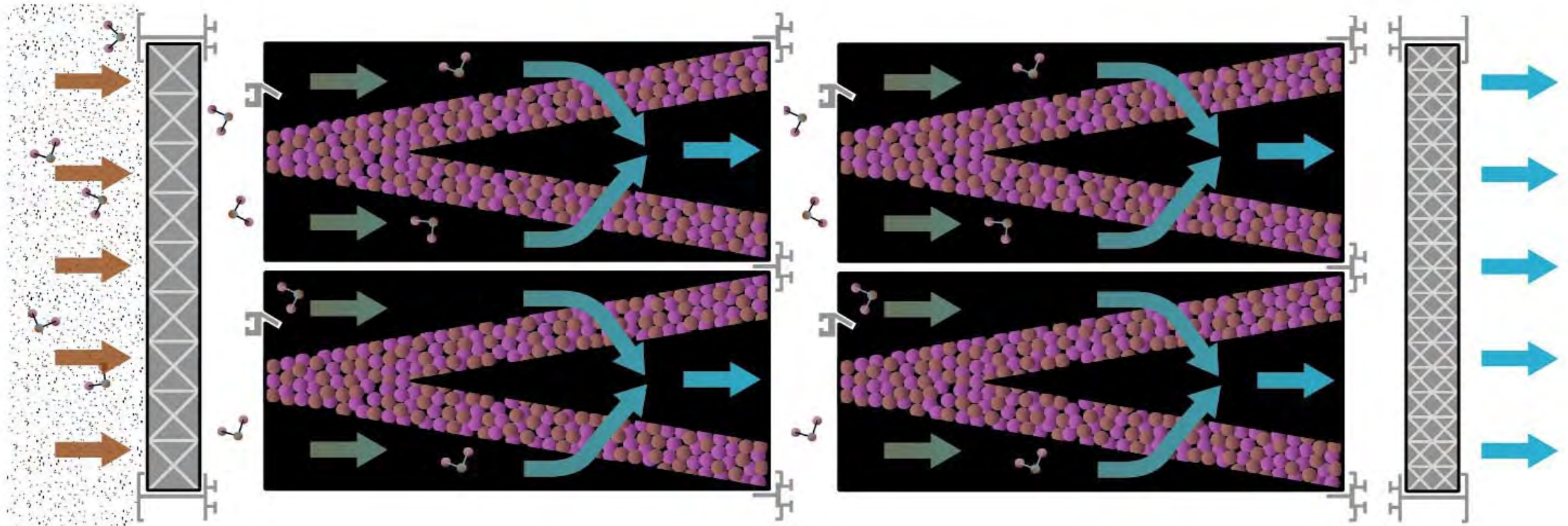


Capacity Test Results (typical) @ 99.5% Removal Efficiency		
Contaminant	Media Tested	Capacity, weight %
Aldehydes	Purafil Select	2.5
Hydrocarbons	Purakol	21.5
Nitric Oxide	Purafil Select	5.2
Nitrogen Dioxide	Purakol	6.6
Organic Acids	Purakol	22.6
Sulfur Dioxide	Purafil Select	9.5



Air Quality

Dual V-Banks in AHUs



Appendix C: Site Remediation

Site Remediation

- Groundwater and soil environmental investigation:
 - 54 soil borings and 10 temporary monitoring wells
 - water: PCB, BEHP, DRO, and chlorinated solvents and breakdown products
 - soil: PAHs, DRO, lead, arsenic, GRO, ethyl benzene
 - Results forwarded to DOEE; DOEE has asked follow-up questions
 - Project team anticipates remediation
 - During construction: soil removal and water treatment under a DOEE-approved remediation plan
 - After construction: water treatment

Site Remediation (continued)

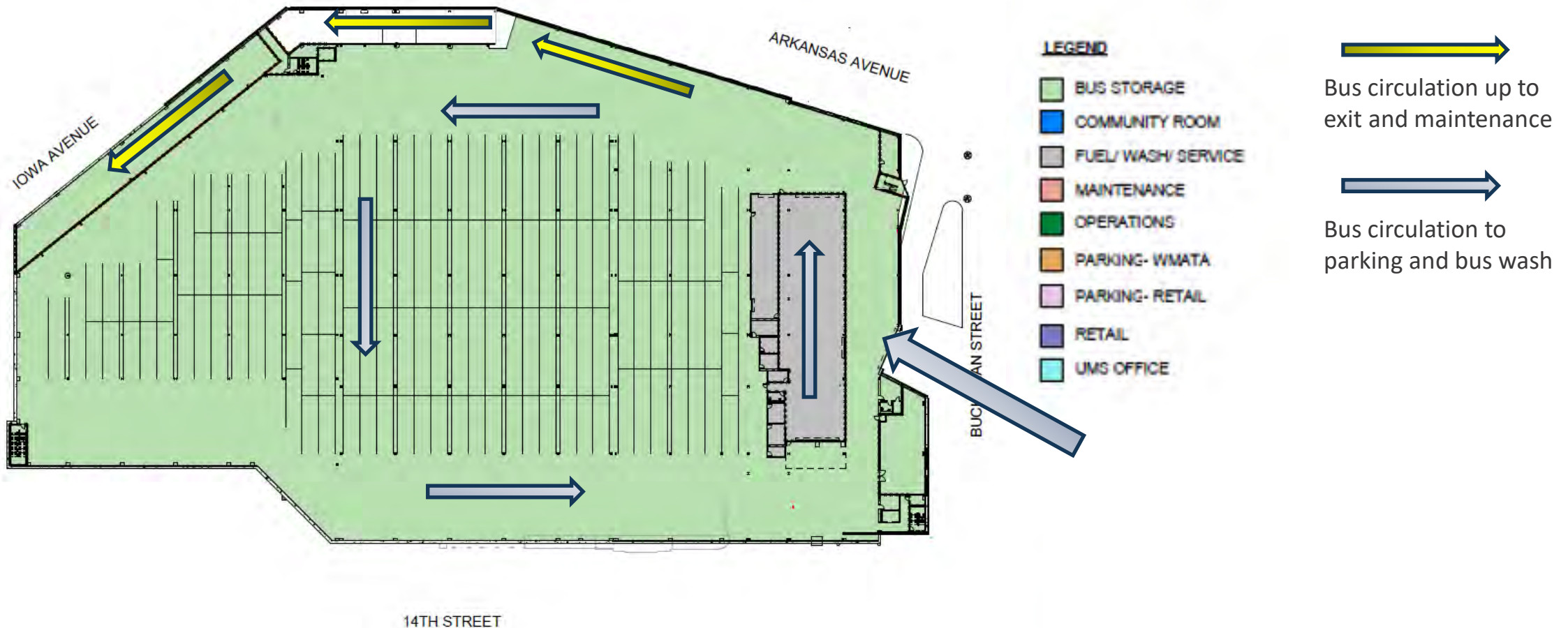
- Other remediation anticipated:
 - Lead paint: Found on some painted surfaces. All lead paints on retained (historic) surfaces will be removed. Contaminated debris will be separated and disposed.
 - Asbestos: Found in floor tile. Contaminated debris will be separated and disposed.
 - Most other asbestos materials have been abated.

Site Remediation (continued)

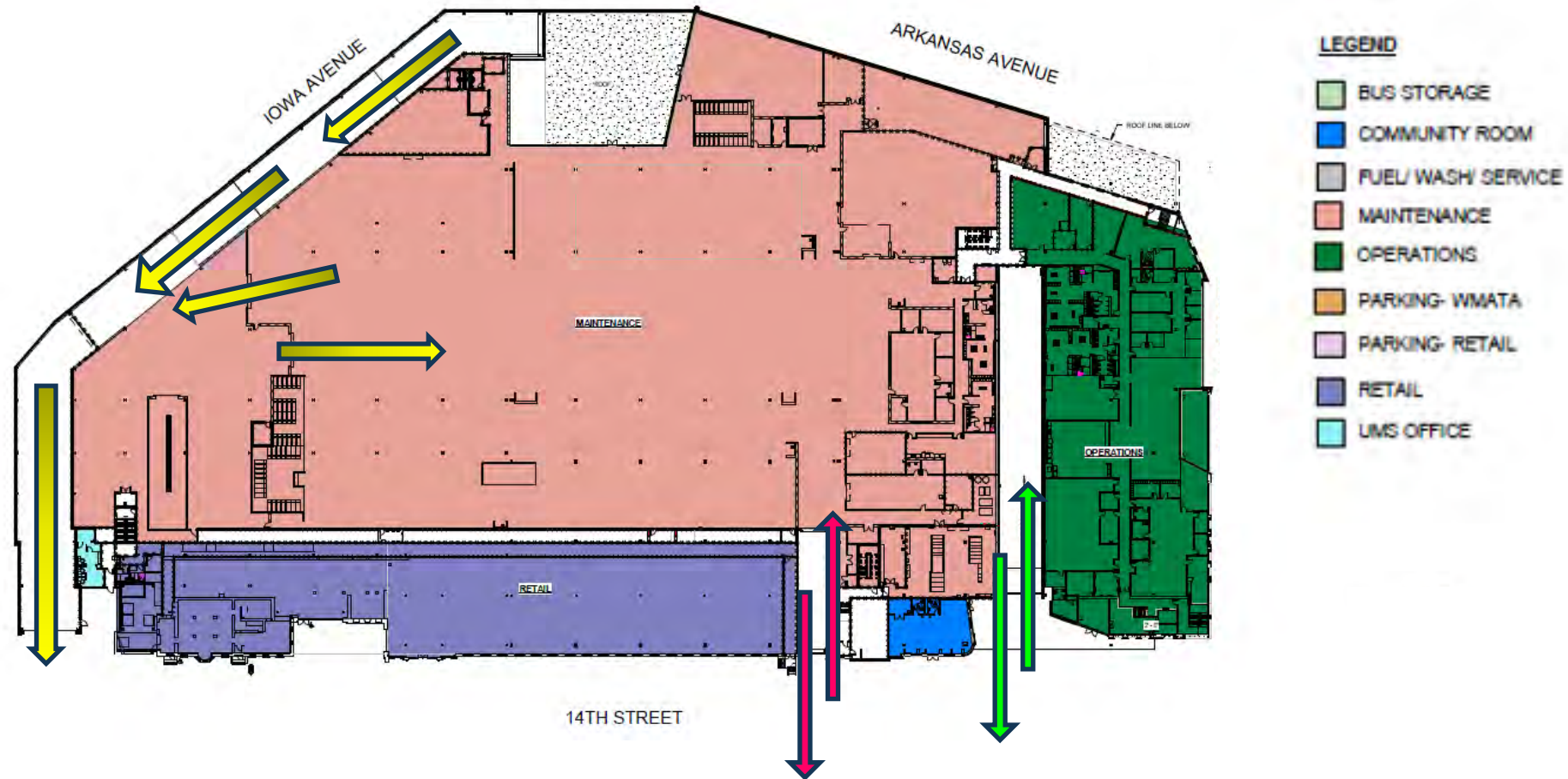
- Mercury: Found in fluorescent lights and thermostats. Contaminated material will be removed, separated, and disposed at licensed facilities.
- PCBs: Light ballasts (if identified). Material will be separated and disposed at licensed facilities.
- Existing underground storage tanks (7) will be removed under a DOEE-approved removal and remediation plan.
 - All fluids were removed from all existing underground and above ground storage tanks on the property after the building ceased operations in 2019.

Appendix D: Environmental Design

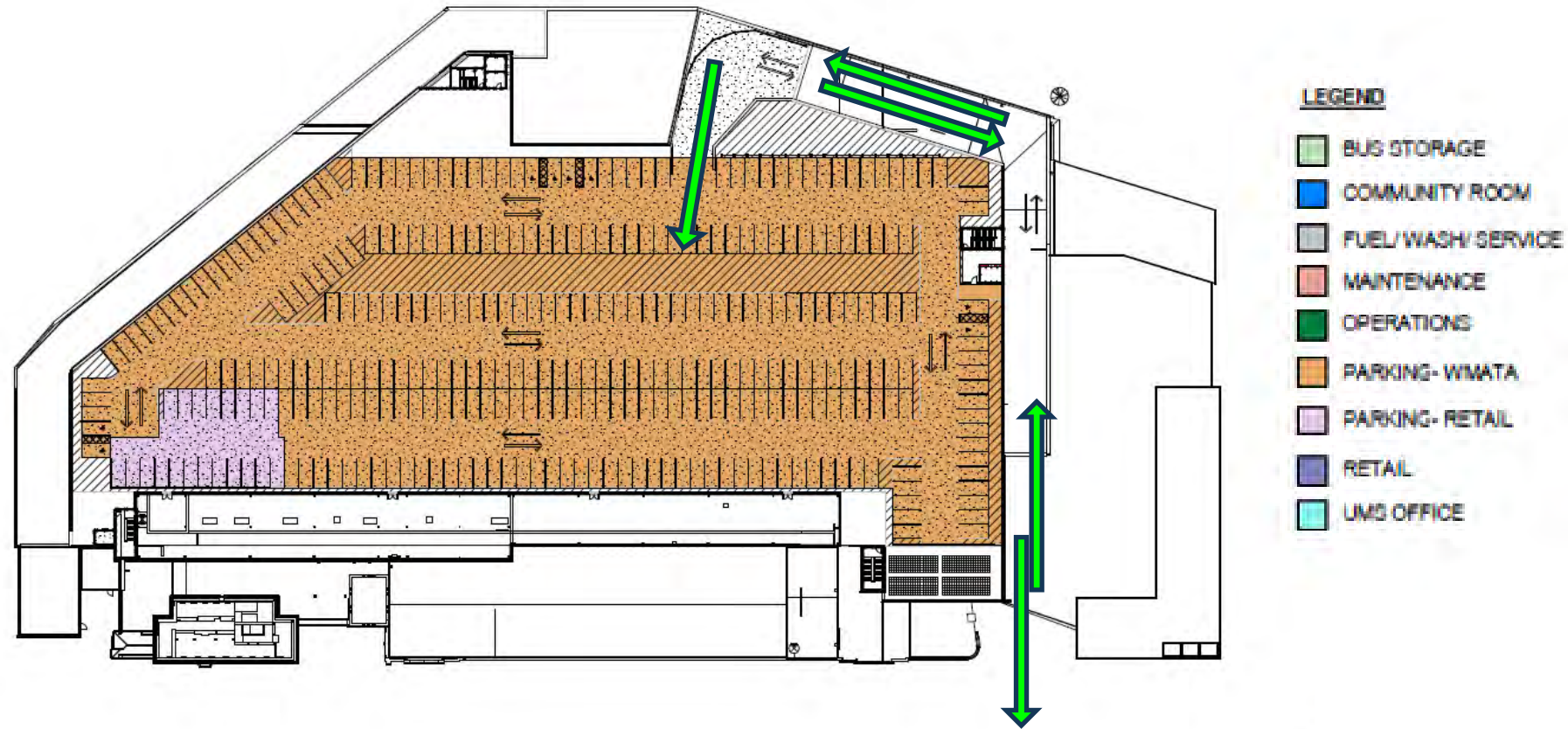
Internal Operations – Bus Storage Level



Internal Operations – Operations Level



Internal Operations – Employee Parking Level



LEED Accreditation

- Metro is pursuing LEED accreditation for the new Northern Bus Garage
- LEED Accreditation status as of November 2020 (pending final design)



LEED v4 for BD+C: New Construction and Major Renovation

Project Checklist Scorecard 40% 201105

Project Name: Northern Bus Maintenance Facility

Certified: 40 to 49 points

Silver: 50 to 59 points

Gold: 60 to 79 points

Platinum: 80 to 110

Y	?	N
1		

15	1	0	Location and Transportation	16
0	0	0	Credit: LEED for Neighborhood Development Location	16
1			Credit: Sensitive Land Protection	1
2			Credit: High Priority Site	2
5			Credit: Surrounding Density and Diverse Uses	5
5			Credit: Access to Quality Transit	5
1			Credit: Bicycle Facilities	1
1	1		Credit: Reduced Parking Footprint	1
1			Credit: Green Vehicles	1

7	1	2	Sustainable Sites	10
Y			Prereq: Construction Activity Pollution Prevention	Required
1			Credit: Site Assessment	1
1	1		Credit: Site Development - Protect or Restore Habitat	2
		1	Credit: Open Space	1
3			Credit: Rainwater Management	3
2			Credit: Heat Island Reduction	2
		1	Credit: Light Pollution Reduction	1

11	0	0	Water Efficiency	11
Y			Prereq: Outdoor Water Use Reduction	Required
Y			Prereq: Indoor Water Use Reduction	Required
Y			Prereq: Building-Level Water Metering	Required
2			Credit: Outdoor Water Use Reduction - ACP	2
6			Credit: Indoor Water Use Reduction - ACP	6
2			Credit: Cooling Tower Water Use - ACP	2
1			Credit: Water Metering	1

17	4	12	Energy and Atmosphere	33
Y			Prereq: Fundamental Commissioning and Verification	Required
Y			Prereq: Minimum Energy Performance	Required
Y			Prereq: Building-Level Energy Metering	Required
Y			Prereq: Fundamental Refrigerant Management	Required
6			Credit: Enhanced Commissioning	6
5	2	11	Credit: Optimize Energy Performance	18
1			Credit: Advanced Energy Metering	1
2			Credit: Demand Response	2
1	1	1	Credit: Renewable Energy Production	3
1			Credit: Enhanced Refrigerant Management	1
1	1		Credit: Green Power and Carbon Offsets	2

9	4	0	Materials and Resources	13
Y			Prereq: Storage and Collection of Recyclables	Required
Y			Prereq: Construction and Demolition Waste Management Planning	Required
5			Credit: Building Life-Cycle Impact Reduction	5
1	1		Credit: Building Product Disclosure and Optimization - Environmental Product Declarations	2
1	1		Credit: Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
1	1		Credit: Building Product Disclosure and Optimization - Material Ingredients	2
1	1		Credit: Construction and Demolition Waste Management	2

10	1	5	Indoor Environmental Quality	16
Y			Prereq: Minimum Indoor Air Quality Performance	Required
Y			Prereq: Environmental Tobacco Smoke Control	Required
2			Credit: Enhanced Indoor Air Quality Strategies	2
3			Credit: Low-Emitting Materials	3
1			Credit: Construction Indoor Air Quality Management Plan	1
2			Credit: Indoor Air Quality Assessment	2
1			Credit: Thermal Comfort	1
1	1		Credit: Interior Lighting	2
	1	2	Credit: Daylight	3
		1	Credit: Quality Views	1
		1	Credit: Acoustic Performance	1

5	1	0	Innovation	6
4	1		Credit: Innovation	5
1			Credit: LEED Accredited Professional	1

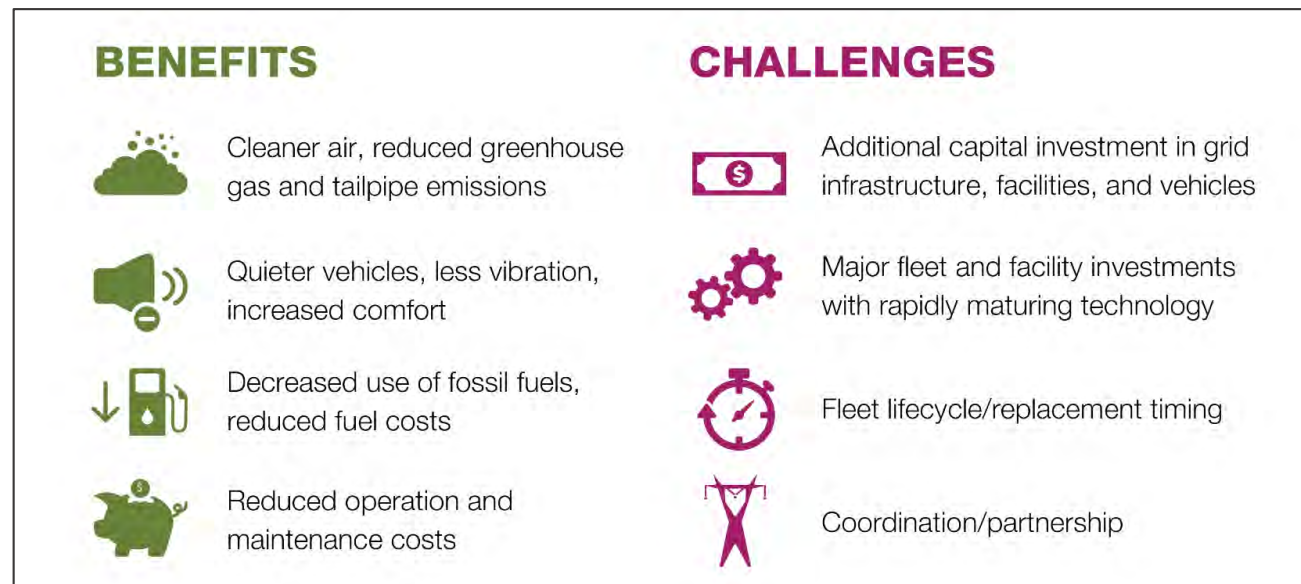
3	1	0	Regional Priority	4
	1		Credit: Regional Priority: §LT- Reduced Parking Footprint	1
1			Credit: Regional Priority: § Green vehicles	1
1			Credit: Regional Priority: § Rainwater Management	1
1			Credit: Regional Priority: § Access to Quality Transit	1

76	13	19	TOTALS	Possible Points: 110
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Appendix E: Metrobus Fleet Update

Zero-Emission Bus Update

Building upon the efforts of Metro's first-ever Energy Action Plan, released in 2019, and the Washington Area Bus Transformation Project, Metro is engaging in zero-emission fleet planning to enable a clean and sustainable region, control operating costs and improve the customer experience.



Zero-Emission Bus Update

This document lays out the opportunities that zero-emission bus transportation offers the region, reviews actions Metro has already initiated and considers the market, infrastructure and policy prerequisites for success.

The document is available on the Metro website here:

https://www.wmata.com/initiatives/sustainability/upload/WMATA_Zero_Emission_Bus_Update-02122020-FINAL.pdf

Additional Requirements for Zero-Emission Buses at NBG

- Purchase of electric buses
 - Additional incremental cost per bus (compared with conventional buses)
 - New bus purchases are distributed across the region to balance average fleet age
 - Bus procurement, build and commissioning work
- Additional facility investments
 - New utility connection from grid, switch gear and transformers
 - Bus chargers
 - Fleet charging management system
- Route redesign and investment in on-route charging as required
- Additional external conditions:
 - Electric grid investment to ensure adequate power supply to garage
 - Secure favorable electric vehicle charging rate class from Public Utility Commission

Northern Bus Garage Replacement Community Engagement Meeting 4 – Tuesday, November 17 6:00PM – 8:00 PM Meeting Summary

1. Overview

The Washington Metropolitan Area Transit Authority (WMATA) conducted a virtual meeting (Meeting 4) to present the new exterior design concept that was developed based on community input gathered over previous meetings and the design survey results. Three previous meetings were conducted. Meeting 1 was held to present the updated project design and to initiate a community design survey. Meeting 2 reviewed historic preservation components of the design, obtained community and Section 106 Consulting Parties feedback on such, and presented design survey results. Meeting 3 focused on environmental issues.

Following Meeting 4, the new exterior design concept will be presented to the Historic Preservation Review Board (HPRB). If all approvals are obtained in 2021, demolition and construction can begin in 2022 and the project could be complete by 2026.

The meeting presentation was conducted in two segments with a questions and answers session conducted after each segment's presentation. There were no questions asked following the first presentation.

2. Review of Survey Results and Community Feedback

Presentation

There were 305 responses to the survey and the majority of responses favored Option 3. It was also clear that public art was desired by respondents. As a result, Option 3 was used as the basis for further design changes to develop the new exterior design concept presented.

The project team reviewed the changes made as a result of community feedback received to date, including:

- Removal of metal panels to use high performance masonry panels instead.
- Addition of more windows on 14th Street and Iowa/Arkansas Avenues.
- Increased height of bus exit on 14th Street and changed material to brick with greater brick detailing.
- Expanded width of walkway along Decatur Street and increased lighting.
- Ensured strong Art in Transit components, though exact form will depend on further development with an artist.

Questions and Answers

None.

3. Design Review

Presentation

This portion of the meeting reviewed the new exterior design concept in detail, beginning with a level by level discussion and concluding with updated rendering views.

The height of the building has been greatly reduced overall and does not dominate the historic façade. It also fits in better with the heights of surrounding buildings. Entrances and exits for pedestrians will be accessible and a sidewalk has been added along Iowa Avenue.

The first floor remains bus storage and bus wash with a ramp along the Iowa Avenue wall. This wall will be reconstructed to be effective than the existing wall in terms of noise reduction.

On the second floor, a mix of uses will include retail, bus storage, and WMATA operations offices. Sound buffering is built in between retail and garage portion of the building.

The parking level provides more than the required number of spaces for retail employees per the DC code and the remaining spaces are provided for WMATA employees to eliminate the neighborhood concern of employees parking in the neighborhood.

The roof will have plantings both in trays and in soil; smaller plants are located in trays while larger are located in soil where possible. Photovoltaic panels are also located here and will have synergistic effects with the green roof because plants will help cool panels and maintain efficiency of electric production.

Rendering views show metal panels have been removed. In their place, a high-performance concrete masonry panel will be used. These outperform brick in many conditions and will not have a sheen or metallic look. Color variation, previously high with the metal panels, has been toned down though some natural variation will be present in the masonry panels. However, this variation is similar to what occurs in brick.

The bus entrance now has a raised roofline and exterior material is brick instead of red metal panels. This helps it relate better to the historic structure.

The brick wall at the corner of Iowa and Arkansas Avenues has been lowered by a few feet and a sidewalk will be added along Iowa Avenue where none exists today.

Rooftop mechanical units will be completely enclosed by building walls on the west side to reduce noise pollution. On the east side, units will not be internal, but will be located behind a brick screen which will reduce noise. All noise codes will be met or exceeded.

Questions and Answers

Q: Are all retail entrances at grade (in terms of accessibility)?

A: There are a total of 12 pedestrian entrances to the Bus facility along 14th Street, including five as retail entrances, four for WMATA, two for the community room and one entrance for Uptown Main Street (UMS). All entrances are at grade with the exception of the two historic administration building entrances which have an ADA compliant ramp and a stair and the southernmost retail entry/exit which will have a stair because of the grade change.

Q: Are the retail entrances external (street/sidewalk) or internal (go inside shops or restaurants to enter)?

A: Sidewalks on 14th Street lead to entrances to the retail space. Because the retail use is unknown at this time, determination about what the entrances will lead to (whether directly into the retailer or into an

interior corridor) will be made once planned retail use is advanced. It is not anticipated that any negotiations with an occupant will occur until about a year before the garage completion.

Q: Is Uptown Main Street paying rent for their space? If yes, is WMATA giving them a special rate or a break because they are a local community organization?

A: WMATA and Uptown Main Street have not engaged in any lease negotiations yet. Having said that, we are willing to work with them on a rate that they can afford as a local community organization.

Q: Where in the US is there retail in a diesel bus garage? Have you done any studies on the feasibility of this? What do we as a community gain from this renovation?

A: The retail is not in the garage, but is located on the 14th Street frontage of the garage and separated by a service corridor from the interior of the bus garage. Our retail consultant, Streetsense, sees no conflict. Retailers will make their decision about whether or not to locate here based on the customer market, functionality of the space, and the lease terms.

Q: How is WMATA not able to predict retail uses 5-6 years from now? Isn't that what economic development studies/assessments do? How is it not possible in 2020 to provide these kinds of projections?

A: Retail, office or residential uses cannot be predicted that far in advance. Real estate leasing is not an exact science. Retail tenants, in particular, are difficult to predict and do not typically make commitments to leasing more than one year in advance.

Q: To clarify, are there 20 spaces for the employees of the retail plus 20 spaces for customers of the retail (in addition to parking for WMATA employees)? There's concern about how successful retail will be if there's no parking access.

A: The current design includes 20 parking spaces for retail employees. This amount of parking is consistent with the small retailers (grocer, cafe, etc.) that the site can accommodate. Our analysis of the street parking shows that there are plenty of metered parking spaces on both sides of 14th Street. Pre-pandemic, their occupancy typically was 30%.

Metro will discuss with DDOT any additional measures that can be taken to avoid retail parking on residential streets. Programs such as the Safe Streets pilot program or increased residential permit parking program use may also minimize impacts to the neighborhood. There is also multimodal transportation (bus, walking, bicycle) options from the neighborhood that may decrease parking demand.

In addition, the required security at the facility further constrains Metro's ability to offer surface parking. Buses are used for emergency events, so they have to be locked down and secured like any other major public building. Retail employees will go through security checks just to get on site. Allowing public parking onsite introduces an unrecommended additional risk. These security requirements are further described in FTA Circular C 5800.1 Safety and Security Management for Major Capital Projects.

Q: What is the total number of parking space for WMATA employees? Could that be reduced and their staff be encouraged to take transit to provide some parking for retail customers for both sides of 14th Street?

A: There are 326 spaces total parking spaces onsite. WMATA anticipates that approximately 300 of these spaces will be reserved for Metro employees to cover the peak needs around shift changes and avoid

parking on the surrounding neighborhood streets. These spots will be utilized by bus operators who need to get to the facility very early, when transit does not run, and also by operators who work the last shift change and bring the buses back to the garage at the end of the day, when there is no transit to get home.

Q: The bike lane adjacent to loading zones on 14th Street typically gets blocked by delivery trucks and parked cars. Are there any other options?

A: Metro intends to provide a loading zone to prevent blocking of the bike lane, though options are limited. Metro does not want double parking on the street. Trucks/deliveries will not be able to back up to the loading zone since it is not allowed by DDOT. The trash would get rolled out to the street, or deliveries would be wheeled into the delivery area. The proposed delivery location is currently used for vehicles backing into the existing entrance, but Metro is eliminating backing movement in the proposed design. The reason the curb remains in this area is to make it easier for a hand truck or the like to be pushed into a loading zone.

Q: Can we confirm that retail parking will not spill into the residential streets by placing concrete barriers to block outside traffic from entering the residential streets? They have done this around the Chevy Chase Pavilion in Friendship Heights.

A: We will bring that concern to our conversations with DDOT staff. In addition to the possibility of physical barriers, there are other programs that may be considered such as the Safe Streets pilot program or increased residential permit parking program use to mitigate the impacts to the neighborhood. The type of retail will determine the parking demand. There is also multimodal transportation (bus, walking, bicycle) options from the neighborhood that may decrease the parking demand.

Q: What number of parking spaces will have EV charging capabilities?

A: There are currently 10 EV charging spots for automobiles, but WMATA is evaluating additional vehicle charging capabilities to cover up to 20% (or 60) of the total parking spaces.

Q: How is parking thought through with regards to current and future retailers? What are some of the considerations that will part of this multi-year process determining how retail fits and how the design works?

A: The project is in a planning phase. While we expect to provide parking for retail employees on-site, customer parking will be on-street. Details of the management of customer parking have not been worked through yet. Given that leasing commitments by retailers do not occur until a year or two in advance of opening, the retail space is designed to be flexible to accommodate various potential combinations of retailers. This is very typical in retail development. Since the completion of construction of the new garage appears to be five or six years off, the flexible design approach (i.e. planning for how tenants and customers will access the retail spaces and how utilities will be provided) is how we can adjust to any number of retailers that may be interested in the future.

Q: How will WMATA protect pedestrians from getting hit by an exiting bus and fast closing exit doors, especially by 14th Street? Will there be a WMATA employee at the exit at all hours when the retail businesses are open? It looks like there will be little advance notice to pedestrians when a bus is exiting. I have concerns that there's going to be a pedestrian accident there.

A: Safety is extremely important to WMATA. We are looking at many different measures to ensure safe pedestrian movements around the reconstructed Northern Bus Garage. Design is ongoing, and all final measures will be reviewed and approved by DDOT. There is a traffic signal at the bus exit at Decatur St, and there is currently a pedestrian walk signal, which will be retained. We anticipate replacing the existing signal equipment with a new, upgraded signal which would most likely include countdown pedestrian signal heads. The exiting buses would be controlled by the signal, and therefore the pedestrians would know when it is safe to cross by following the signal control.

Entrances and exits for other ramps along 14th Street will be controlled by an electronic gate system that is common in all Metro facilities. Typically, the gate can only be engaged with a key code or swipe card before you can enter or depart the facility.

Q: What elements of this design are actually going to improve public safety and the neighborhood?

A: One of the most important security considerations is lighting, making it a safe area so that there is visibility. Another measure that came up during previous community meetings, and reflected in the current design, is additional windows for increased visibility onto the surrounding streets (“eyes on the street”). We will have security personnel (MTPD officers) and guard service at the main entrance and parking deck entry 24/7 for the facility, and the facility will have numerous CCTV cameras around the perimeter to help monitor the area. One of the latest measures that WMATA is working on in coordination with DDOT is widened sidewalk along Decatur St to provide for a well-lit, wide shared use path and improvement circulation around the reconstructed NBG.

Q: WMATA left this facility in June 2018 and by their estimations will return sometime in 2025. Why not stay away as long as it takes to come back all electric?

A: Metro ceased bus operations at this facility in Summer 2019. It is essential to resume service from the Northern Bus Garage site as soon as possible in order to provide the efficient and reliable service of the routes served by this facility. Meanwhile, the bus garage will be built for the future, incorporating design choices that facilitate future electric bus technology conversion.

Q: What types and how many vehicles will be going in and out of the administrative side of the building belonging to MTP?

A: There will only be automobile traffic in this area, not buses. The automobiles will be entering and exiting the garage, driven primarily by our bus operators, maintenance, and operations staff. There will be several hundred vehicle movements each day.

Q: What route will diesel buses use arriving to and departing from the garage? The path from 14th Street to Arkansas Avenue goes past Upshur Recreation Center, a playground, baseball field, and swimming pool. Three schools are close by as well. Diesel buses will ride through the residential area, then make a tight left turn on Buchanan Street past People's Congregational Church UCC and finally enter directly across from DSK Mariam Church. You are impacting thousands of women, children, adults, and seniors. How do you account for that?

A: The buses operating out of Northern Division will follow the same routes that were active prior to NBG's closure. However, it is worth noting that buses are currently restricted from operating on Arkansas Avenue. The reconstruction of the bus garage is separate from Metro's Bus Network Design, which is a separate process with public notification and engagement opportunities around specific routing.

Q: Could you provide a little background on what laws or regulations require the level of security that you are describing?

A: The building is being secured based on best practices for an essential facility. These security requirements are further described in FTA Circular C 5800.1 Safety and Security Management for Major Capital Projects.

Q: In addition to the horizontal green roof cover, can vegetated walls/trellis systems be installed around the mechanical penthouse on the roof? Vertical vegetative systems?

A: WMATA appreciates this suggestion and will consider opportunities to add more vegetated roofing around the mechanical units. In previous design concepts for Northern Bus Garage, we had shown some vertical vegetative panels incorporated in the facades. The HPRB and community did not respond positively to the vegetative panels, so we removed them in the revised design. Based on the latest exterior design supported by the community, green walls would not be included.

Q: Could some of the green roof elements be incorporated into green walls instead to get retail customer parking on the roof for both sides of 14th Street?

A: One of the comments we received from the Community and HPRB on the original 60% design was that the building was too high and out of scale with the surrounding neighborhood. We went back and reduced the height, including the area on the car parking level to provide a more appropriate massing along the street edge. It is not feasible to reintroduce parking along the edges without also increasing the height of the building. The remaining roofs that do not contain parking have photovoltaics or a green roof, which do not require the roof height to be raised. Also, as noted previously, based on FTA security guidelines, we cannot bring unscreened retail customers into the building.

Q: What were the specific objections to the vertical vegetation systems? They could be good way to break up the imposing walls.

A: The vertical green walls came up during the HPRB initial meeting. The HPRB Board didn't feel the green wall concept fit into the overall facility redesign and they did not understand the purpose of it. The team did not work to include green wall elements into the new design and we do not believe they would fit well within the current aesthetics.

Q: There is a concern about brick height along Arkansas Avenue where homes will have to face the towering structure.

A: We have lowered the roof in every location we can, but the mid-block area along Arkansas Avenue is where the car ramp goes up to the roof. We tried to add some wall panels along the ramp and add transparency where possible, but we cannot lower the car ramp. The design team further reviewed the design of the walls along the car ramp. The southernmost portions of the ramp walls were able to be either lowered by 8 feet uniformly or also sloped to follow the car ramp as a parapet further reducing the visible wall area. These design refinements provide a less significant height difference between the southeastern brick wall and car ramp's red paneled wall, which was understood to be the community member's primary concern. This change has been updated in the elevations and rendering view 6 and will be presented to the HPRB at the December 17th hearing.

Q: Is the wall section on Arkansas Avenue taller than the existing building, and if so, by how much?

A: It varies. The new section in the southeast corner of the site is similar to the existing building height. The section through the brick screen wall at the north end of Arkansas is approximately 10 to 15 feet higher than the existing building. As discussed previously, the car ramp walls are taller because of the programmatic requirements for the project.

Q: Has WMATA done shadow studies relating to impacts to neighboring homes during different seasons?

A: The design team ran a shadow study for the site. Because of the large setback of the new facility along Arkansas Avenue and Iowa Avenue, the building has a minimal impact on the neighboring homes in terms of shading. The neighboring properties do not fall within the facility's shadow until the sun begins to set, which is like the situation that exists today. This ranges from around 3pm on the winter solstice to 7pm on the summer solstice. The project has been designed to comply with all zoning restrictions for building height.

Q: Will the facility be an end point for bus routes similar to Friendship Heights?

A: Friendship Heights is a regional transit center and bus station serving Metrobus, Ride On and various shuttles. Northern Bus garage is not intended to serve as a bus station for multiple operators. The historic bus loop on 14th Street NW at Colorado Avenue is designed to serve that purpose. Some Metrobus routes may begin or end at the garage (as has been done over its 100-year history) but it is not intended or designed to be a Regional Bus Station.

Q: How many buses are going to be housed in the garage? What types of exhausts will be released? What are the impacts on air quality within 5 blocks from the garage?

A: Roughly 150 buses are planned to be stored in the facility and operate out of it. The building is designed to be negatively pressurized so that air does not escape without first being filtered. All the inside air will go through scrubbers to remove impurities before it is released out of the building. Buildings like this have to go through several air changes per hour to be safe for the occupants, which is why it goes through a scrubber system. Please see the Q&A from Community Meeting #3 on this topic.

Q: Assuming there will be some number of years between the bus garage project completion and electrification of DC's bus fleet, what impact will continued use of diesel buses have on the community? In regard to community members' health? In regard to environmental impact? When will WMATA be able to answer these questions of environmental health impacts without completing an EIS or EA? It seems like they cannot be answered without one. We will not be able to effectively feel like the community will be safe. It feels backwards, having a diesel bus barn 5-6 years from now. Why are you not willing to budge on moving forward with an electric fleet?

A: We conducted a briefing in community meeting #3 that addressed many of your questions and refer the community member to information that has been posted regarding these concerns. The level of environmental review is determined by the Federal Transit Administration (FTA), and the review process is FTA-sanctioned. FTA has told us that the probable class of action determination is a documented categorical exclusion.

On Thursday November 19, 2020, the WMATA Board of Directors considered information on powering of bus fleets (electric vs. diesel) during a presentation entitled "Framework for Transit Equity: Sustainability Principles." The presentation begins at the 1 hour, 20 minute mark in this video:

https://www.youtube.com/watch?v=rdULb2aK_CQ.

Electric fleets require technology to operate and substantial electrical infrastructure (capable of providing a significant amount of electricity for recharging). The required electrical infrastructure is currently not in place. This is something that is beyond WMATA's control. We will continue working with PEPCO to coordinate how they build out the infrastructure necessary to recharge the buses at depots. In addition, we need to design our bus routes so that electric buses can complete a full route on a single charge. Our current planning efforts are designed to add electric buses to the fleet as efficiently as possible once the infrastructure and technology requirements are satisfied. We look forward to continuing this dialogue with the community.

Q: There was discussion of setting a baseline for the area with regard to particulate matter.

A: WMATA does not set baselines for particulate matter. Metropolitan Washington Council of Governments reviews regional data for conformity with Clean Air Act program requirements. As a recipient of Federal Funds, WMATA has to ensure the project complies with the Clean Air Act requirements.

Q: With the scrubbers that you have, will they pick out PM1? PM1 particles are very tiny and quite dangerous for human health because it can get into your bloodstream. I do not see that you are using activated carbon filters.

A: Response to this question was also provided as part of the Q&A from our Community Meeting #3. A summary of the response is below:

Although there is no regulatory requirement, the dry scrubber system is designed to remove approximately 75% of PM1 particles. There are two major standards available in the market describing the efficiency of the air filters, MERV/ASHRAE 52.2 and ISO 16890.

- MERV system mostly focuses on the percentage of particles captured at specific particle size ranges – refer to the table provided in the Q&A responses from Community Meeting #3.
- The second standard is the ISO 16890 which focuses more on the particle size distribution of Particulate Matter (PM). The ISO 16890 testing method is broken down into four different categories:
 - ePM1 (the smallest and most harmful particles)
 - ePM2.5 (used mostly by the WHO and EPA)
 - ePM10 (also used by the WHO and EPA)
 - ePM-Coarse (for very light-duty or pre-filtration applications) ASHRAE has developed the table below to capture the comparison between MERV system and ISO 16890 (which referenced to PM):

Approximate Equivalent Ratings for Filters Tested Under ASHRAE Standard 52.2 (MERV) and ISO 16890	
ASHRAE MERV* (Standard 52.2)	ISO 16890 Rating
1-6	ISO Coarse
7-8	ISO Coarse >95%
9-10	ePM ₁₀
11-12	ePM _{2.5}
13-16	ePM ₁

As seen from the table, the MERV 14 filters will capture approximately 75% of the PM 1 particles.

Q: The issue is not about smelling fumes. There is plenty we cannot smell that can still impact our health.

A: Please refer to the Q&As for Meeting #3 for information about air treatment.

Q: If technology is the problem, why isn't WMATA considering trolleybuses?

A: Trolleybuses, or Trackless Trolleys, have been around for 100 years and are proven technology, unlike battery-electric buses. Metro currently has no plans for implementing trolley buses because Trackless Trolleys operate on catenary wires, which are very costly to install and maintain. Further, Trackless Trolleys are dedicated to a specific route, which would not work in the WMATA environment. When detours occur, the Trackless Trolley operate an EPU (Emergency Power Unit), which is a Cummins engine. Therefore, you are not getting away from the diesel engine. The average cost of a Trackless Trolley is roughly the same as an electric bus.

Q: If you plan to be all electric from the start you would not have to plan for scrubbers. Would that help cover the cost of going electric off the bat?

A: Regardless of the bus technology in place we still need to maintain some quantity of AQ "scrubbers" to meet life safety codes and design criteria for minimum air changes per hour for maintaining a healthy workspace for the building occupants. There are many operations within the space beyond the exhaust emissions that need to be managed. The savings overall on reduced scrubber requirements for an all-electrical fleet would only cover a small fraction of the overall investment required to fully electrify the facility in particular when you look at the offsite grid investment needed to serve the charging demand for the buses.

Q: How and when will the community have input into art projects incorporated into the final design?

A: We covered Art in Transit public participation in Community Meeting #2. We will consider public interest and public participation in our Art in Transit program once we know what the final facility will look like.

Q: When will WMATA present revised concepts to HPRB? Can the public speak or are they just witnesses?

A: The HPRB public hearing is scheduled for Thursday, December 17th. Details about the hearing have been posted in the bus garage vicinity. Our government relations team will also distribute information to the ANC leaders ahead of the hearing. A link is available on the notices that will bring you to the HPRB website where questions or testimony can be submitted to HPRB, and one can register for an opportunity to speak at the hearing.

Q: What will future dialogue look like?

A: Moving forward, this is not the end of our community engagement. We are committed to providing updates quarterly and when additional information is available. We will send out updates when appropriate through our email listserv. To sign up for the listserv you can email: MCAP_NBG_Reconstruction_Project@wmata.com. We will add you to our email listserv so that you receive future updates and notices about meetings and issues related to the project.

4. Next Steps

The project team will present the new exterior design concept to the HPRB on December 17. The community is encouraged to participate in this meeting. There may be additional comments from HPRB that result in changes to the design concept presented at this meeting, but the community will be informed. Following this, the design will be presented to the Mayor's Agent in January if all goes as planned. If the Mayor's Agent issues the needed demolition permit, a Section 106 memorandum of understanding will be signed with FTA and the State Historic Preservation Office. Following this, the documented categorical exclusion work will be packaged and submitted for approval by FTA. The website <https://www.wmata.com/initiatives/plans/northern-bus-garage/> will be updated throughout.

5. Comments

It is believed that the above represents an accurate description of the major events that transpired at this meeting. Your notification of any errors or omissions within five (5) working days of receiving these minutes is important, as the foregoing is intended to be part of the record and is the basis upon which WMATA will proceed.

Respectfully Submitted,

A handwritten signature in blue ink, appearing to read "Brian McMahon".

Brian McMahon
HNTB Project Manager

Northern Bus Garage Reconstruction Project

VIRTUAL COMMUNITY MEETING #4:
FINAL DESIGN PRESENTATION

11/17/2020



Agenda

- I. Project Team Introductions
- II. Community Input Process
 - I. Community Input Process
 - II. Survey Results and SHPO Process
- III. Exterior Design Changes
 - I. Option 3 Design Changes Based on Feedback
- IV. Exterior Design Review
 - I. Floor Plans
 - II. Perspectives
- V. Next Steps



I. Project Team

Diana Levy
Director, Capital
Delivery
(WMATA)

Ann Chisholm
Government
Relations
(WMATA)

Gail Ribas
Senior Director
Communications
(WMATA)

Jim Ashe
Environmental
Coordinator
(WMATA)

David Wehe
Project Manager
(WMATA rep)

Donzell Robinson
Communications
Consultant
(JSA)

John Munson
Project Executive
(CLARK)

Sean Beachy
Senior Architect
(CLARK/WENDEL)

Emily Savoca
Architect
(CLARK/WENDEL)

II. Community Input Process

Meeting #1: Project Design Update

- Introduced three exterior design options; launched public survey
- Meeting presentation, video and Q&A posted online at wmata.com/NorthernBusGarage

Meeting #2: Draft Design Conversation

- Meeting served two purposes:
 - Requested public comment on exterior design options
 - Requested invited Section 106 Consulting Parties to comment on historic properties
- Final survey results, meeting presentation and video posted online (Q&A will be posted this week)

Meeting #4: Final Design Presentation

- Presenting new exterior design concept based on community input
- Following meeting, new concept scheduled to be presented at Historic Preservation Review Board (HPRB) meeting in December



Northern Bus Garage Replacement

VIRTUAL COMMUNITY ENGAGEMENT MEETINGS

MEETING #1 Tuesday, October 13 Project Design Update
MEETING #2 Monday, November 2 Draft Design Conversation
MEETING #3 Tuesday, November 10 Environmental Conversation
MEETING #4 Tuesday, November 17 Final Design Presentation

All meetings begin at 6 pm.
For more information, visit wmata.com/NorthernBusGarage.

Public participation is invited without regard to race, color, national origin, age, gender, religion, disability, or family status. To request special accommodations under the Americans with Disabilities Act, ADA, or other language interpretation services, then if urgent, contact USA LLC at 202-676-1006 or send a message to access@wmata.com at least 48 hours prior to the meeting date, so necessary arrangements can be made.



Exterior Design Survey

- Findings based on 305 responses received from October 13-November 2
- Survey responses indicate Option 3 is the most preferred design option
- High preference for options with public art murals
 - Notably, 4 in 5 community residents are in favor of incorporating public art (e.g., wall murals) into the exterior design of the new Northern Bus Garage. The open-ended comments indicate not only support but strong enthusiasm for the idea.
- View that includes the historical façade chosen as most impactful to overall design assessment
- Final survey results (including summary of open-ended comments) available at wmata.com/NorthernBusGarage

Design Survey Preference for View 1 – Corner of Buchanan St NW and 14th St NW



wendel

PREVIOUS DESIGN - VIEW 1

CLARK CONSTRUCTION STV 100 years



15%

wendel

OPTION 1 - VIEW 1

CLARK CONSTRUCTION STV 100 years



4%

wendel

OPTION 2 - VIEW 1

CLARK CONSTRUCTION STV 100 years



81%

wendel

OPTION 3 - VIEW 1

CLARK CONSTRUCTION STV 100 years

III. Key Changes Based on Community & SHPO Feedback

- Incorporated High Performance Masonry Panel
- Additional Windows on 14th Street
- Additional Windows on Iowa/Arkansas
- Additional Brick Detailing
- Reduce Height Along Iowa
- Altered Bus Exit on 14th Street
- Incorporated Art In Transit
- Wider Walkway on Decatur Cut Through with Enhanced Lighting

Question & Answer Period:

- Seeking questions and comments about the survey and key changes
- Please submit your questions through the meeting chat
- If the project team is unable to respond to your question during this meeting, you may contact us at MCAP_NBG_Reconstruction_Project@wmata.com
- Summary of the Q&A will be posted to: wmata.com/NorthernBusGarage

IV. Design Review

SOUTHWEST VIEW LOOKING NORTHEAST ALONG 14TH STREET

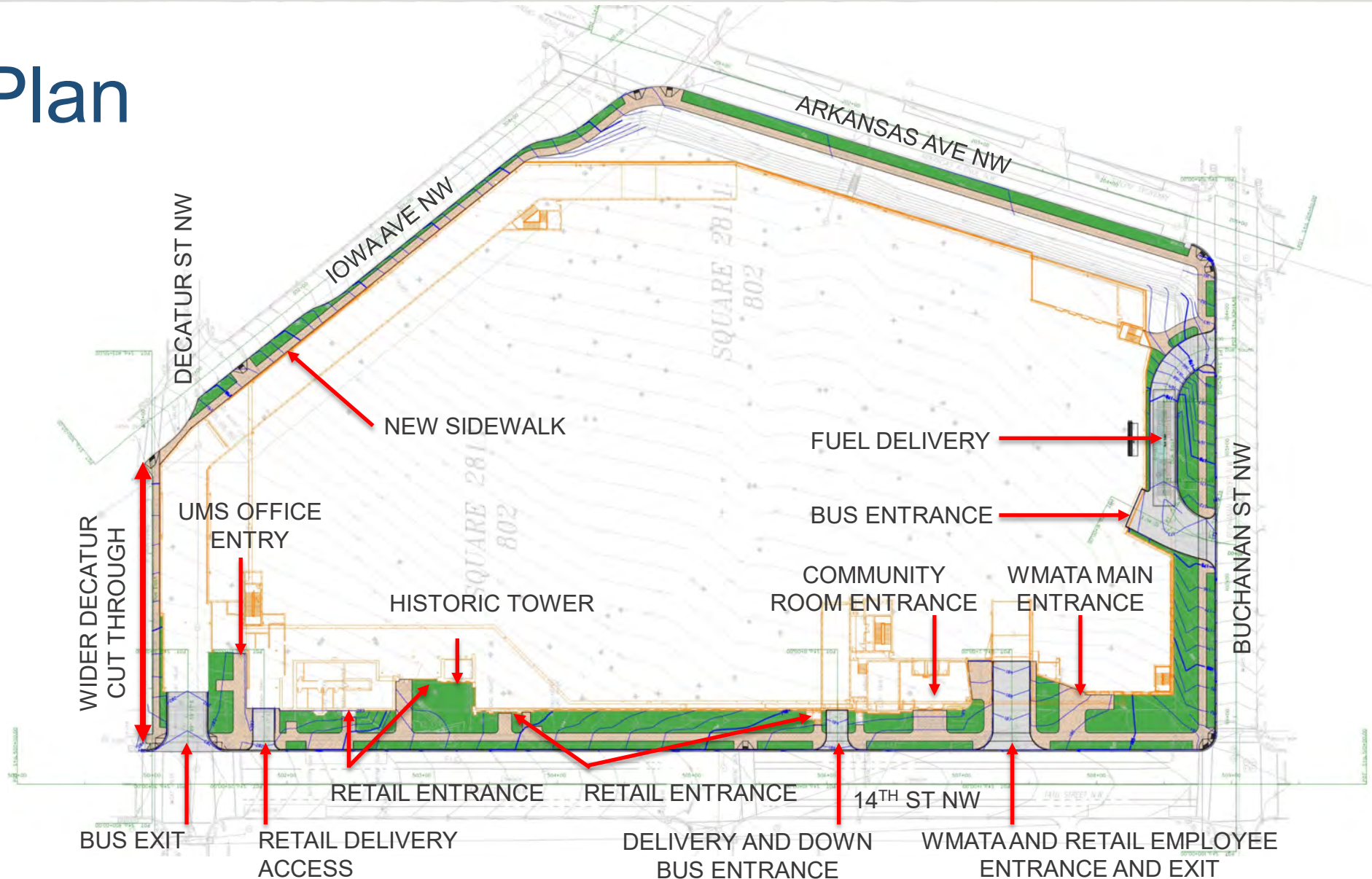


Previous Design

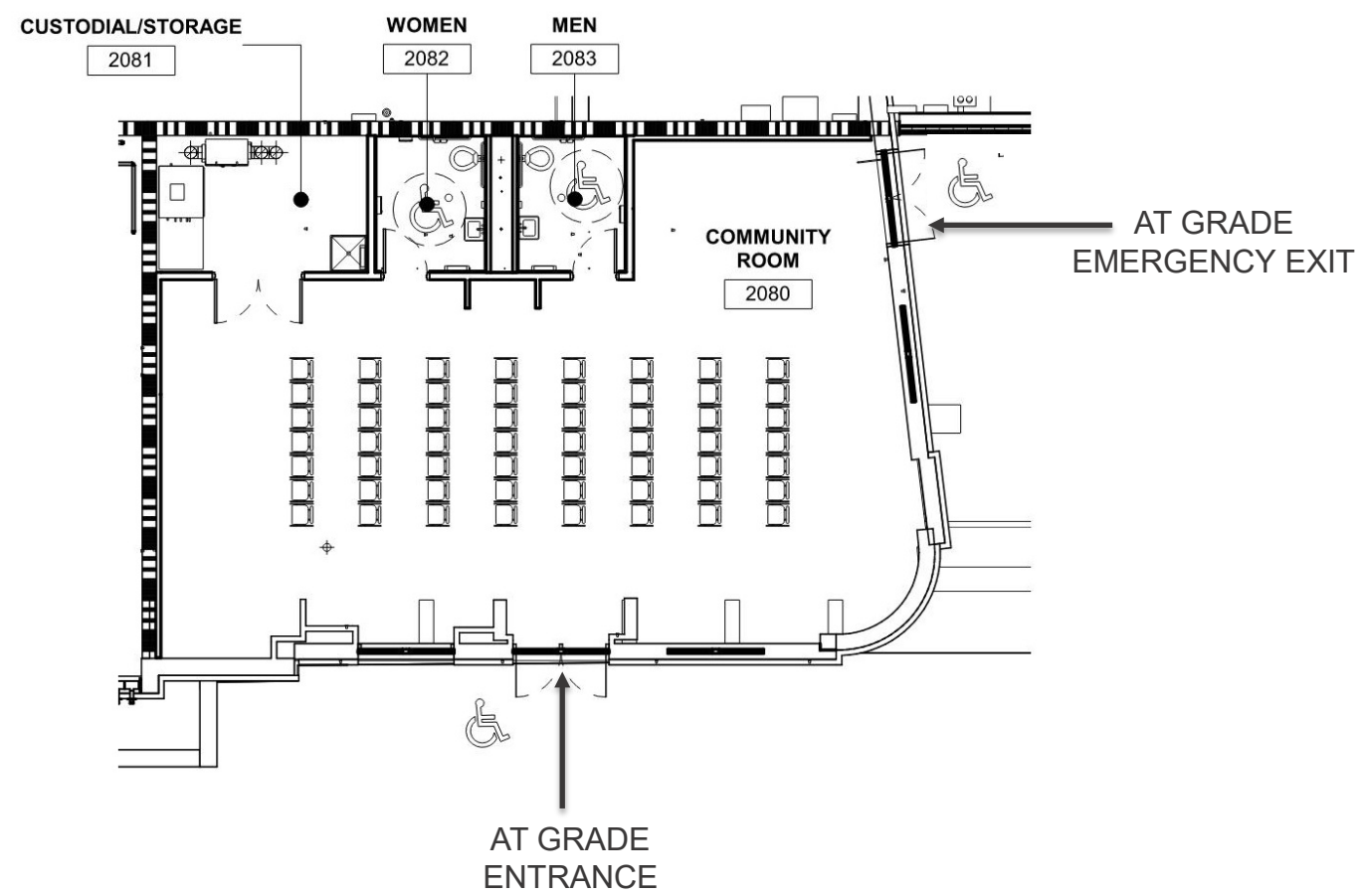
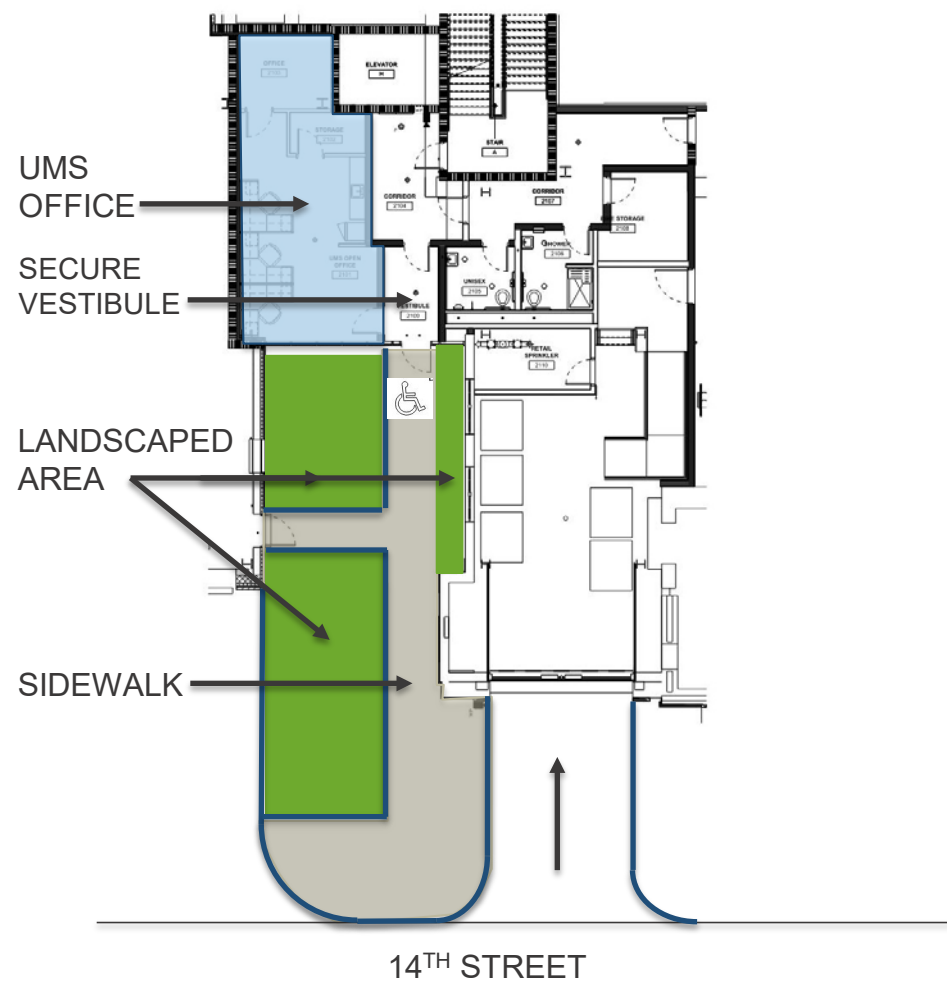


Current Design

Site Plan



Uptown Main Street Office & Community Room

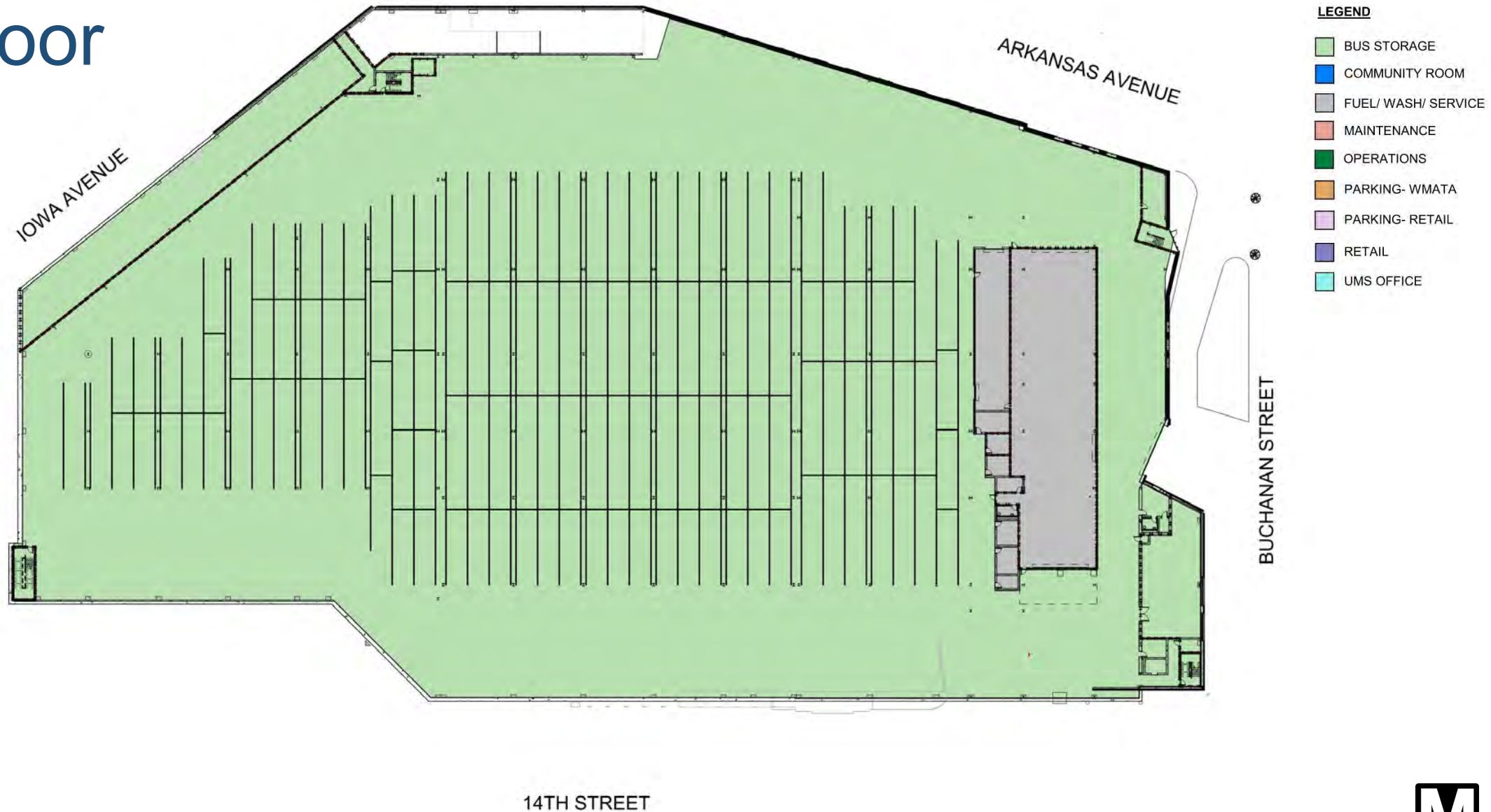


Uptown Main Street (UMS) Office

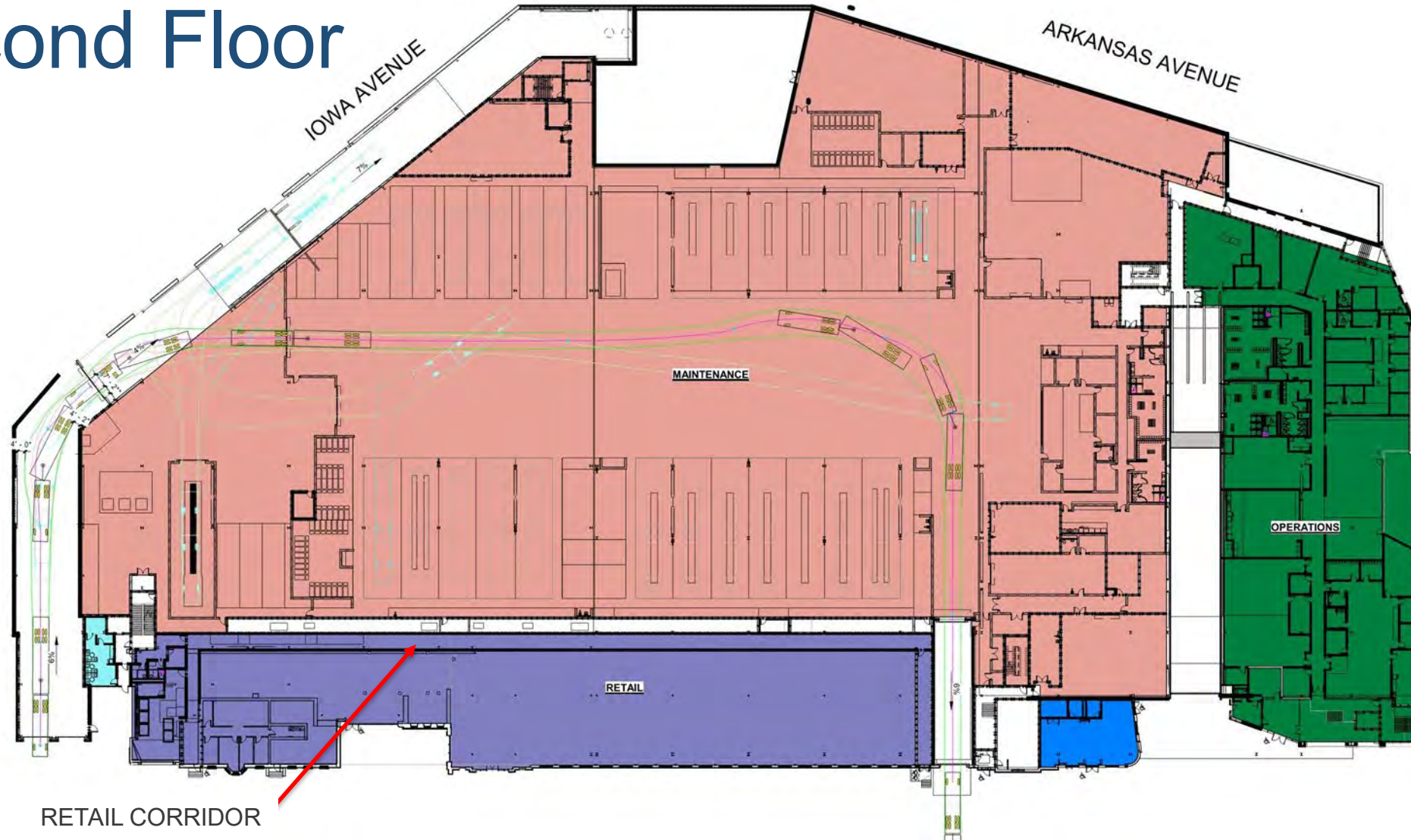
Community Room



First Floor



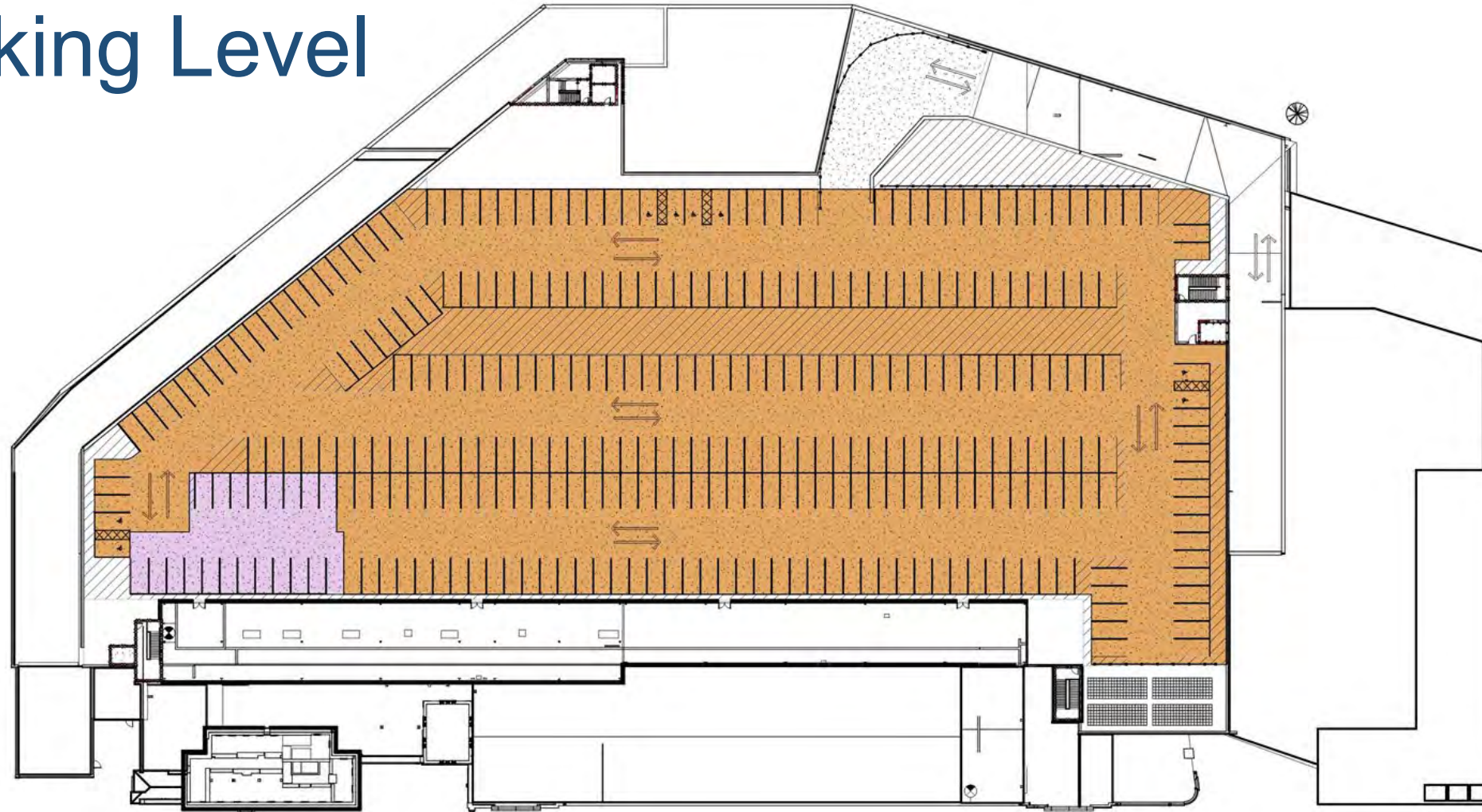
Second Floor



LEGEND

- BUS STORAGE
- COMMUNITY ROOM
- FUEL/ WASH/ SERVICE
- MAINTENANCE
- OPERATIONS
- PARKING- WMATA
- PARKING- RETAIL
- RETAIL
- UMS OFFICE

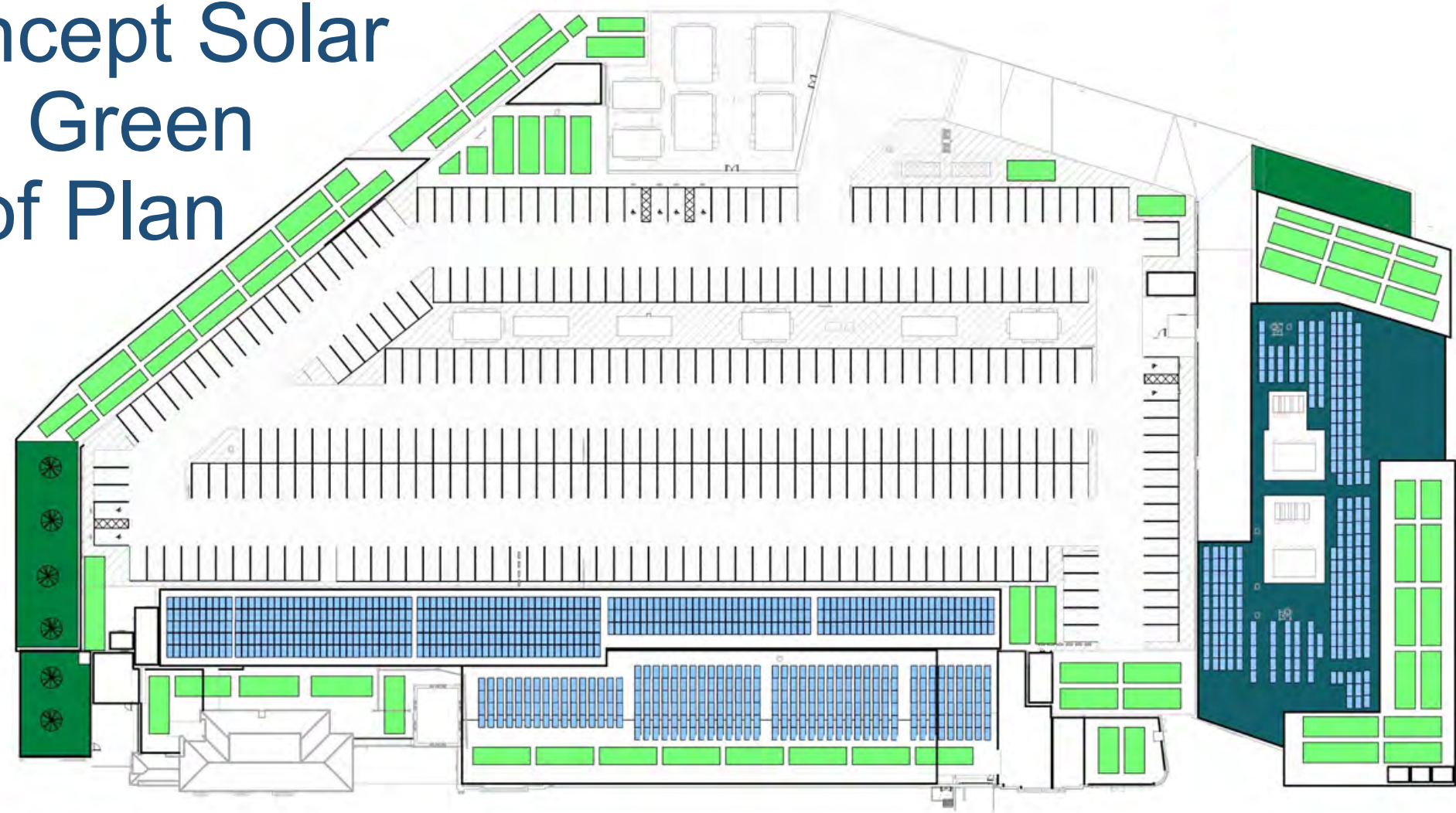
Parking Level




LEGEND

- BUS STORAGE
- COMMUNITY ROOM
- FUEL/ WASH/ SERVICE
- MAINTENANCE
- OPERATIONS
- PARKING- WMATA
- PARKING- RETAIL
- RETAIL
- UMS OFFICE

Concept Solar and Green Roof Plan



-  INTENSIVE GREEN ROOF
-  HYBRID SOLAR GREEN ROOF
-  EXTENSIVE GREEN ROOF
-  SOLAR PANELS
-  TREE ON ROOF

Northern Bus Garage Reconstruction: View 1 – Corner of Buchanan St NW and 14th St NW



Northern Bus Garage Reconstruction: View 2 – On 14th St NW facing Southeast



Northern Bus Garage Reconstruction: View 3 – Corner of 14th St NW and Decatur St NW



Northern Bus Garage Reconstruction: View 4 – Corner of Iowa Ave NW and Arkansas Ave NW facing Northwest



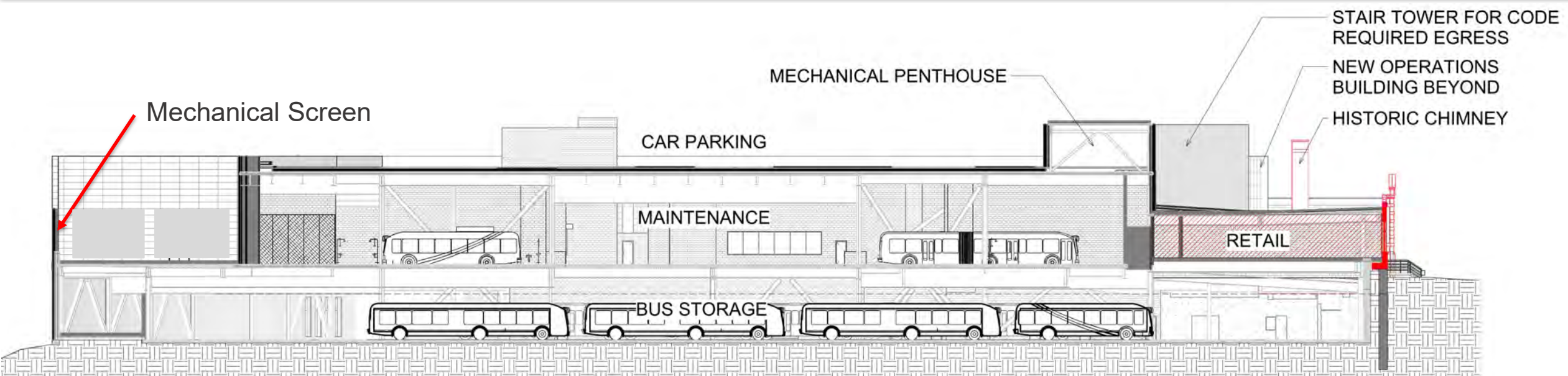
Northern Bus Garage Reconstruction: View 5 – Corner of Iowa Ave NW and Arkansas Ave NW Facing Southwest



Northern Bus Garage Reconstruction: View 6 – Corner of Buchanan St NW and Arkansas Ave NW



Northern Bus Garage Reconstruction: Site Sections



Building Section

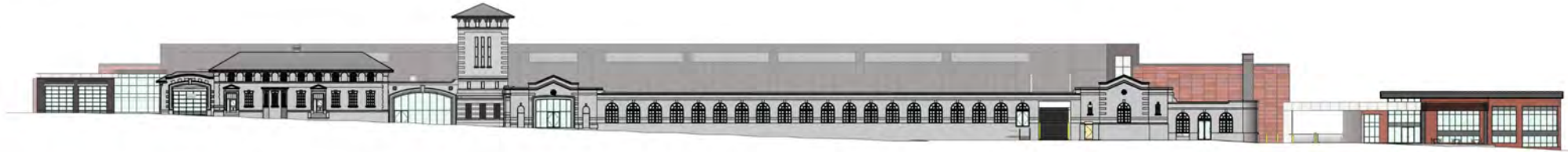


Site Cross Section

Northern Bus Garage Reconstruction: Elevations



1 ELEVATION - OVERALL - NORTH
384' x 7'0"



2 ELEVATION - OVERALL - WEST
384' x 7'0"



3 ELEVATION - OVERALL - SOUTH
384' x 7'0"



4 ELEVATION - OVERALL - EAST
384' x 7'0"

Northern Bus Garage Reconstruction: Materials

ULTRA HIGH PERFORMANCE CONCRETE PANELS INSTALLATION #1 - PANEL COLORS



RED PANEL 1

RED PANEL 2

RED PANEL 3

INSTALLATION #1 - PANEL FINISH



ROUGH 1

ULTRA HIGH PERFORMANCE CONCRETE PANELS INSTALLATION #2 - PANEL COLOR AND FINISH



BEIGE PANEL 1



SMOOTH

HOLLOW METAL DOORS AND FRAMES



BENJAMIN MOORE - CABIN FEVER 1540

ALUMINUM CURTAINWALL SYSTEM



KAWNEER
FINISH - CHAMPAGNE ANODIZED

INSULATED WINDOW PANELS



MAPES
FINISH - CUSTOM GREY

METAL FASCIA AND TRIM



FINISH - CUSTOM GREY

BRICK



GLEN-GERY - EBONITE SMOOTH
RUNNING BOND, MODULAR BRICK



GLEN-GERY - EBONITE VELOUR
DETAILING LOCATIONS, MODULAR BRICK

CAST STONE



READING ROCK - LIGHT GRAY
WALL CAPS AND WATER TABLES

Question & Answer Period: Exterior Design Review

- Seeking questions and comments about the final exterior designs
- Please submit your questions through the meeting chat
- If the project team is unable to respond to your question during this meeting, you may contact us at MCAP_NBG_Reconstruction_Project@wmata.com
- Summary of the Q&A will be posted to: wmata.com/NorthernBusGarage

V. Next Steps for Project

November 2020	December 17, 2020	January 2021
Engage w/ DDOT and provide update on the Garage designs	Present final revised design concept to Historic Preservation Review Board	Anticipated to begin Mayor's Agent process on demolition permit

- Future community engagement opportunities will be scheduled for 2021
- Updates posted to wmata.com/NorthernBusGarage and shared via email
- Email MCAP_NBG_Reconstruction_Project@wmata.com to join the project's community contact list or request additional information

Northern Bus Garage Replacement Community Engagement Meeting 5 – Tuesday, March 16 6:00PM – 8:00 PM Summary

1. Overview

The Washington Metropolitan Area Transit Authority (WMATA) conducted a virtual meeting to present a project update to the community. Previous meetings included Meeting 1 where the updated project design was presented and the design survey was launched. Meeting 2 gathered the community and Section 106 consulting parties to provide feedback on historic preservation components of the design and to present survey results. Meeting 3 focused on environmental issues and was well-attended. Meeting 4 presented the updated exterior design concept that was presented to the Historic Preservation Review Board (HPRB) on December 17, 2020. If all approvals are obtained in 2021, demolition and construction can begin in 2022 and the project could be complete by 2026.

The meeting presentation was conducted in three segments with a questions and answers session conducted after each segment's presentation.

2. Update on Project Status

Presentation

The project team reported that the HPRB had a few recommendations during the December 17, 2021 meeting. The board suggesting muting the bold colors used around entrances for both people and buses to better blend the components into the overall design. In addition, it was suggested that the car ramp area along Arkansas Avenue should be revisited to add vertical elements that help to break down the scale of the new building in this area. The presentation showed updated images that included vertical darker rectangular elements that repeat along the façade. At the south end, a screen will be included to hide the mechanical equipment and then the vertical rectangles will pick up again to maintain continuity along the façade.

Work is also underway to engage in Preliminary Design Review Meetings (PDRMs) with various city agencies to obtain iterative input in the design phase of the process to ensure all stakeholder input can be incorporated prior to presentation of a final design. These PDRMs include:

- DOEE Air Quality PDRM
- DDOT Public Space Committee PDRM
- DC Office of Zoning PDRM and
- Others.

The PDRM with DDOT resulted in design improvements including:

- Minimized curb cuts
- Reduced stairs/ramps for entrances

- Widened sidewalk along north wall from 6 feet to 12 feet
- Regularized Iowa Avenue curb line to allow for good sidewalk space plus larger tree planting/green buffer area
- Widened 14th Street sidewalk to 8 feet
- Removed curb cut in front of administration building south of Decatur Street
- Added reconstruction of traffic signal at 14th and Decatur Streets to improve pedestrian safety and
- Added bike racks and seating along sidewalks clear of the walking area.

In addition to the changes noted above, the project team highlighted the addition of a considerable number of trees along the building's perimeter and the preservation of trees already present. Iowa Avenue will be restriped to include one lane of parking and one lane for travel and will include traffic calming measures. It will remain one way. Fast-acting garage doors on the outside of the building have been moved further inside, with addition of secondary standard-speed garage doors on the outside that will be coordinated with the traffic signal. This will still allow for capture and treatment of all interior air.

Questions and Answers

Q: Are there plans by DDOT to resurface the streets around the garage prior to reopening? Specifically, the section around 14th and Arkansas that is full of cracks in the pavement.

A: Part of the construction is expected to include at a minimum new asphalt overlays, curb to curb, on perimeter streets around the garage and new pavement markings.

Q: Can Decatur Street be even wider to accommodate a "promenade" or "people's park" to enhance commercial space?

A: Metro has reduced the bus garage's footprint as much as possible and the proposed connector complies with DDOT's shared use standards. Any further widening would encroach on remaining carriage space on the adjacent private properties.

Q: Can Iowa Street be widened to enhance east/west travel?

A: Metro presented multiple concepts to DDOT for consideration, including an option that would have returned two-way traffic. DDOT clearly expressed their preference for 8-foot parking spaces with a single 11-foot travel lane northbound, which allows for full green space and lights down the entirety of Iowa Avenue and green space buffer to the garage.

Q: With wider sidewalks on 14th Street, how will that impact parking on 14th Street?

A: The widening of sidewalks on 14th Street will not decrease parking. In fact, the removal of the 50-foot curb cut will add two additional parking spaces.

Q: Will we lose any parking on 14th Street during construction?

A: There will be some impacts to parking during the construction phases. Metro has worked with DDOT to obtain temporary occupancy permits and will communicate impacts to the community prior to any parking being impacted.

Q: Are the surfaces of the red-mix side walls still metal panels? If so, why was metal ultimately chosen over brick?

A: The structure will consist of all masonry or concrete products; metal panels will not be included. There will be metal trim on the perimeter of the roof.

Q: Will the garage door at the exit open and close for each bus? With the use of more traditional doors, what is the impact on air pollution?

A: It depends. The doors will be controlled by sensors designed to pick up bus movement, so they will stay open if multiple buses are lined up to exit and would close once a bus is no longer present at the sensors. If only one bus is exiting, the doors will open once the bus triggers the sensor, and the doors will then close once the bus exits. If there are multiple buses exiting, then the door will stay open until all buses exit the facility.

The design intent is to restrict fugitive emissions through the doors. The space between the interior door and the exterior doors can store buses two deep. The exterior doors will be traditional sectional doors with motor operators; they will not be “fast acting.” The purpose of having two sets of doors, interior and exterior, is to be able to filter as much of the air as possible limiting any exhaust into the neighborhood.

Q: Did DDOT make any remarks on how trucks will unload to supply retail stores in the future? Where is the loading dock? What comments did DDOT make with respect to impacts on 14th Street, NW traffic when trucks are unloading?

A: Metro is working with DDOT to coordinate the best possible scenario for retailers and the community. There will be a designated commercial loading/unloading zone, with appropriate signage, on the east side of 14th Street. There will be a ramp from street to sidewalk to allow delivery trucks to move carts/hand trucks. Additionally, small dumpsters will be rolled out to trash trucks, and dedicated space is being incorporated to avoid double-parking scenarios.

Q: Are your commitments to the District Government agencies in writing?

A: All of Metro’s interactions with the community and partnering agencies are memorialized in meeting notes and public records, and its project commitments will ultimately be captured through the permitting process. Additionally, presentations and video recordings of these community meetings are available on the Northern Bus Garage project website, wmata.com/northernbusgarage. As a trusted organization, Metro is committed to being transparent and open with our customers and the community.

Q: Metro is seeking demolition of certain historic fabric as needed for construction of a project of “special merit.” Why does this project qualify as having “special merit?”

A: The Mayor’s Agent has the final authority to determine what is in the public interest under the DC historic preservation law, as the potential demolition of designated historic elements. All hearing requests for “special merit” are reviewed and either approved or denied by the Mayor’s Agent as outlined in DC special regulations. The project has special merit because it provides substantial District and community benefits and furthers local land use planning. The project also minimizes the loss of historic fabric and preserves or enhances the key historic features of the existing building.

Q: How is Metro working with minority business enterprise (MBE) programs on this project, and putting money back into the community?

A: Metro is committed to giving back to the communities we serve and providing local opportunities for minority small business owners. Clark was one of the many large prime contractors considered, and ultimately selected, for this project. Metro will be establishing a disadvantaged business enterprise (DBE) goal for the construction phase of this project once designs are further advanced and an estimate for construction costs is available. Based on the goal determined by Metro, Clark will be developing a DBE participation plan to meet this goal once the construction phase contract is awarded. All businesses wishing to be considered for the DBE program must complete Metro’s registration process or register with the District Department of Transportation. This project is funded, in part, with federal funds. Metro will follow federal DBE requirements for the project.

Q: Why hasn’t Metro shared its DBE numbers for this project?

A: We are in the preconstruction phase of this contract, so we do not have any data yet for the construction phase. During this time, Metro will assess the nature of work associated with the Northern Bus Garage Reconstruction and Metro’s Small Business Program Office will establish DBE goals for

participation once designs are further advanced and a construction cost estimate is developed. Clark will submit its DBE participation plan to align with established goals and Metro will evaluate Clark's strategy for including minority business owners. Clark has already awarded over \$5.5 million of work to DBE partners during the preconstruction phase and remains committed to maximizing DBE opportunities during the construction phase.

Q: How will Metro work with the community to address property damage related to this construction?

A: Metro is still in the design phase for this project. During the construction phase there will be established processes in place to address the community's concerns regarding property damage. There is an extensive instrumentation program that will be required to monitor vibration and potential ground movement around the perimeter of the construction site. As this project nears construction mode, we will revisit this topic and cover, in detail, the process for reporting concerns.

Q: Ten years from now, what is preventing Metro from putting a body shop/spray paint booth in the garage or adding more buses than the current number?

A: Body shop and spray paint booth functions have been permanently removed from this bus garage and distributed to other bus garages. Understanding community concerns and facility constraints these functions will not be returning to this facility under currently issues permits. Any change to these design plans will have to go through multiple level approvals by several different agencies. This process adds an extra layer of community involvement and ensures that Metro is abiding by all the necessary standards and guidelines. Metro is committed to open conversation and transparency with the community, and we will continue to host these community meetings on a quarterly basis until the new garage opens.

3. Environmental Design

Presentation

The garage design will be pursuing LEED Certification from the U.S. Green Building Council by incorporating solar panels, onsite stormwater retention, and noise reduction elements among other features.

Currently the project team is assembling a plan for investigation of contamination at the site and into surrounding properties. Plume tracing will be undertaken to analyze groundwater flow to identify where contamination is likely to have traveled. This will determine where test wells will be drilled to test for contamination.

If contamination is found, remediation is undertaken in different ways based on contaminated item:

- Soil is excavated and taken offsite to a treatment and disposal facility
- Groundwater is pumped through a treatment system and
- Soil vapors are extracted and treated.

Coordination meetings have been held with DOEE regarding air quality and water quality to ensure that all designs meet requirements and to review plans for remediation, monitoring, and mitigation.

The project team also reiterated the air quality technology that will be used to filter pollutants from bus garage interior air and the plan for ongoing monitoring.

Questions and Answers

Q: What is the efficiency for filtration of PM1?

A: Efficiency is 70-75% for MERV 14 filters although Metro continues to evaluate alternatives.

Q: Regarding filters, can you translate what it really means when the manufacturer states its filters are 85-90% effective?

A: Metro is committed to rebuilding a cleaner, more environmentally sensitive garage and as such has exceeded the regulations and guidelines set forth by DOEE for air filtration. Manufacturers follow industry standards.

Filter efficiency varies based on the size of particles (measured in microns). '85-90%' filter efficiency means that the filter is designed to capture 85-90% of particles that pass through the filter banks. These filters have been exhaustively tested in a wide range of facilities and have a proven track record of being highly effective at capturing particles associated with vehicle exhausts. For more information, refer to the standards developed by the American Society of Heating, Refrigeration and Air Conditioner Engineers (ASHRAE).

Q: How often will Metro change the filters in the bus garage? 10 years from occupying the new facility, how often will the filters be changed?

A: We need to understand how systems will perform when the garage is fully operational. The first year of operation will be an observatory year and filters will be inspected monthly for the first six months, and quarterly after that. Filters are expected to need to be changed every six months. After the first year of operation Metro will assess the findings to establish the proper filter replacement frequency long term.

Q: Why isn't Metro selecting more efficient filtration systems for filtering PM1?

A: Metro is committed to ensuring all its systems either meet or exceed safety standards and will select a filtration system that complies with DOEE guidelines and best suits the operational needs of the facility.

Q: Can you provide more detail on the contaminant chemicals you are finding at the site?

A: Metro is working closely with DOEE to identify and mitigate contaminants. Contaminants have been identified as coming from two sources, underground storage tanks and industrial operations. Metro is working with DOEE to develop a comprehensive understanding of the contaminants, including petroleum hydrocarbons from the underground storage tanks and chlorinated compounds associated with industrial operations.

Q: "Other industrial operations" is vague, can you clarify what chemical contaminants are in the soil and water?

A: See response above.

Q: Are any of the ground contamination monitoring locations outside of Metro's property boundaries? And if not, how will those areas be evaluated for contamination issues and treatment or removal needs?

A: In addition to testing land within its property borders, Metro will test multiple locations outside of its property lines through a series of "plume-chasing" exercises, as recommended by DOEE. The testing program is designed to provide soil and groundwater quality sampling of the area surrounding the garage. During this process, Metro will be in communication with the residents and will not enter a homeowner's yard without permission. After initial testing and analysis, upon review of the findings by DOEE it may be deemed necessary to expand our investigations further.

Q: Will Metro investigate yards beyond their property for contaminants? If found, will they clean up and monitor the property?

A: Metro's goal is to be protective of human health and the environment. We will work closely with DOEE to ensure we have the appropriate remediation program in place, meeting all guidelines within the scope of DOEE regulations.

4. Zero Emission Bus Program

Presentation

The project team reviewed WMATA's plans for zero emission buses, including benefits and challenges to implementation. Major challenges include the need to coordinate for investment in grid infrastructure, facilities, and vehicles as well as investment in new bus vehicles. This is further complicated by the rapid pace of technology change which makes planning difficult.

However, the agency is undertaking a pilot test of electric buses to understand issues on a small scale prior to rolling out a larger electric bus fleet. WMATA obtained a Federal Low-No Emission Grant to assist with this program that also includes engaging utilities, peers, and experts around this issue. In addition to designing the Northern Bus Garage for electric bus readiness, the Bladensburg Bus Garage will also be designed in this way.

The Shepherd Parkway Garage will be retrofitted with overhead pantograph chargers and bus routes will be adjusted to ensure buses can complete routes on a single charge. By summer 2021, the agency will have developed benchmarking assessment and criteria to evaluate the results of the pilot.

Questions and Answers

Q: Why is Metro considering diesel buses and not solely zero-emission buses?

A: Metro is committed to transitioning to a zero-emission bus fleet. However, as explained in prior community meetings, the infrastructure needed to support a zero-emission bus fleet is new technology to Metro (as well as to other cities across the country). A test fleet is imperative to ensuring we have the right infrastructure in place to continue to provide Metro customers with reliable and dependable service. Shepherd Parkway has the power to charge buses and the overhead parking deck needed for overhead chargers, which is among some of the reasons why that site was selected for testing of zero-emission buses. What we learn from Shepherd Parkway will inform Metro's zero emission bus fleet plan and ultimately the future of Northern Bus Garage. In any event, the Northern Bus Garage has been designed to enable a future zero-emission bus fleet.

Q: If the plan is to move towards zero-emission buses why is there a need for diesel fueling stations? And how does that square with the new diesel-fueled buses Metro ordered in 2019?

A: The transition to a zero-emission bus fleet will be a phased approach. The diesel-fueled buses, ordered in 2019, are necessary to help bridge the gap until Metro's 10 bus maintenance facilities have fully transitioned to a zero-emission fleet. Additionally, all of Metro's garage locations need to have multiple ways of running buses. In the event of an emergency – such as a power outage – Metro needs to be able to maintain operations.

Q: How long will it take Metro to get an electric fleet?

A: There are many components that impact Metro's timeline to transition to a full zero-emission bus fleet, including making sure the right infrastructure is in place, in particular with the power distribution grid, to support the technology needed to operate a ZEB fleet.

Q: What is the difference between zero-emission buses and electric buses?

A: Zero-emission buses and electric buses are essentially the same. Electricity is used to power the bus, using a battery pack that powers the motor and eliminates emissions at the tailpipe.

Q: Do you have projections of relative proportions that you expect for the fleet as a whole or for Northern Bus Garage? In 2025, what proportion of the fleet will be diesel versus electric?

A: Metro is developing its zero-emission bus fleet plan. Once the plan is approved, details will be shared with the public.

Q: Will maintenance personnel retraining influence how fast we convert the bus fleet over?

A: There are always challenges involved with workforce changes. However, Metro is committed to ensuring its employees are trained and ready to maintain and operate a ZEB fleet when the time comes. The vendor selected to furnish Metro's ZEB fleet will be required to provide training on the new technology as part of the procurement requirements.

Q: Why not wait to open Northern until Metro is able to open as an all-electric fleet?

A: The Northern Bus Garage is located near high ridership corridors and when operational it serves as a critical Metrobus maintenance, repair, and operational hub. The temporary closure of Northern was necessitated by safety concerns within the existing facility, which will be remediated by the reconstruction project. As detailed study has shown, keeping the garage closed past its reconstruction phase would ultimately adversely impact Metro's service to customers.

5. Next Steps

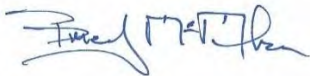
The project team will present the design to the Mayor's Agent on March 26, 2021 to obtain the needed demolition permit. Following that, the design must be presented again to the HPRB. Environmental investigations around contamination on and near the site will continue into June, with recommendations for remediation steps from DOEE expected in July. The design is expected to be finalized in November and if all goes to plan, construction could begin in 2022. The website <https://www.wmata.com/initiatives/plans/northern-bus-garage/> will be updated throughout.

The next community meeting will be held Tuesday, June 15, 2021.

6. Comments

It is believed that the above represents an accurate description of the major events that transpired at this meeting. Your notification of any errors or omissions within five (5) working days of receiving these minutes is important, as the foregoing is intended to be part of the record and is the basis upon which WMATA will proceed.

Respectfully Submitted,



Brian McMahon
HNTB Project Manager

Northern Bus Garage Reconstruction Project



**Spring Community Update
Meeting**

March 16, 2021



Meeting Etiquette

Metro wants to hear from you. Here are a few guidelines to keep this meeting productive and mindful of all attendees:

- You will have an opportunity to ask questions following each section of the presentation.
- To ensure we hear from as many community members as possible, please adhere to the Q&A protocol:
 -  Type questions directly into the chat
 -  Raise your hand to speak by typing your name into the chat
- When speaking:
 - Maintain a civil tone
 - Be mindful of time so that your fellow community members can share their feedback

Anyone in violation of the meeting etiquette guidelines will be muted for the duration of the meeting.

Agenda

- ❑ Introductions & Project Overview
- ❑ Project Updates
- ❑ Rebuilding an Environmentally Responsible Bus Garage
- ❑ Zero Emission Bus Program Update
- ❑ What to Expect in 2021
- ❑ Questions

Introductions & Project Overview

Northern Bus Garage Reconstruction Project

Project Team

- ❑ Diana Levy, Director Capital Delivery WMATA
- ❑ Jim Ashe, Environmental Coordinator WMATA
- ❑ Rachel Healy, Director Sustainability WMATA
- ❑ Dave Michels, Vice President BUS Maintenance WMATA
- ❑ Philip Sheridan, Clark Construction
- ❑ Mike Randolph, STV Inc.

Recap of Project Events

- December 2020
 - Historic Preservation Review Board (HPRB) – Conceptual Plan Approval
- January 2021
 - Meeting with ANC Leaders
- February 2021
 - DDOT Public Space Committee Hearing – Conditional approval of public occupancy of Decatur Street and Iowa Avenue under previous permits
 - Received notice of Mayor’s Agent hearing date on raze permit
- March 2021
 - Mayor’s Agent hearing



Project Updates

Northern Bus Garage Reconstruction Project

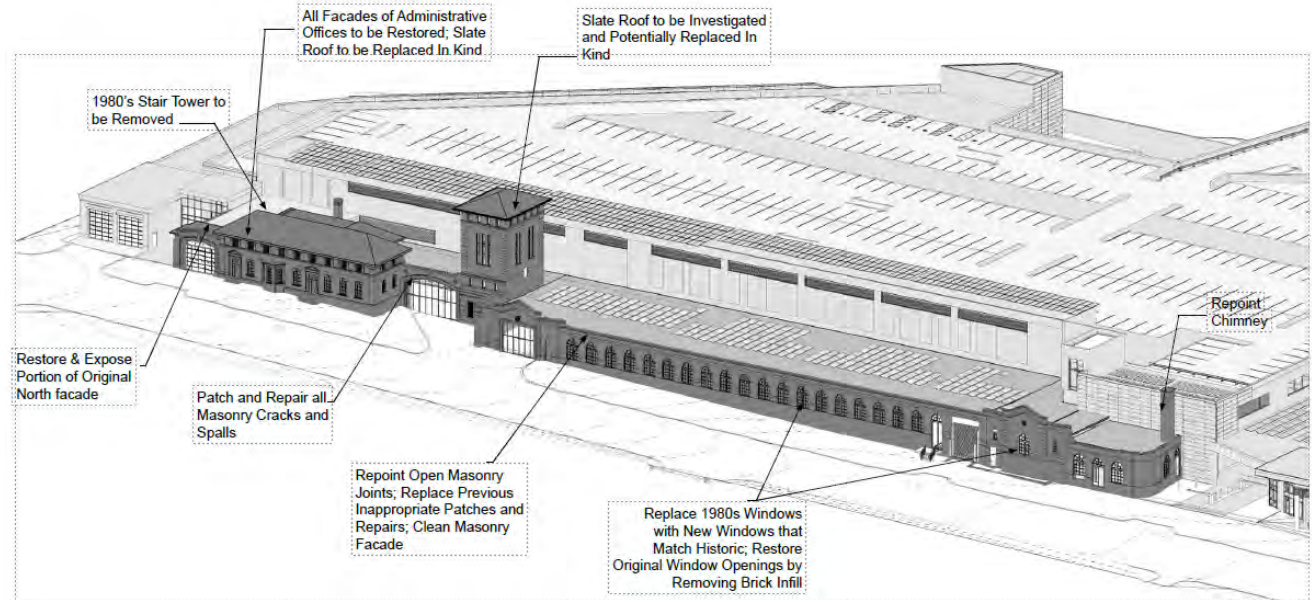
DC Historic Preservation Review Board

- On December 17, HPRB unanimously approved current concept designs
- HPRB also made recommendations to further improve design aspect:
 - Color scheme of the post and beam structure at the building entrances
 - Color scheme and extension of the brick veneer above the garage doors
 - Introduce additional elements to the Arkansas Avenue wall to break down the scale of the car ramp area
- Ongoing coordination with State Historic Preservation Office (SHPO) staff
- Final designs to be presented to HPRB

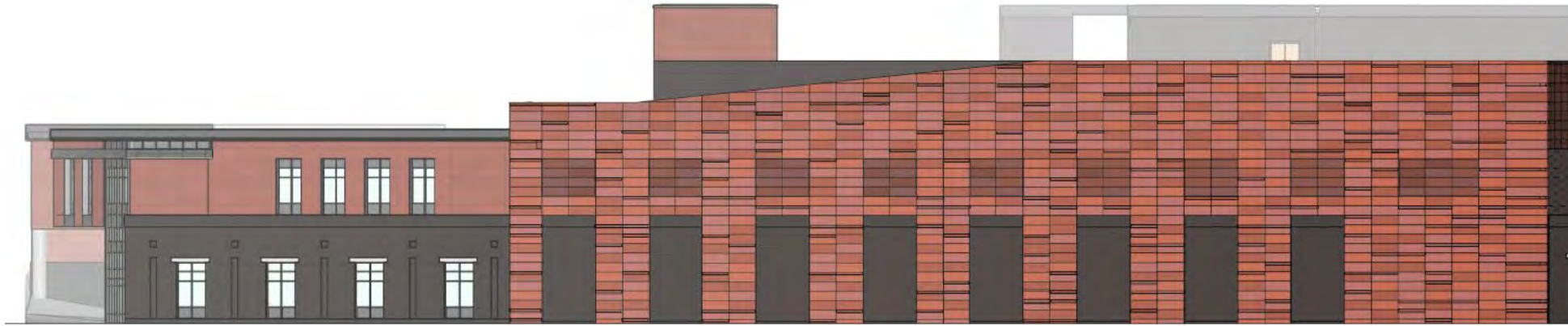
Northern Bus Garage Preservation Treatment Approach



Programmatic Massing of New Construction to Historic Building



DC Historic Preservation Review Board

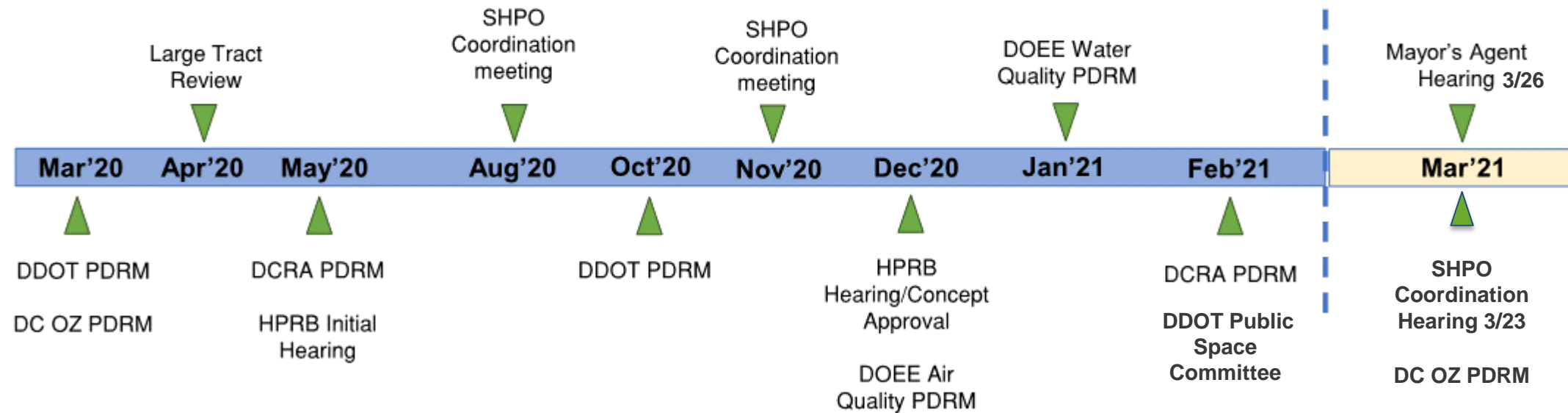


Proposed updates to Arkansas & Iowa Avenues' elevation, showing current concepts pending SHPO approval.

Vertical patterns are being introduced to “break down the scale” based on HPRB guidance



Agency Collaboration



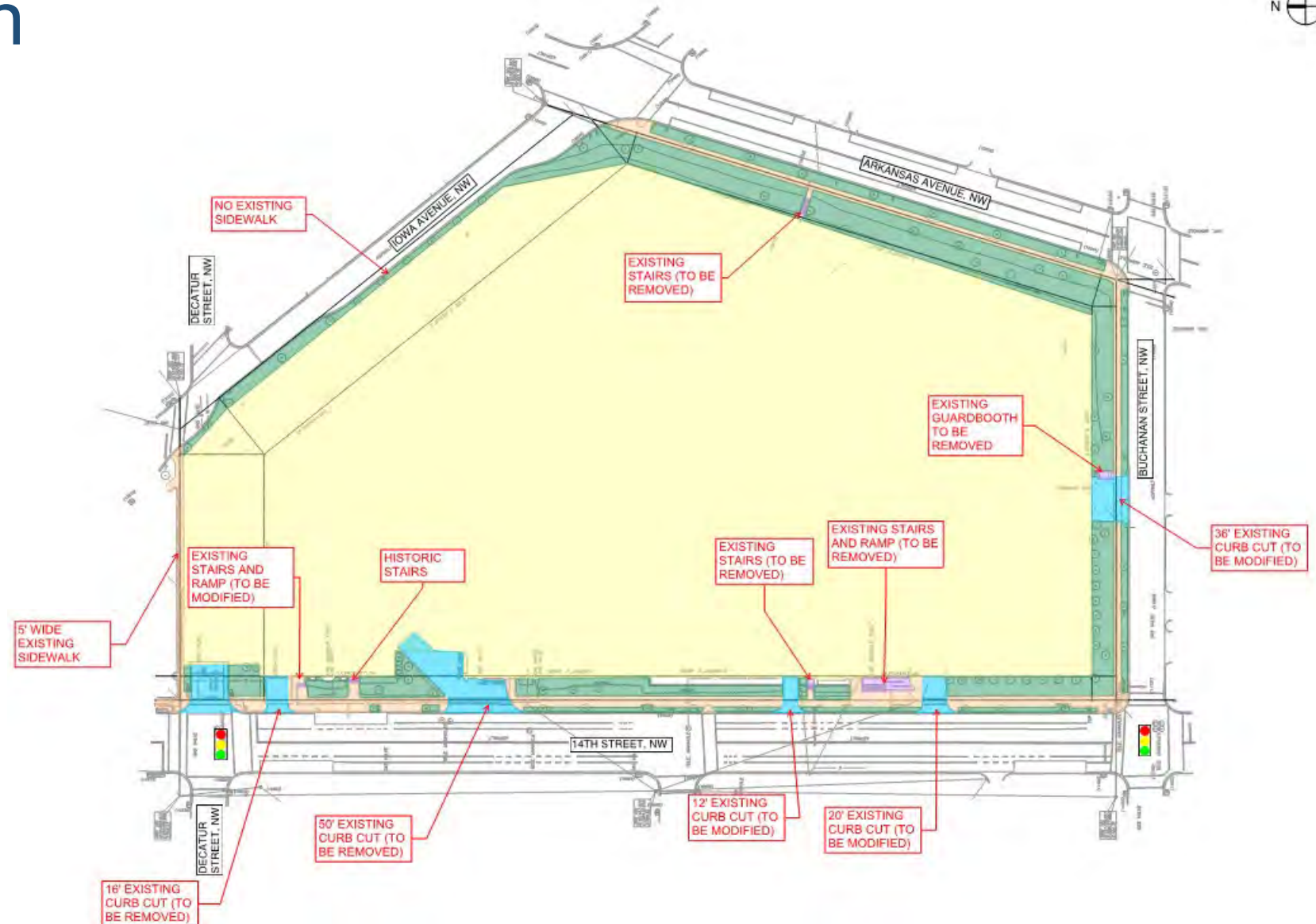
DDOT – DC Department of Transportation
DC OZ – DC Office of Zoning
DCRA – Department of Consumer and Regulatory Affairs
DOEE – Department of Energy & Environment
HPRB – DC Historic Preservation Review Board
SHPO – State Historic Preservation Offices
PDRM – Preliminary Design Review Meeting

DDOT Coordination

ACTION	OUTCOME
Minimized Driveway Curb Cuts	Improved site operations
Maximized at-grade entrances	<ul style="list-style-type: none"> • Improved ADA accessibility • Reduced stairs/ramps in the public space
Widened from 6' to 12' east-west well-lit corridor	Created safer pedestrian/bike connectivity north of the building
Improved Iowa Avenue Cross Section making it more uniform, retaining one-way with parking on east side	<ul style="list-style-type: none"> • Provides for new sidewalk and green space buffer along west side • Provides for enhanced pedestrian experience and screening of the building
Widened 14 th Street Sidewalk from 6' to 8'	More pedestrian friendly atmosphere
Removed curb cut south of Decatur Street	Improved pedestrian safety
Rebuild traffic signal at 14 th Street and Decatur Street	Improved vehicular and pedestrian safety

Existing Site Plan

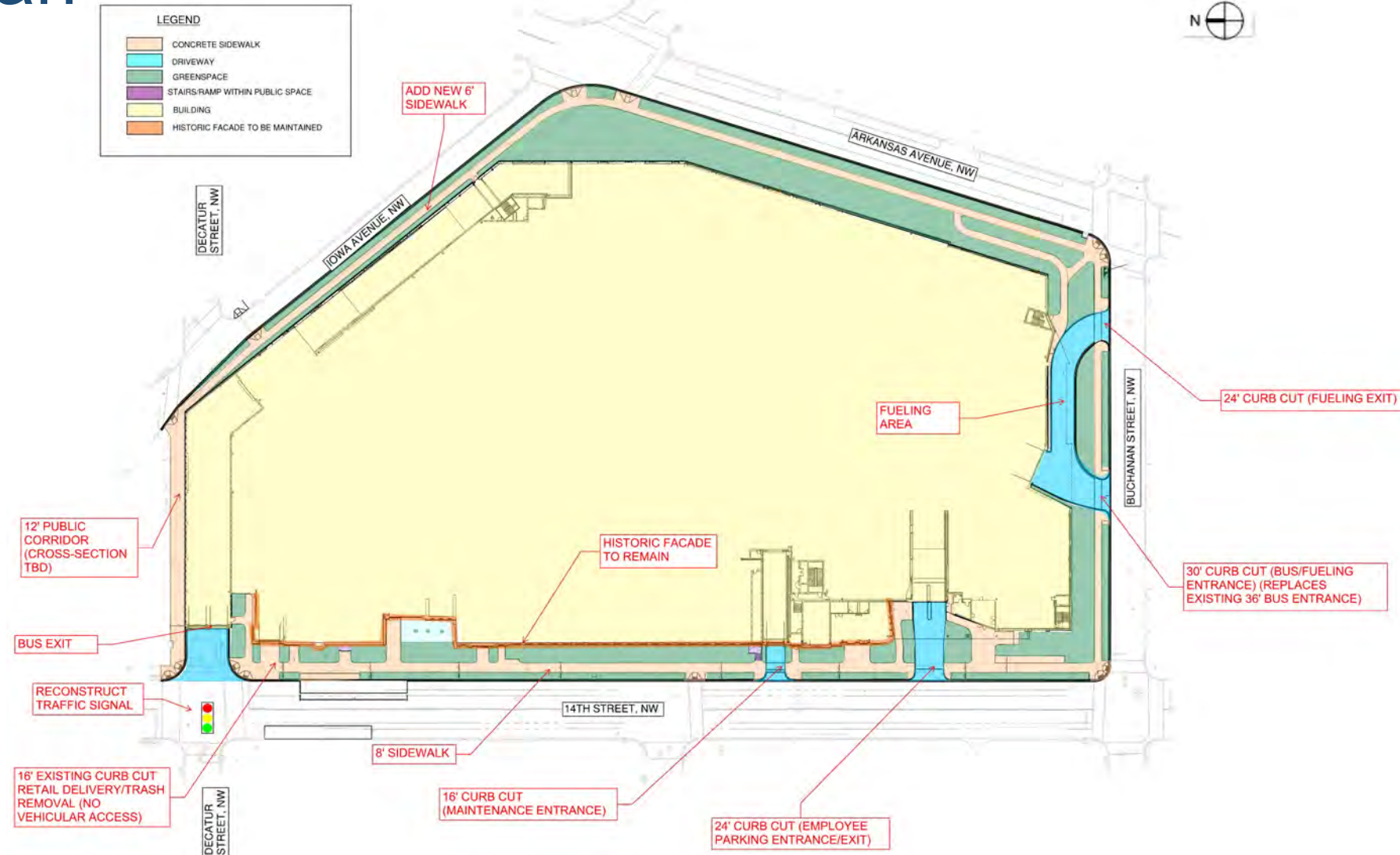
- Missing Sidewalk connection along Iowa Avenue
- Substandard sidewalk width on Decatur Street
- No Bike Rack/Seating amenities
- Large number/size of curb cuts along 14th Street



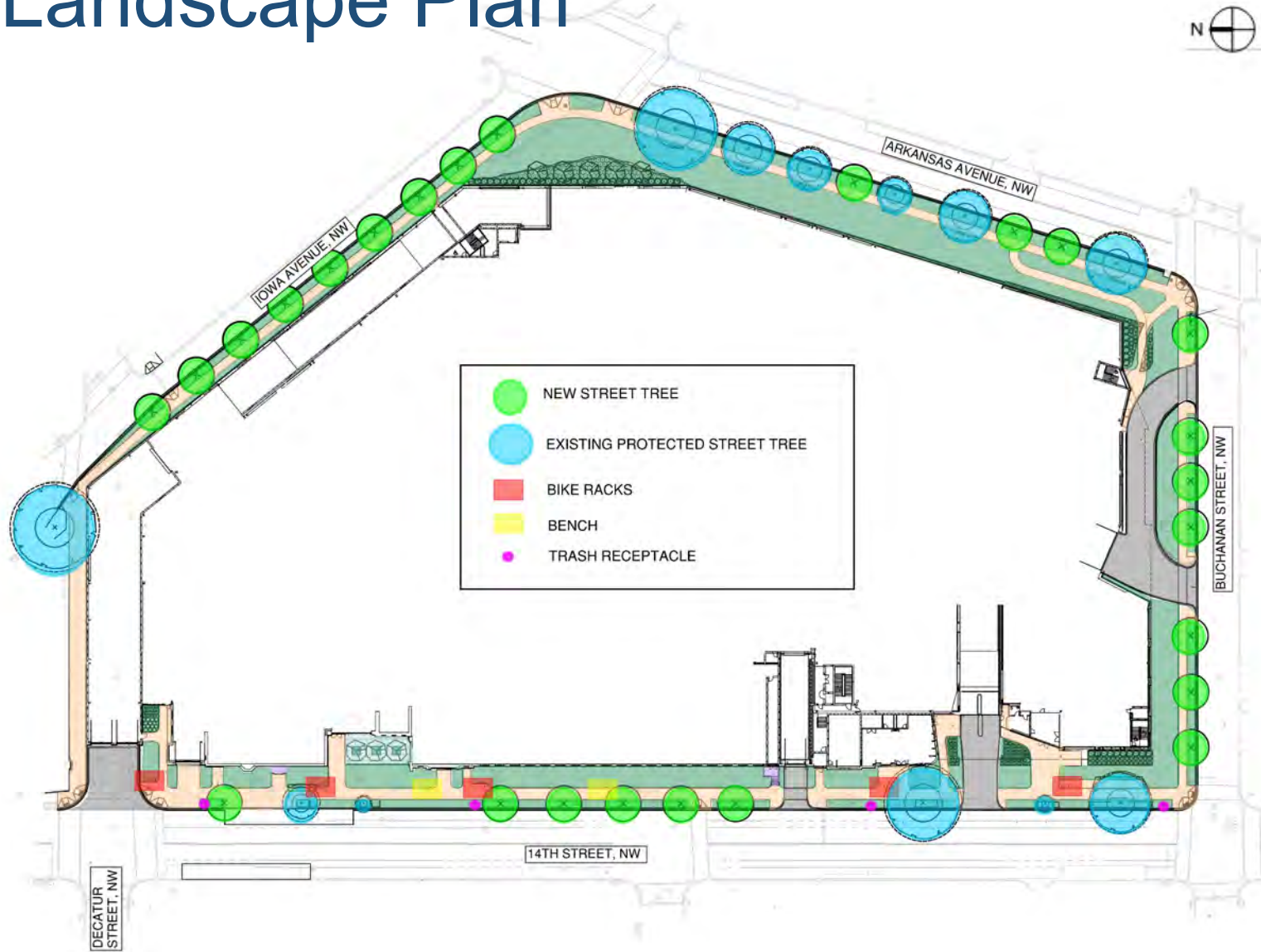
Proposed Site Plan

Improvements since last meeting:

- 360 Perimeter Sidewalk, widened sidewalk along 14th Street and Decatur Street
- Reconstruct Traffic Signal (14th/Decatur)
- Removed large curb cut on 14th and curb cut adjacent to Decatur
- Minimized Employee Entrance width by shifting the guard booth
- Reduced Bus Entrance curb cut from existing



Proposed Landscape Plan

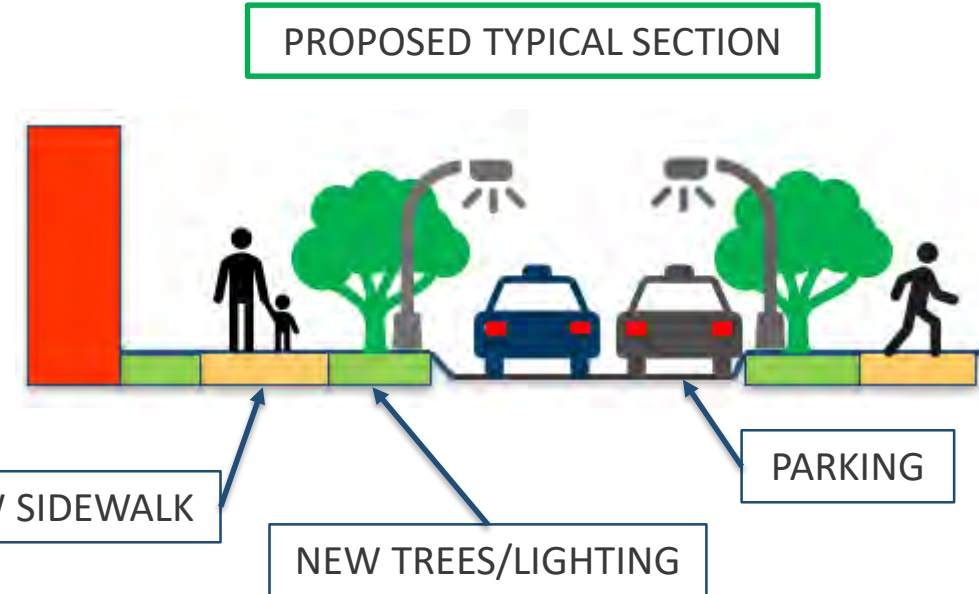


Iowa Avenue Improvements

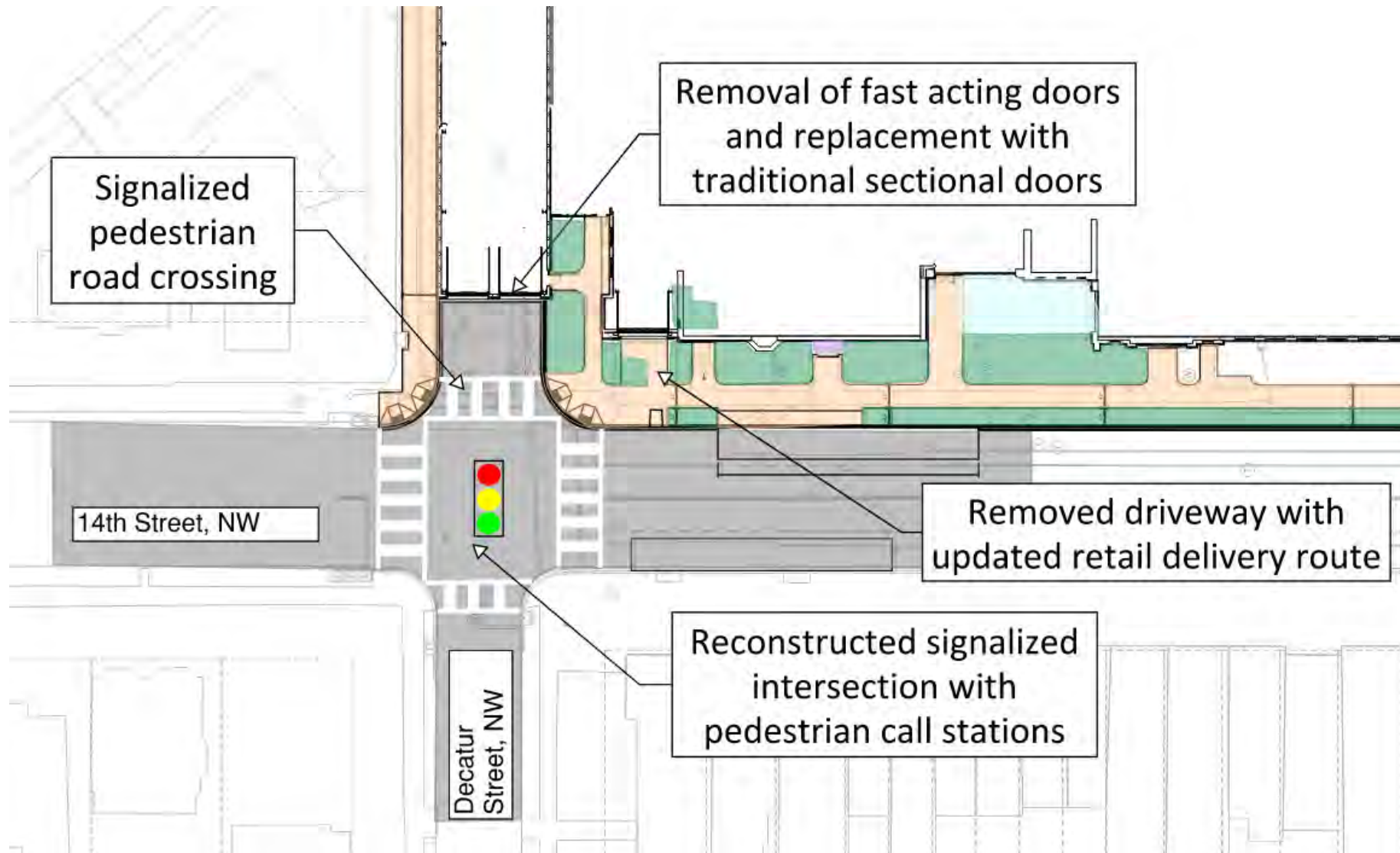
- 6' Sidewalk added on west side of Iowa Ave
- DDOT tree planting space and streetlights added on west side of Iowa Ave
- Green space landscaping buffer between sidewalk and building adding on west side of Iowa Ave
- Iowa Ave remains one-way northbound with parking on east side



EXISTING ROADWAY



14th Street at Decatur Street



Mayor's Agent Hearing

- Mayor's Agent hearing is scheduled for March 26
- Limited to Raze Permit application
- Mayor's Agent Public Hearing procedures can be found on the DC Office of Planning's website or by scanning the QR code:



<https://bit.ly/3sQmkOk>

MARCH 2021						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26 ✓	27
28	29	30	31	1	2	3

Any Questions?

There are two ways to submit your questions



Type your questions directly into the chat.



Raise your hand to speak by typing your name into the chat.

Rebuilding an Environmentally Responsible Bus Garage

Northern Bus Garage Reconstruction Project

Environmental Design

- Pursuing LEED Certification from U.S. Green Building Council
 - Solar panels
 - Onsite parking for employees
 - Enclosure of Decatur St. to minimize noise impacts to community
 - Onsite stormwater retention
 - Level of LEED Certification will be determined through a combination of points awarded based on LEED points, LEED credits and LEED prerequisites.

WMATA Workplan & DOEE Coordination

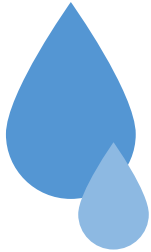
- December 2020: DOEE Letter received
 - Comprehensive Site Assessment Directive letter requiring submission of Work Plan, for investigation of contamination
- January 2021: DOEE Briefing
 - DOEE directed four wells near Arkansas and Iowa Avenues, and submission of work plan on February 18
- February/March: Investigation Workplan
 - WMATA Environmental Group requests eight additional well points to be included in the scope of investigations
 - DOEE's feedback on the workplan – five additional areas
 - WMATA will integrate the two areas into a single work plan

Site investigations will continue in Q2-Q3 2021

Subsurface Contamination Remediation



Soil is excavated and taken offsite to a treatment and disposal facility



Groundwater is pumped to a treatment system for removal of the contaminants. Technology depends on the contamination. This technology is commonly called a 'pump-and-treat' system



If warranted, soil vapors can be extracted and treated

Agency Collaboration

▪ DOEE Air Quality Meeting Recap

- Reviewed proposed air filtering equipment
- Reviewed air quality permit requirements for all major equipment including:
 - Emergency generator
 - Boilers
 - Hot water pressure washer
- Reviewed hazardous materials that will be stored on site for bus operations
- Reviewed site emission calculation requirements and timing of permit applications

▪ DOEE Water Quality Meeting Recap

- Reviewed site history
- Reviewed existing soil and groundwater impacts and mitigation plans
- Reviewed site investigation results to date
- Reviewed remediation strategy and excavation limits
- Reviewed additional investigation needs and remediation limits (Tier 1 Level)
- Future monitoring needs
- Proposed CSA work plan structure
- Regulatory limits for vapors and metals
- Soil boring permit procedures

Air Pollution Treatment Overview

- 14 Units using Dry Scrubber Technology
- Two-stage treatment system designed to remove contaminants in the exhaust stream
 1. Particulates
 2. Gases
- Particulate Matter (PM): larger particles that are seen in the 'soot' of the diesel exhaust
 - Filtering system to be used: MERV 8 and MERV14 filters
 - ASHRAE estimates 85% and 90-95% efficiency respectively
- Gaseous components: automotive exhaust fumes, nitrogen oxides, hydrocarbons, volatile organic compounds
 - Filtering system to be used: Blended media of aluminum oxide, activated carbon, sodium bicarbonate, sodium permanganate, potassium carbonate
 - Purafil estimates 99.5% removal efficiency

Air Pollution Technology: Maintenance

▪ **MERV Filters**

- Will be checked by monitoring pressure differences across the filters
- Will be monitored monthly for the first six months to determine frequency of replacement, then quarterly after that

▪ **Chemical Filters**

- Will be checked by sending samples to a laboratory
- Will be monitored monthly for the first six months to determine frequency of replacement, then quarterly after that

Anticipated replacement (industry practice) every six months

Any Questions?

There are two ways to submit your questions



Type your questions directly into the chat.



Raise your hand to speak by typing your name into the chat.

Zero Emission Bus Program Update

Northern Bus Garage Reconstruction Project

Zero-Emission Bus: Transformational Investment Opportunity for Sustainability and Equity

BENEFITS



Cleaner air, reduced greenhouse gas and tailpipe emissions



Quieter vehicles, less vibration, increased comfort



Decreased use of fossil fuels, reduced fuel costs



Reduced operation and maintenance costs

CHALLENGES



Additional capital investment in grid infrastructure, facilities, and vehicles



Major fleet and facility investments with rapidly maturing technology



Fleet lifecycle/replacement timing



Coordination/partnership

Zero-Emission Bus – Steps to Full Implementation

Test and Evaluation Program

- Maturity of technology
- Operational trials
- Review interoperability

Energy Infrastructure Investments

- Identify, fund and build utility infrastructure required to operate service

Policies & Rate Structures

- Establish regional policies and energy rate structures

Funding for Buses & Facility Conversion

- Increase investment to replace fleet and upgrade facilities
- Additional capital investment ~\$500M over six years; \$2B over 25

For additional information see Metro's [Zero-Emission Bus Update](#)

Zero-Emission Bus – Progress To Date

- Awarded Federal Low-No Emission Grant
- Acquiring ~12 electric buses
- Engaging utilities
- Consulting peers and experts
- Updating Metrobus Fleet Plan
- Electric bus ready design - Northern and Bladensburg bus facilities
- Total of ~\$25M included in capital program for test and evaluation



Test and Evaluation Status

- **Consists of 10 x 40' and 2 x 60' buses at Shepherd Parkway Garage**
- **Testing and evaluating new overhead pantograph charging standard (SAE J-3105) and interoperability + scalability of current electric bus and charger technology**

Completed

- ✓ Competitive federal grant award - June 2020
- ✓ Initial electric grid analysis with Pepco
- ✓ 30% design documents
- ✓ Vehicle technical specifications
- ✓ Consulting Contracting

In Progress

- Construction contract
- Charger specifications
- Bus route modeling
- Complete 60' electric bus contracting

Next Steps

- Contract and finalize construction/design
- Begin infrastructure construction
- Issue solicitations for 40' buses and overhead chargers

Project Schedule

Task	Scheduled Start	Scheduled Finish
Develop Benchmarking + Assessment Criteria	Winter 2021	Summer 2021
Bus Contracting and Production	Summer 2021	Summer 2022
Infrastructure Design and Construction	Summer 2021	Summer 2022
Commissioning and Startup	Summer 2022	Fall 2022
Test and Evaluation Deployment	Fall 2022	Winter 2023



Any Questions?

There are two ways to submit your questions



Type your questions directly into the chat.

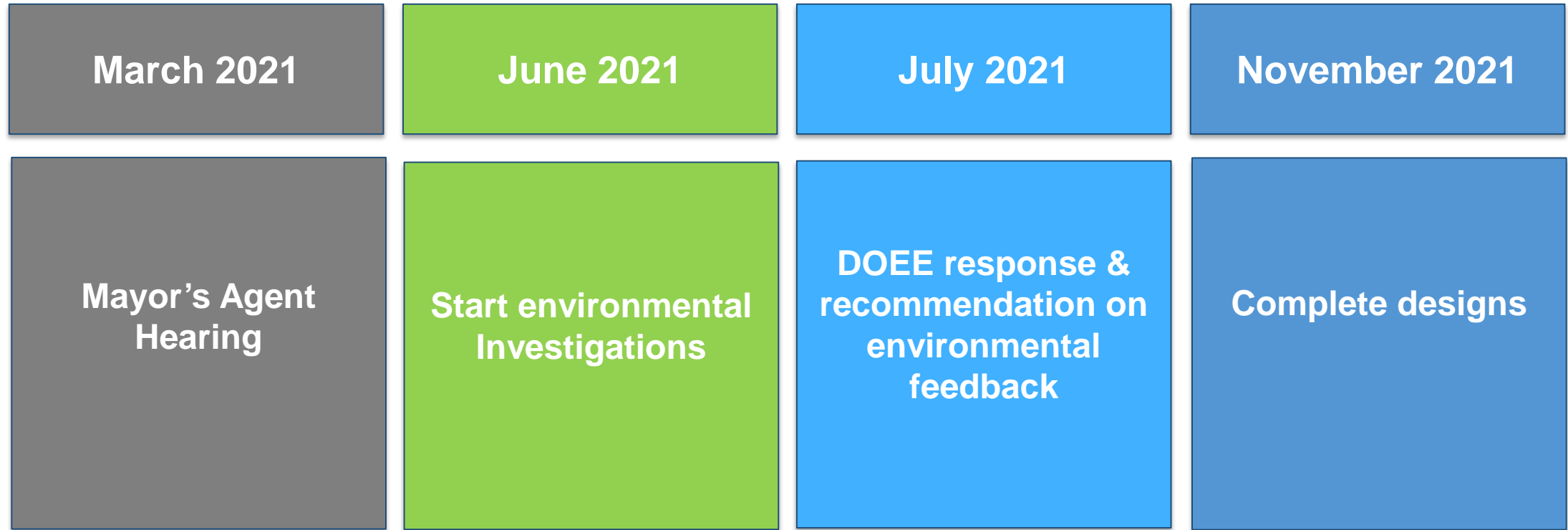


Raise your hand to speak by typing your name into the chat.

What to Expect in 2021

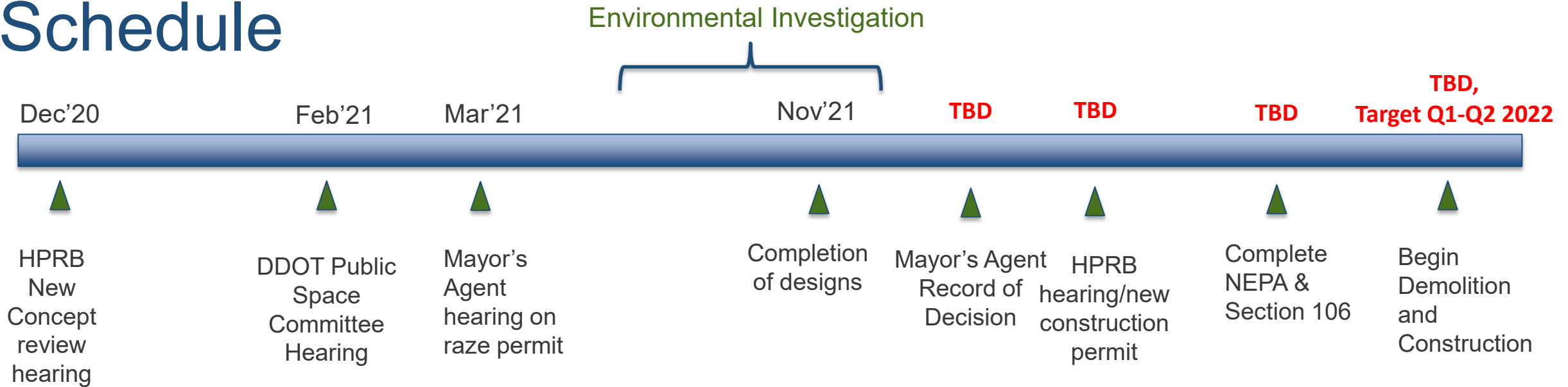
Northern Bus Garage Reconstruction Project

2021 Project Milestones and Timeline



- Updates posted to wmata.com/NorthernBusGarage and shared via email
- Email MCAP_NBG_Reconstruction_Project@wmata.com to join the project's community contact list or request additional information

Schedule



Mayor's Agent clearance of raze permit as necessary for project of special merit, NEPA review, and Section 106 process must be received/completed before project can begin demolition/construction

Upcoming Community Engagement Meetings



Summer

*June 15, 2021

Fall

*Sept. 21, 2021

Winter

*Dec. 14, 2021

****Dates are subject to change***

Any Questions?

There are two ways to submit your questions



Type your questions directly into the chat.



Raise your hand to speak by typing your name into the chat.

Northern Bus Garage Replacement Community Engagement Meeting 6 – Tuesday, June 15 6:00PM – 8:00 PM Summary (6/21/21)

1. Overview

The Washington Metropolitan Area Transit Authority (WMATA) conducted a virtual meeting to present a project update to the community. The meeting presentation was conducted in five segments with a questions and answers session conducted after each segment's presentation. The segments included:

- Update on Project Status
- Environmental Design
- Construction Monitoring
- Art in Transit
- Zero Emission Bus Strategy

Previous meetings included Meeting 1 where the updated project design was presented and the design survey was launched. Meeting 2 gathered the community and Section 106 consulting parties to provide feedback on historic preservation components of the design and to present survey results. Meeting 3 focused on environmental issues and was well-attended. Meeting 4 presented the updated exterior design concept that was presented to the Historic Preservation Review Board (HPRB) on December 17, 2020. Meeting 5 presented additional updates to the design following HPRB recommendations and discussed environmental monitoring and WMATA's zero-emission bus plans. It was noted in Meeting 5 that if all approvals are obtained in 2021, demolition and construction can begin in 2022 and the project could be complete by 2026.

2. Update on Project Status

Presentation

The project team held a series of meetings with the following groups since the last community meeting:

- Advisory Neighborhood Commission (ANC) leadership
- Councilwoman Janeese Lewis George
- DC Office of Zoning
- State Historic Preservation Office (SHPO)
- District Department of Transportation (DDOT) Public Space Committee and Urban Forest Division
- Pepco and Washington Gas
- Department of Energy and the Environment (DOEE)

The DC Office of Zoning meeting included discussion of transitional setbacks to ensure the new garage facility provides the appropriate facing and engagement with the surrounding buildings in the neighborhood. The meeting also covered the mechanical penthouses that will surround heating,

ventilation, and air conditioning (HVAC) and other mechanical items on the roof of the building to reduce visual and noise pollution for neighbors.

DDOT meetings discussed how the loading zone will accommodate the delivery and refuse removal needs of the garage and its retail tenants while maintaining a safe environment for road and sidewalk users. Urban Forest Division staff and the project team planned around preservation of existing trees on the site. The project team worked with Pepco and Washington Gas to identify existing utilities to plan safe demolition activities and to design for services to be rerouted, if necessary, to reconnect to the new facility. DOEE is currently reviewing stormwater management plans and the project team expects this to be complete in June.

At the Mayor's Agent meeting on March 26, 2021, WMATA staff provided testimony in support of the required Raze Permit that will allow demolition of parts of the current facility to allow for construction of the new facility. Additional testimony was provided by Northern Bus Barn Neighbors, 14th Street Uptown Business Association, 16th Street Neighbors Association, and others. The Mayor's Agent review is underway and the project team is awaiting a decision.

Since the December 17, 2021 meeting with the HPRB and subsequent meetings with the SHPO, the project team has updated the facility design to reflect community and stakeholder input received to date. The high-performance concrete panels have been made a consistent red color and other elements have been added to break down the scale of the walls of the new facility. The team presented other changes by view, which are summarized below. These additional refinements to the facility design will be shown to SHPO in August.

- View 1: Removed vertical band above the bus entrance/exit garage doors and moved wall back to allow more of the historic façade to be visible from the street.
- View 3: Additional brick detailing has been added to the façade and the Uptown Main Street and employee entrance heights have been reduced.
- View 4: Red panels have been made a consistent red color.
- View 5: A perforated panel has been added to allow light through and to break down the scale of the wall. The top portion of the wall has been set back further to additionally break down the scale.
- View 6: The wall has been reduced in height by a few feet.

Beyond the design of the facility itself, the project team has also been refining the site design. To showcase the historic nature of the building as a streetcar trolley barn, the historic trolley entry will be highlighted through landscape design and information will be provided for the public, perhaps through signs or plaques nearby.

Inside the facility, work is underway to collect data on the size and depth of existing wall footings, the elevation of bedrock, and depth of underground storage anchor slabs. This information is critical to ensure the design of the new facility is appropriate and excavation does not interfere with a sewer main located under 14th Street. This data collection effort requires mechanical breaking of the existing facility's concrete floor followed by hand digging of holes.

Other work inside the facility is to validate the new foundation design by measuring the capacity of soil and rock underneath the existing garage. This requires a physical test onsite called a caisson load test. Both efforts will be complete in June.

The project team concluded this section of the presentation by updating the community on design package status:

- Design package one:
 - Civil works, utilities, landscape, grading, foundation, steel frame
 - 75% level design submitted April 16, 2021
 - 90% level design expected to be complete August 4, 2021

- Design package two:
 - Mechanical, plumbing, electrical, exterior, interior
 - 75% level design expected to be complete June 7, 2021
 - 90% level design expected to be complete October 19, 2021

Questions and Answers

Q: There is a lot happening on 14th Street, with the bus stop, bike lane, retail delivery, trash, and recycling pick-up, etc. How will Metro manage potential conflict between all these activities?

A: The intersection at 14th and Decatur will be signalized for vehicle and bicycle traffic to assure safe bicycle movement along 14th street. The designated commercial loading zone will be laid out such that it will not interfere with the bus stop on the east side of 14th street. The traffic movements in and out of the east curb lane will need to be executed with the same level of care as currently required in the presence of a designated bike lane. In addition, all roadway markings that delineate the various functions will be updated to comply with DDOT's latest standards for designated bike corridors.

Q: Is the change in height minimal? What is the building height on 14th Street and is there a higher setback?

A: The planned height of the exit portal at Decatur is lower than the existing portal. There will be no changes to the height of the historic façade which ranges from 18-24' above grade, but the new building will rise to approximately 47' above grade at the midpoint of the block. This increase in height above the historic façade occurs approximately at a 60' further setback. The new administration end of the building near Buchanan Street will be about 10' higher than the current parking deck parapet.

Q: What activities are happening now in the garage? Recently, there has been some noise level increases and disturbance to the community.

A: The construction team was in the garage chipping concrete for test pits and hand excavation. The test pitting process requires us to remove a small section of the concrete slab to access the soil underneath. These activities are taking place during daytime hours, from 6:30 am – 4:00 pm. There is some noise disturbance during the concrete removal, but this process is predominantly hand excavation and is intended to minimize disruption to the community. We are also drilling two test shafts for the new building foundation system. For this process, all drilling is taking place inside the bus garage and all drilling and testing will be completed over the next 45 days.

Q: District law has certain decibel levels that no one can exceed. How do you ensure you comply and what permits do you have to be doing work in the building [Northern Bus Garage]?

A: All current work is compliant with DDOT regulations. As we advance into the demolition and new construction phases of the project, we will be monitoring noise during construction to make sure we remain compliant with District regulations relevant to the construction activities. Noise mitigation measures, if required, may involve the use of special equipment or special noise management barriers. Metro did receive permits for all drilling work from DOEE. The permits are posted on the southern glass entry door on 14th Street.

Q: What is Metro doing about rodent control?

A: Metro has an ongoing contract with a pest management firm for rodent and pest control for the bus garage.

Q: How many retail spaces will be included in the facility, and have the vendors been selected?

A: We are considering several concept layouts and have engaged CB Richard Ellis, a full service commercial real estate firm, to ensure we optimize the use of space. One of the concepts under

consideration has four to six retailers between the administrative building and the larger retail space south of the tower. In terms of vendor selection, we do not have any vendors contracted and typically would not until construction is nearly complete.

3. Environmental Design

Presentation

A Comprehensive Site Assessment Work Plan was submitted to DOEE in February 2021 and a revised plan incorporating DOEE comments was resubmitted in May 2021. Final approval was received on June 4, 2021 and work is currently underway. The revised work plan includes four monitoring wells near Arkansas and Iowa Avenues inside of the existing building and 18 well points located across the property both within and outside of the existing building. For each well point, two water samples and one to two soil samples will be taken.

The purpose of these monitoring wells and well points is to identify the extent of soil and water contamination on the site. Findings from samples taken will inform the remediation efforts required to remove the contaminated material as part of construction activities. If contamination is found, remediation is undertaken in different ways based on contaminated item:

- Soil is excavated and taken offsite to a treatment and disposal facility
- Groundwater is pumped through a treatment system and
- Soil vapors are extracted and treated.

Because the community asked for improved air filtration, a change was made to upgrade the level of filtration from MERV 14 to MERV 16. MERV 16 filters are the highest level of filtration available for commercial and residential applications and will provide a minimum efficiency of 95%, meaning that at least 95% of all particles, including the smallest particle size measured, will be removed from the air. Filters will be monitored monthly for the first six months to understand how often they must be changed to effectively protect the community.

Questions and Answers

Q: For the site assessment, where will the 18 well points be located? And are any of them located on Buchanan Street?

A: The 18 monitoring points are located throughout the building property as well as across the street and down gradient from the bus garage. Four wells will be located inside the building near the intersection of Iowa and Arkansas Avenue and some wells will be placed alongside the Arkansas and Buchanan sides of the facility in the green space. In addition, a series of 4 wells will be installed in the public space along the east side of Arkansas Avenue near the edge of the sidewalk. Metro's goal is to gain a comprehensive understanding of contamination originating from the garage property, including prior to Metro's occupancy. In partnership with DOEE, we will investigate all potential sources of contamination, including sources along Buchanan Street. Metro's commitment is to identify and treat all contamination to meet or exceed DOEE standards.

Q: Why are there four wells at Arkansas and Iowa Avenue? Can the plan between WMATA and DDOT be shared with the community?

A: The well point locations were identified in collaboration with DOEE, which specifically requested further investigation into these areas based on the results of the initial sampling program conducted in 2020. We will determine with DOEE if the plan can be shared publicly.

Q: Describe the well points; are they going to be enclosed from the community?

A: There are two different well types being installed. For the monitoring wells (long term) we will drill down to bedrock and collect samples and install PVC pipes with lockable steel covers that will be maintained so periodic sampling can be conducted. These will not be accessible to the community and will be located inside the building. The other excavation activities will include temporary well points, where we will drill to bedrock, collect samples, and re-fill the excavated areas with cement grout per DOEE standards. Any disturbed tuft areas outside the building will be restored. All drill spoils will be collected and stored in steel drums inside the building prior to removal and proper disposal offsite.

4. Construction Monitoring

Presentation

The project team identified four areas where monitoring equipment will be placed before and during construction to protect adjacent property owners:

- Groundwater
- Adjacent structures
- Ground
- Utilities

Seismographs will also be placed at the perimeter of the project to monitor vibration. All monitoring equipment will be in place prior to the start of construction to establish a baseline of at least 30 days. Construction will be monitored throughout and data will be compared to the baseline to determine if impacts are in excess of allowed levels and normal activity.

All properties within 200 feet of the bus facility's property boundary will receive a pre-existing condition survey prior to the start of construction. This survey will cover both the interior and exterior of the property being surveyed. Invitations to property owners will be sent 90 days prior to the start of construction and owners can schedule their survey directly with the provider when convenient. Surveys are not required; however, without a pre-existing condition survey, later claims may be limited. Therefore, the project team strongly encourages all property owners to complete a survey. Owners will receive both hard and electronic copies of the survey for their records.

If a property owner decides to file a claim after construction is complete, the claim will be submitted to Clark Construction's risk department. Clark's insurance provider will then assign an adjuster and schedule with the property owner for an inspection. Owners will receive a written estimate for the cost of repairs, though at any time the owner can obtain an independent opinion of cost if desired. If the claim has merit, a settlement will be agreed upon and payment will be made. If the claim is found not to have merit, a letter will be mailed to the owner notifying them of the decision and the process for appealing.

Questions and Answers

No questions.

5. Art in Transit

Presentation

During construction, the site will be surrounded by temporary protective fencing to ensure community safety. The project team designed mock-ups for art to be included on the perimeter fencing to show the community during the meeting. These graphics are still in progress and final versions will be completed in coordination with a panel of community representatives. After agreement, WMATA will issue a procurement for the production and installation of the art.

Draft graphics showcase the facility's history as a streetcar trolley barn and will include elements from the neighborhood and a social media photo location.

Questions and Answers

Q: What is the proposed timetable for installation of temporary art banners on the construction site exterior fencing?

A: Currently, we don't have a set timeline. The installation of the art panels is contingent on the construction phase perimeter fencing installation. The perimeter fencing will be erected prior to the start of construction and should take approximately one month to complete. We will not be able to commence construction until we have the Mayor's Agent determination on the related raze permit.

Q: What happened to the historic artwork that was previously proposed? Why is there such a focus on buses?

A: As a reminder, the artwork on the fencing is temporary. The artwork presented at previous meetings was placeholder content and did not represent proposed artwork. Metro's Art in Transit team is in the design phase for the artwork on the perimeter fence the design presented during this meeting is only associated with the perimeter fence. These fabric panels will be installed as the long-term perimeter security fencing is installed prior to the start of construction. Panels will be installed around the entire project perimeter and will remain in place throughout construction. The idea behind the design for the proposed, temporary art panels is to highlight the neighborhood, and the evolution of transportation in the context of the garage and its connection with the city, through a series of scenes that will be installed on the construction fencing. The intent of the panels to help screen some of the construction activities. These art panels will be removed at the end of construction. We hear the community's concerns and we will be sure to take them into consideration as we move forward with planning. Metro will work with the ANC to create a panel of community representatives to review the proposed graphics before they are finalized. Long-term art installations at the site will be discussed more in-depth at our next community meeting.

Q: Will there be a URL or QR codes on the artwork where people can find out more information about the project?

A: Yes, it is something that we are planning to include.

6. Zero Emission Bus Strategy

Presentation

WMATA undertakes a fleet plan update every five years to plan for the number and type of buses that must be procured to ensure reliable service throughout the region. However, because of the uncertainty around the pandemic and ridership levels, an interim update will likely be completed in the next year or so. Considerations during fleet plan updates include:

- The level of service provided (hours, frequency, routes)
- The number of buses required to provide that level of service
- The type of buses to use
- The facilities needed to support the fleet (locations, size, fueling/charging infrastructure)

The project team reviewed the benefits of electric buses, but noted that the US has around 55,000 transit buses in operation and only 500 of them are battery electric buses (BEBs). So far, BEBs have not yet demonstrated consistent reliability on par with conventional vehicles, which can cause problems for an agency like WMATA that must provide reliable service to its customers. WMATA targets a level of reliability of 85%, but BEBs at other agencies average a level of 74%.

Despite this, WMATA is preparing and planning for conversion of the fleet to zero-emission buses, which could be BEB or another technology like hydrogen fuel cells. WMATA plans include:

- Pilot testing of 10 standard length BEBs and two articulated BEBs housed at the Shepherd Parkway garage
- Delivery of BEBs in early FY2023
- Hiring of staff to work on electrification efforts
- Exploring hydrogen fuel cell bus pilot and evaluation

WMATA's draft zero-emission bus strategy lays out the planned activities and timeline for conversion to a zero-emission fleet. This strategy was presented to the board on June 10, 2021 and may be adjusted before being voted upon. Highlights of the draft strategy were presented to the community and included the following:

- The next bus procurement is lower-emission and electric buses only (no diesel buses will be included)
- By 2030, bus procurements will be entirely electric
- By 2045, the entire fleet will be zero-emission

These activities will result in a 56% percent emission reduction by 2030.

However, the project team cautioned that much of the conversion to zero-emission vehicles is outside of WMATA's control and requires coordination with—and action by—utilities, municipalities, and others.

Questions and Answers

Q: Has Metro taken into consideration the uptick in personal vehicle registration in D.C.? People are opting out of public transportation due to COVID concerns. Has that been factored into the four key points?

A: Ridership has dropped due to COVID-19, but we expect it to recover over time. Because fleet management is a long-term planning exercise, Metro must keep the fleet and necessary support in place to sustain service and support ridership when it returns to normal levels.

Metro conducts a fleet planning exercise every five years. Over the next two to three years, Metro may conduct additional planning exercises and updates which will take into consideration customer demand, level of services needed, and any continued impacts from COVID-19.

Q: In your presentation, you classified Metro's peer groups – one of those classifications is the “Wait and See” group. Is that the group Metro is in?

A: Metro is committed to transitioning to a zero-emission bus fleet. Preparations are ongoing as a part of Metro's Electric Bus Test & Evaluation program, which will see its first electric buses join the fleet in 2022. So, Metro is not in the wait and see group. We are eagerly doing the work now to make sure we have the right infrastructure in place to support a fully electric bus fleet.

Q: Of the proposed \$375 million to reconstruct the bus garage, roughly how much of that will be spent on underground tanks for fuel, oil, transmission fluid, etc.? How does Metro justify that spending?

A: To maintain service levels and ensure no disruption to customers, we need some redundancy in the fueling systems. The diesel fueling system investment is only approximately 2% of the overall project costs. For example, if there is an extended network wide power outage, it is not possible to recharge the electric buses with emergency backup generators. That's why we continue to invest in diesel storage; those investments do not impact Metro's commitment to achieving a fully zero-emission fleet by 2045.

Q: Does this mean more construction down the line? Will Metro need more construction in 2040 to remove the tanks and make room for electric buses?

A: The bus garage will be able to support electric buses with no effect on the fuel delivery system of underground diesel tanks. Additionally, we will need to maintain some diesel-fueled buses at the garage, which can be used in emergency scenarios, so we do not plan to remove the UST when the building is running a ZEB fleet. To comply with current UST regulations, double wall tanks will be used that will be installed in a secondary concrete containment vault that has removable covers. This facilitates removal and replacement in the future when the tanks have reached the end of their useful life, without the need for extensive construction excavation.

As the electric buses are purchased and brought on-line, they will be a one for one replacement with existing diesel buses from a storage standpoint at NBG and no more room will need to be made for them. The bus facility is also being designed to accommodate the additional equipment that will be needed to support the electric bus fleet including charging stations and overhead layouts for the charging pantographs and the rooms needed for the additional electric switchgear.

Q: What assurances do we have that Metro is moving away from diesel fuel? What are Metro's commitments to the neighborhood, how can we be sure that diesel buses won't remain status quo for the bus garage?

A: The world is moving towards electrification, and Metro's sustainability goals and bus fleet strategy reflects its commitment to the community. On June 24, Metro's Board of Directors approved a major change to its Metrobus fleet that supports the region's clean air goals and is consistent with the planning for the Northern Bus Garage project. Click [here](#) to access the full news release.

Q: How do bus emission numbers compare with car emissions in the area?

A: Every trip taken with Metro instead of a car reduces greenhouse gas emissions and helps to ensure cleaner air in the region. Bus trips emit approximately 25% less carbon dioxide per mile compared to a single-occupancy car and rail trips emit approximately 65% less per mile in comparison to a single-occupancy car.

Q: How can community members participate in Metro's Board meetings?

A: Metro's Board of Directors meetings are broadcast on the Metro website and YouTube channel. Public comments may be submitted through 9:00 am on the Wednesday prior to a scheduled Board meeting. There are three ways to submit a comment:

- **By phone:** Call us at 202-962-1901 to record your comment.
- **Video selfie:** Record a video message, two minutes or less, and email to speak@wmata.com.
- **Email:** Fill out the webform [here](#). Please limit your comment to 300 words or less.

7. Next Steps

The project team is awaiting the Mayor's Agent decision on the Raze Permit that will allow work to continue. Following that decision, the design must be presented again to the HPRB. Environmental investigations around contamination on and near the site will continue in June. Design is expected to be finalized in November and if all goes to plan, construction could begin in 2022. The website <https://www.wmata.com/initiatives/plans/northern-bus-garage/> will be updated throughout.

The next community meetings will be held September 21, 2021 and December 14, 2021.

8. Comments

It is believed that the above represents an accurate description of the major events that transpired at this meeting. Your notification of any errors or omissions within five (5) working days of receiving these minutes is important, as the foregoing is intended to be part of the record and is the basis upon which WMATA will proceed.

Respectfully Submitted,



Brian McMahon
HNTB Project Manager

Northern Bus Garage Reconstruction Project



**Summer Community Update
Meeting**

June 15, 2021



Meeting Etiquette

Metro wants to hear from you. Here are a few guidelines to keep this meeting productive and to maintain respect for all participants:

- You will have an opportunity to ask questions following each section of the presentation.
- To ensure we hear from as many community members as possible, please adhere to the Q&A protocol:
 -  Request to speak by typing your name in the chat
 -  Type questions directly into the chat
- When speaking:
 - Maintain a civil tone
 - Be mindful of time so that your fellow community members can share their feedback

Anyone in violation of the meeting etiquette guidelines will be muted for the duration of the meeting.

Agenda

- Introductions
- Project Overview and Updates
- Environmental Management: Overview and Status
- Construction Survey and Claims Processes
- Art in Transit: Perimeter Fencing
- Update on Metro's Zero-Emission Bus Strategy
- What to Expect in 2021

Introductions

Northern Bus Garage Reconstruction Project

Project Team

- ❑ Diana Levy, Director Capital Delivery WMATA
- ❑ Jim Ashe, Environmental Coordinator WMATA
- ❑ Kit Conway, Manager, Strategic Initiatives WMATA
- ❑ Laurent Odde, Art in Transit Manager WMATA
- ❑ Philip Sheridan, Clark Construction
- ❑ Sean Beachy, Wendel

Project Overview and Updates

Northern Bus Garage Reconstruction Project

2021 Summary of Q2 Project Events

- March 2021
 - Mayor's Agent Hearing
- May 2021
 - Meeting with DC Water
 - Post-hearing submissions filed with Mayor's Agent
- June 2021
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 - Meeting with ANC Leaders
 - DDOT Public Space Committee Hearing



Agency Collaboration Since Last Meeting

Agency	Brief Purpose
DC Office of Zoning	Transitional setback, penthouses
SHPO (State Historic Preservation Office)	Follow-up from December HPRB, review of updated renderings
DDOT	Design update per Public Space Committee, loading zone, Urban Forest Division
Pepco	Location of proposed services to building
Washington Gas	Gas main extension, Service meter location
DOEE	Review of stormwater management

Mayor's Agent Hearing

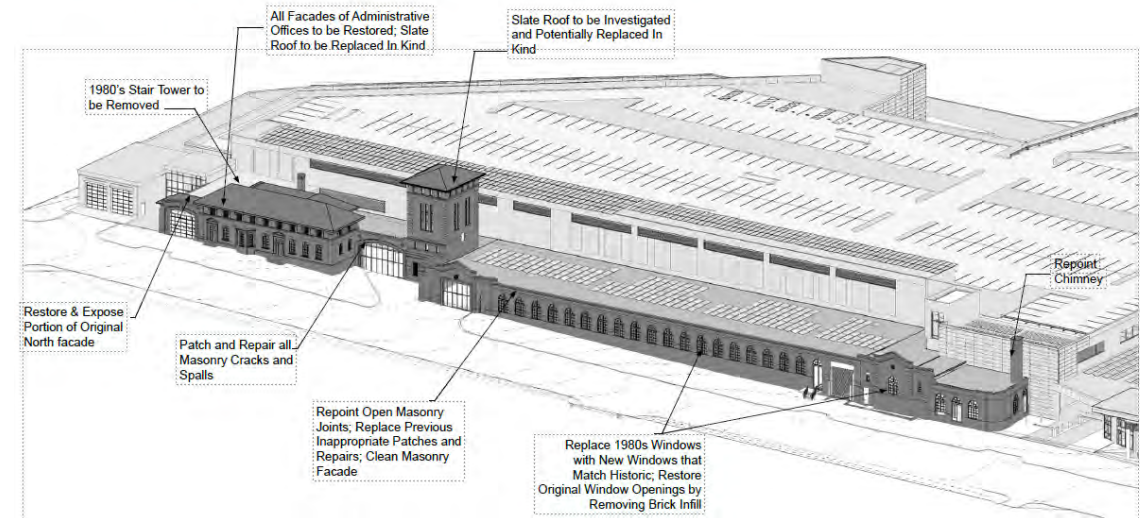
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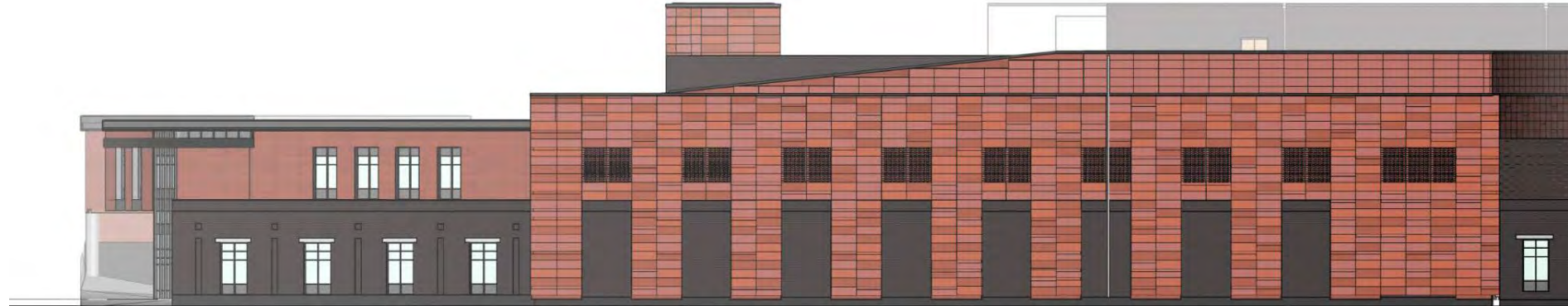
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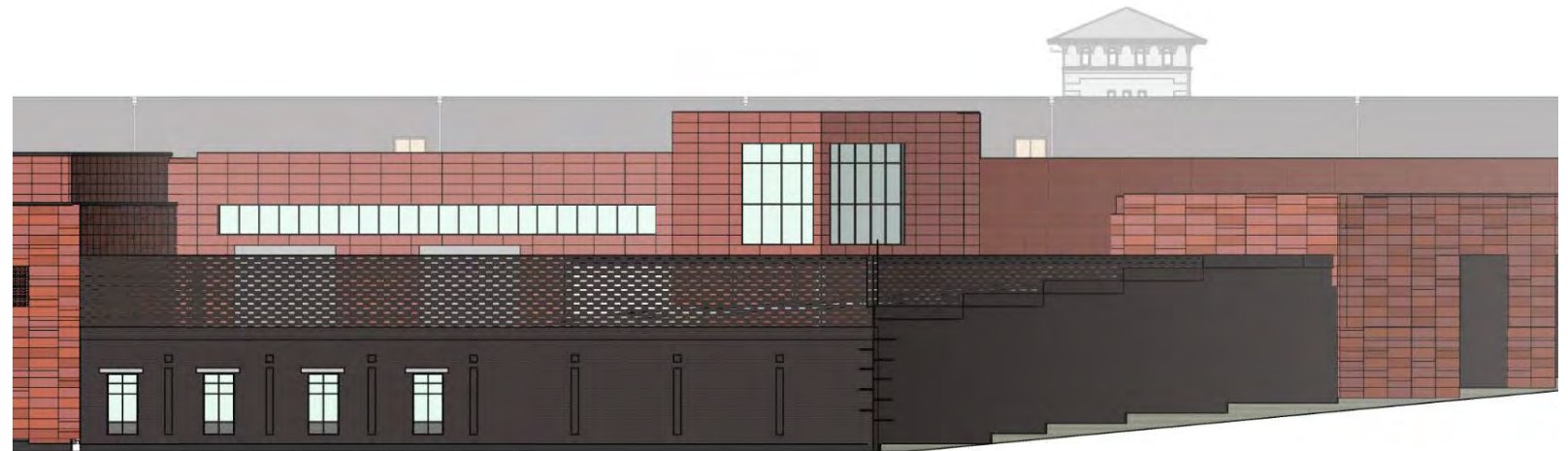
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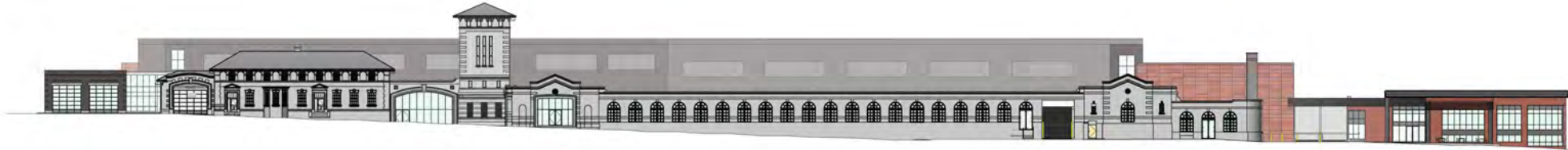
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Northern Bus Garage Reconstruction Project



VIEW 1





VIEW 2



Northern Bus Garage Reconstruction Project



VIEW 3



Northern Bus Garage Reconstruction Project



VIEW 4



Northern Bus Garage Reconstruction Project



VIEW 5



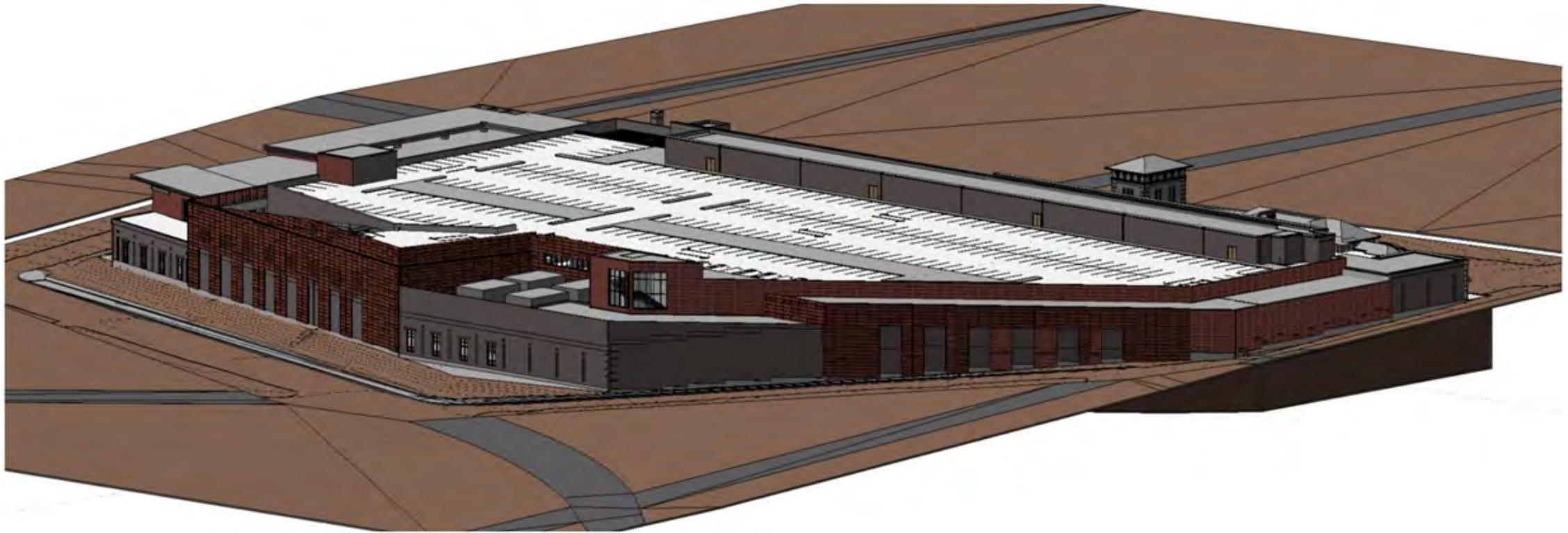
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VIEW 6



Isometric view of the Arkansas and Iowa Avenues Façade



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Design Progress Update

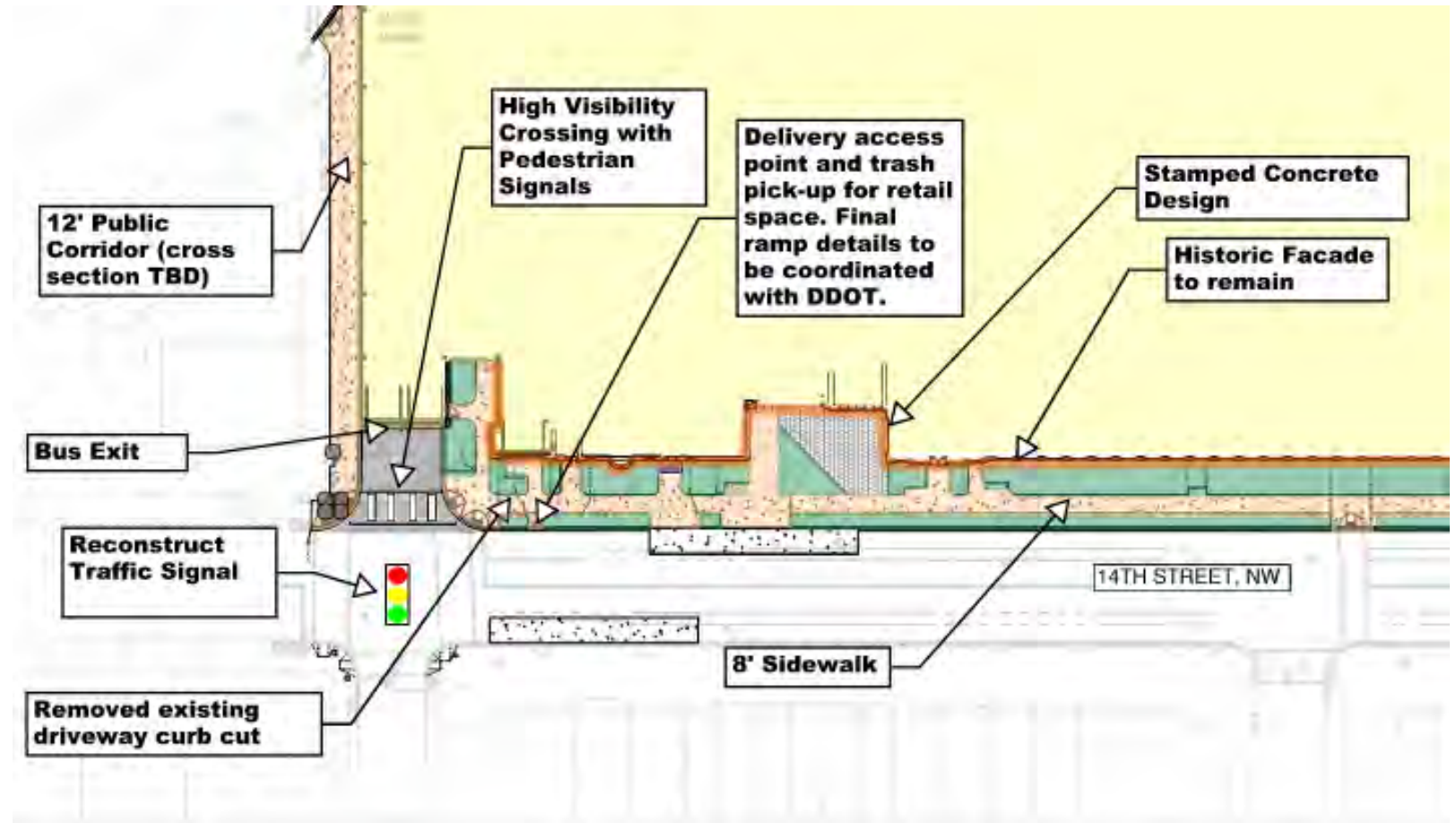
- Design Package 1 (DP1)
 - DP1 consists of civil, underground utilities and services, landscape, grading, foundation and structure
 - 75% design submitted to WMATA on April 16, 2021
 - DP1 90% submittal to WMATA is due on August 4, 2021
- Design Package 2 (DP2)
 - DP2 consists of mechanical, plumbing, electrical, building envelop, interior finishes and design
 - 75% design submittal expected on June 7, 2021
 - DP2 90% submittal expected on October 19, 2021

**Target Completion of Issue For Construction (IFC) Plans:
November 2021 and February 2022, respectively**

Proposed Site Plan

Improvements since last meeting:

- Articulating the historic trolley entry through hardscape design
- Refining retail delivery approach with DDOT
- Nominal adjustments to all curb cuts based on feedback received at the February Public Space Committee (PSC) hearing
- Return to June PSC hearing for final plan approval



Field Progress Update

- Historic Foundation Test Pitting Program
 - Purpose is to collect data on size and depth of the wall footings, top of rock elevation at the existing wall footings, the depth of the underground storage tank anchor slabs, and the depth and exact location of the sewer along 14th Street, which will provide us with the necessary information to finalize the bus garage design
- Caisson Load Test Program
 - Purpose is to validate the new building's foundation design by measuring the capacity of the soil and rock underneath the existing bus garage
- Work on both programs started on June 7 and is expected to be completed this month

Field Progress Update



- Shown (left) is the progress of the first test pit searching for a wall footing
- The test pitting requires us to remove a small section of the concrete slab to access the soil underneath
- The soil is then mostly hand-dug, once accessible
- All soils will be backfilled into the pits once the foundation elements are surveyed

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Environmental Management: Overview and Status

Northern Bus Garage Reconstruction Project

DOEE Collaboration

- Comprehensive Site Assessment (CSA) Work Plan
 - Original submission February 2021
 - DOEE comments received & incorporated
 - Revised CSA report submitted in May 2021
- Revised CSA Work Plan includes workplan covering:
 - Four wells near Arkansas and Iowa Avenues
 - 18 well points (2 water samples per hole and 1-2 soil sample per hole)
 - Confirmatory sampling in excavated areas
 - Approval received June 4
- Next steps:
 - Secure permits
 - Complete investigations and provide findings to DOEE



Air Pollution Treatment Update

- WMATA & Clark performed review of MERV 14 filters versus MERV 16 filters to be used in the 14 units of Dry Scrubber Technology
- Use of MERV 16 filters, instead of MERV 14 filters as previously proposed, is achievable with several accommodations and changes to the current design
- ASHRAE estimated 95% efficiency in filtering particulate matters of all sizes with MERV 16 filters
- MERV Filters Maintenance:
 - Will be checked by monitoring pressure differences across the filters
 - Will be monitored monthly for the first six months to determine frequency of replacement, then quarterly after that

ASHRAE Standard 52.2-2017 -- Minimum Efficiency Reporting Value (MERV)

Standard 52.2 Minimum Efficiency Reporting Value (MERV)	Composite Average Particle Size Efficiency, % in Size Range, μm			
	Range 1 0.30 to 1.0	Range 2 1.0 to 3.0	Range 3 3.0 to 10.0	Average Arrestance, %
1	N/A	N/A	$E_3 < 20$	$A_{avg} < 65$
2	N/A	N/A	$E_3 < 20$	$65 \leq A_{avg}$
3	N/A	N/A	$E_3 < 20$	$70 \leq A_{avg}$
4	N/A	N/A	$E_3 < 20$	$75 \leq A_{avg}$
5	N/A	N/A	$20 \leq E_3$	N/A
6	N/A	N/A	$35 \leq E_3$	N/A
7	N/A	N/A	$50 \leq E_3$	N/A
8	N/A	$20 \leq E_2$	$70 \leq E_3$	N/A
9	N/A	$35 \leq E_2$	$75 \leq E_3$	N/A
10	N/A	$50 \leq E_2$	$80 \leq E_3$	N/A
11	$20 \leq E_1$	$65 \leq E_2$	$85 \leq E_3$	N/A
12	$35 \leq E_1$	$80 \leq E_2$	$90 \leq E_3$	N/A
13	$50 \leq E_1$	$85 \leq E_2$	$90 \leq E_3$	N/A
14	$75 \leq E_1$	$90 \leq E_2$	$95 \leq E_3$	N/A
15	$85 \leq E_1$	$90 \leq E_2$	$95 \leq E_3$	N/A
16	$95 \leq E_1$	$95 \leq E_2$	$95 \leq E_3$	N/A

Average Minimum PSE Designator	Corresponding Size Range Group, μm
E_1	0.30 to 1.0
E_2	1.0 to 3.0
E_3	3.0 to 10

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Construction Survey and Claims Processes

Northern Bus Garage Reconstruction Project

Construction Monitoring

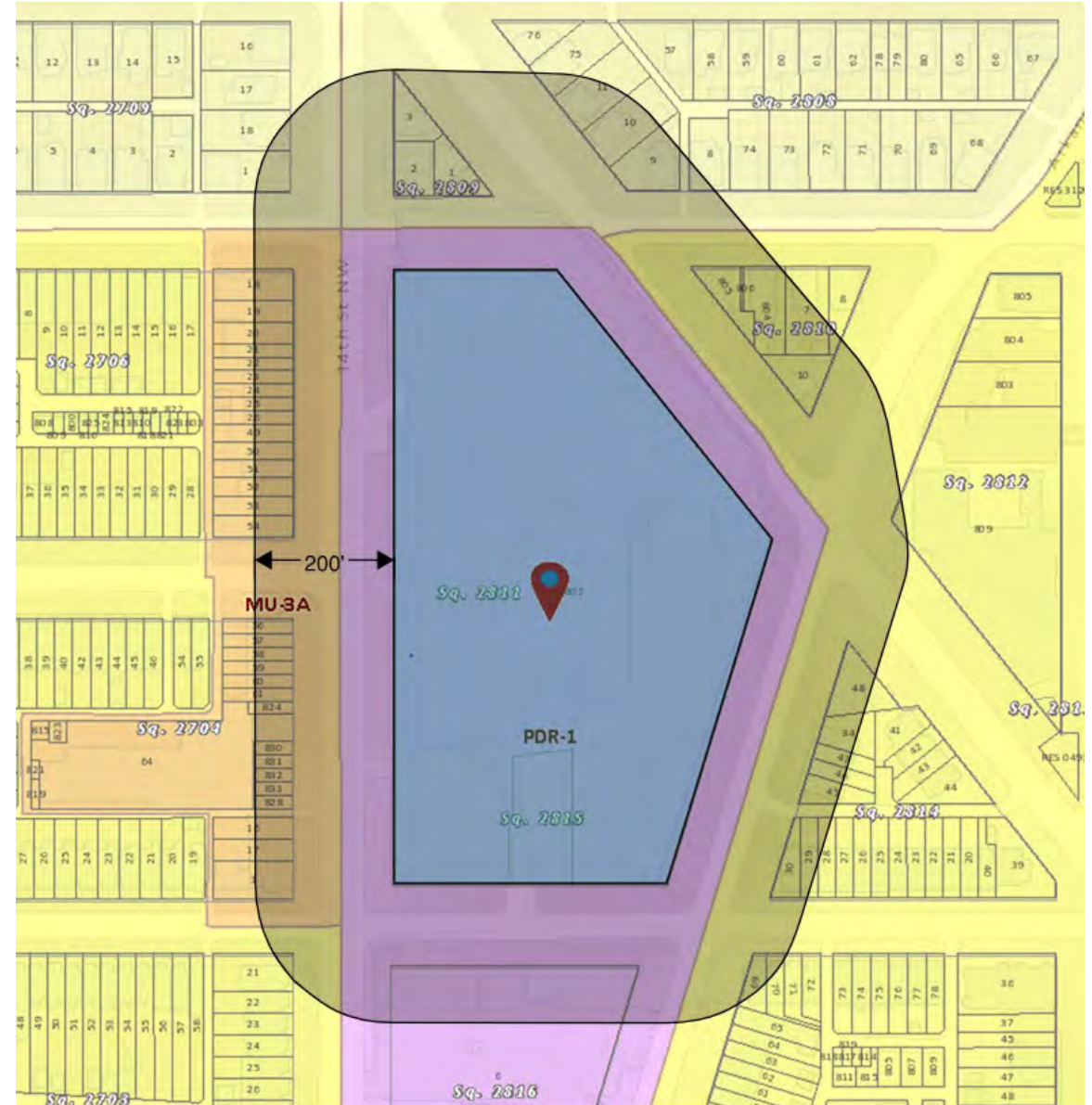
- Various instruments installed to monitor for movements as coordinated and permitted with District of Columbia agencies
 - In ground to measure movement and groundwater
 - On Adjacent Structures (with owner permission)
 - On Ground surface
 - On Utilities
- Vibration monitoring will occur at project perimeter
- Baseline readings of current background noise and vibration will be established for at least 30 days prior to the start of demolition

Pre- and Post-Construction Survey Overview

- Clark team will engage an engineering firm to conduct pre-existing condition surveys of homes and buildings in the neighborhood around the Northern Bus Garage
- These inspections will document the current interior and exterior condition of the surveyed properties and help expedite processing any future claims

Pre- and Post-Construction Surveys

- Map shows an overlay with the properties that fall within 200 ft of the proposed new bus garage



Recap: Pre- and Post-Construction Survey Process

- Surveys offered for all adjacent buildings within 200 ft of the WMATA property lines
 - Purpose is to document existing conditions of structures prior to the start of major construction
 - Baseline report prepared prior to start of demolition
 - Invite to opt into inspection program provided to property owner about 90 days prior to planned start of work
 - Property is eligible for a post-construction survey even if owner did not elect to get a pre-construction survey, though survey findings may be more limited, and damage claims maybe be more difficult absent a pre-construction survey
- Surveys performed by independent third-party engineering firm
 - A hard copy and digital copy (CD or thumb drive) is provided to the property owner via certified mail
 - Point of contact provided for property owner to discuss any questions on the survey findings

Damage Claims Process

Northern Bus Garage Reconstruction Project

Damage Claim Process

- Claim form will be available by request through the project website
 - wmata.com/NorthernBusGarage
- Clark project staff will review the claim form with property owners to make sure all required information is submitted
- Claim forms will be submitted to Clark's risk department by our safety manager
- Claims will be assigned to an adjuster by Clark's insurance company
- The insurance adjuster will contact the property owner to schedule an inspection of the reported damage

Damage Claim Process

- After inspection, the adjuster will provide a written estimate for the cost of repairs to the property owner
- The property owner may choose to get an independent opinion of cost for repairs
- Once a settlement agreement is reached between property owner and insurer, payment will be made to the property owner by the insurance company
- If the damage claim is found to not have merit, a findings letter will be prepared by the adjuster and mailed to the property owner
- There is an appeals process if the property owner disagrees with the adjuster's determination

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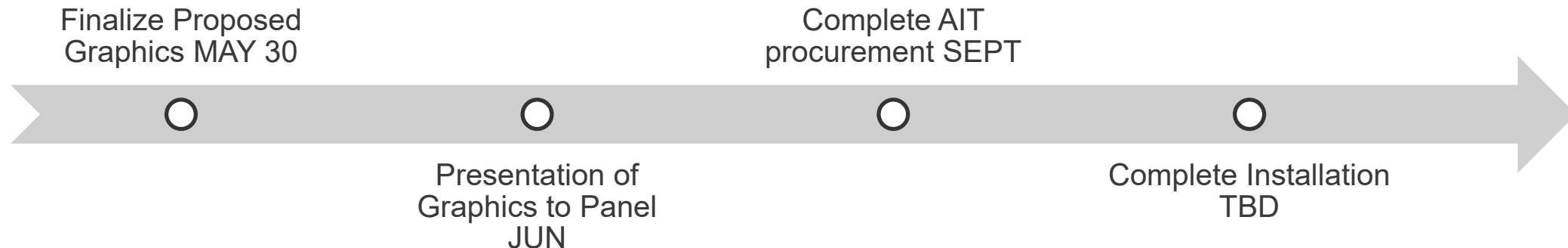
Art in Transit: Perimeter Fencing

Northern Bus Garage Reconstruction Project

Art in Transit (AIT): Perimeter Fencing

- Graphics are in the process of being completed by WMATA AIT graphic designer
- WMATA AIT & Government Relations teams will coordinate with panel of community representatives to present proposed graphics
- WMATA will launch procurement process to produce and install graphics on the perimeter fence

Interim AIT Planned Timeline CY21 (subject to change)



AIT: Perimeter Fencing Proposed Graphics

- Idea behind graphic:
 - Evolution of public transportation
 - Celebrating the neighborhood
 - Connecting the neighborhood
- Social media moment



Graphics are drafts and for preview purposes only

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Update on Metro's Zero-Emission Bus Strategy

Northern Bus Garage Reconstruction Project

Metrobus Fleet Strategy Key Questions



1. **What level of service** does Metro expect to supply in the future?
2. **How many buses** should Metro operate to meet demand and service requirements?
3. **What types of buses** should Metro operate?
4. **How will Metro's maintenance facilities and operations** meet evolving fleet needs?



Why Consider Electric Buses?

Benefits for regional air quality, customer experience



Cleaner air, reduced greenhouse gas and tailpipe emissions



Quieter vehicles, less vibration, increased passenger comfort



Decreased use of fossil fuels, reduced fuel costs

Local Air Quality Context

Metrobus fleet can help drive regional air quality improvements

The Metropolitan Washington Council of Governments (MWCOG) identifies ground level **ozone** and **particulate matter** as the two most important pollutants harmful to health in the region

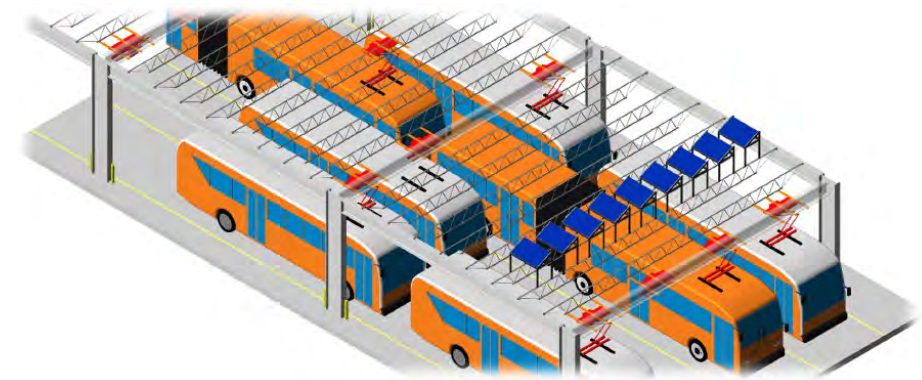
Ozone is formed by interaction between nitrogen oxides (NOx) and volatile organic compounds (VOC)

Region not meeting standards for ozone, is meeting standards for particulate matter with occasional exceedance days

Other pollutants tracked include carbon monoxide, for which region meets all standards

Electric Buses: Industry-wide momentum, varied approaches to adoption

- Of ~55,000 U.S. transit buses: approximately 29,000 diesel, 12,500 CNG, 9,000 diesel-electric hybrid, 3,600 biodiesel, 600 electric trolleybuses, **500 battery-electric buses** with an additional **500 additional battery-electric bus orders pending**
- Regional targets and regulations encouraging or requiring fleet conversion
- Peer approaches include
 - Full commitment to 100% zero-emission fleet, infrastructure support
 - Test deployments to evaluate technology in operation
 - Wait-and-see approach as technologies mature



LA Metro Bus Division Overhead Charging Concept

Current and Upcoming Electric Bus Activities

- **Electric Bus Test & Evaluation**

- Pilot program operating out of Shepherd Parkway to include deployment, testing and evaluation of ~10 standard-length electric buses and ~2 articulated electric buses.
- Project work is ongoing, with bus deliveries expected in early FY2023 and project closeout completed by mid-FY2024.

- **Continued Coordination with Electric Utilities**

- Staff working with local electric utilities to define future fleet electrification requirements and outline requirements for successful integration with grid infrastructure.

- **Evaluation of Additional Funding Sources**

- Staff reviewing potential opportunities for funding support of electric bus technology adoption, including federal programs and grants.

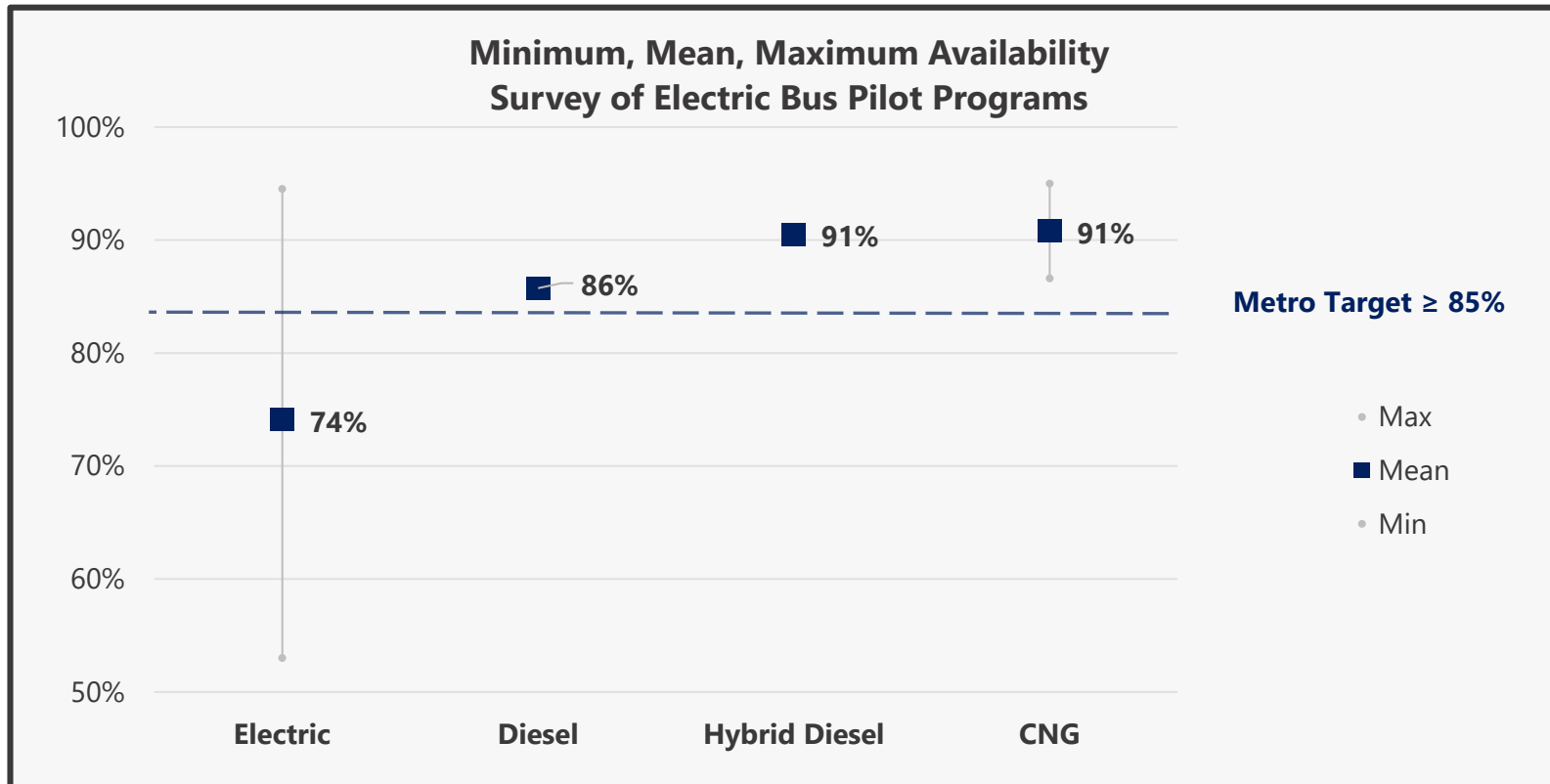


Current and Upcoming Electric Bus Activities

- **Upcoming Five-Year Bus Procurement**
 - Development of Metro's next five-year bus procurement contract, including vehicle specifications.
 - Initial procurement development is ongoing, with issuance of request for proposals expected in FY2022. Contract bus deliveries expected to begin in FY2024.
- **Hiring of Program Management Team**
 - Expansion of staff support required to manage program associated with fleet electrification. Hiring activities underway.
- **Planning and Capital Project Development for Garage Electrification**
 - Development and evaluation of capital projects to expand Metro capacity to support, maintain, charge and store electric buses. Identification of sequencing and timing of garage conversion to support future fleet needs.
 - **Exploration of Potential Hydrogen Fuel Cell Bus Test and Evaluation**
 - Staff to review potential program structure, implementation options and funding sources for test and evaluation of hydrogen fuel cell bus technologies.

Battery Electric Bus Availability, Survey of Pilots

Electric buses have not yet demonstrated consistent reliability on par with conventional vehicles








Improvements expected as technologies scale, market commitments shift to electric buses and manufacturers respond

Survey of publicly available industry test and evaluation data
5 manufacturers (4 electric), 96 buses (49 electric), 6 peer agencies

Metro Advancing Electric Bus Plans, Monitoring Technology

Expectation is electric buses will eventually be capable of 1-for-1 replacement of conventional buses

Every year, Metro's bus fleet covers 50 million miles and delivers 3.7 million hours of service

Performance Factor		Present	Target
	Miles/hours of service	Limited demonstration data suggests ~ 15,000-20,000 miles/year	On par with conventional vehicles ~ 30,000 miles/year
	Availability	Demonstrated availability averages ~ 75%	On par with conventional vehicles ~ Available 85% of days
	Reliability	Limited demonstration data suggests ~ 2,500-5,000 miles between failures	On par with conventional vehicles, Metro target ~ 7,000 miles between failures
	Travel range	In ideal operating conditions ~ 150 miles	On par with conventional vehicles ~ 250+ miles
	Useful life	Useful life assumption of 12 years	On par with conventional vehicles 15 years

Upcoming Electric Bus Test and Evaluation will provide data and experience with electric bus performance in Metro operating conditions

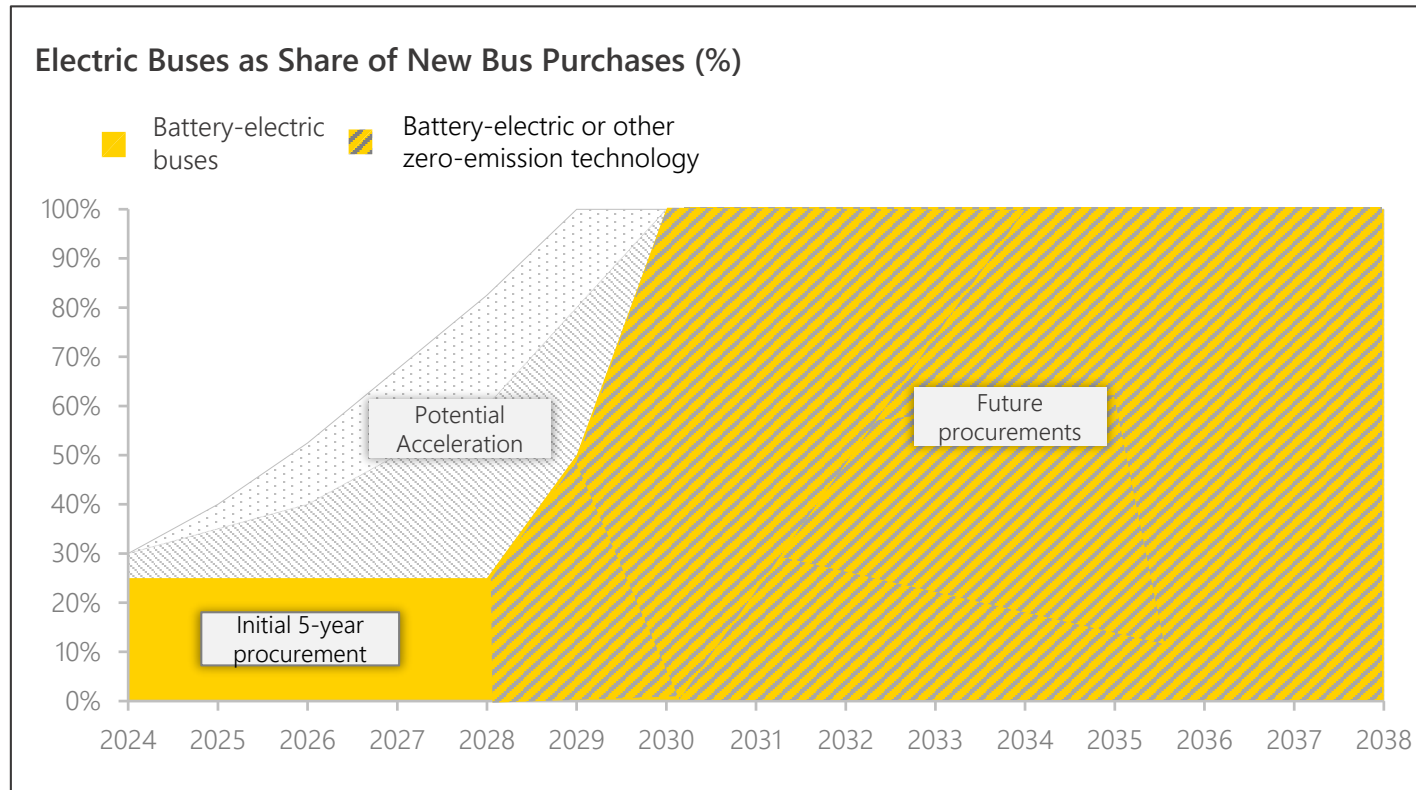
Draft Strategy: Metrobus Fleet Summary

- **Begin adoption of electric buses**, starting with next bus procurement, and transition new bus procurement to 100% electric or other zero-emission technologies by 2030, fleet fully zero-emission by 2045.
- Maintain **steady state** fleet size of approximately 1,593 buses, procuring 100 new vehicles per year.
- **Articulated 60-foot buses**: Grow share of overall bus fleet from current **4% to 12%**, or 180 buses, to address crowding and improve capacity on high ridership corridors.
- **Spare ratio of 19.5%**, changed from current 18.5%, to support bus technology transition, increase in articulated buses, reduced garage and fleet flexibility, and increased capital program support needs (e.g., Platform Improvement Project).

A fleet's **spare ratio** is defined as the number of **spare vehicles** (extra buses in the fleet for maintenance and training purposes) **divided by the number of vehicles required for annual maximum service** (running service at the busiest time on the busiest day).

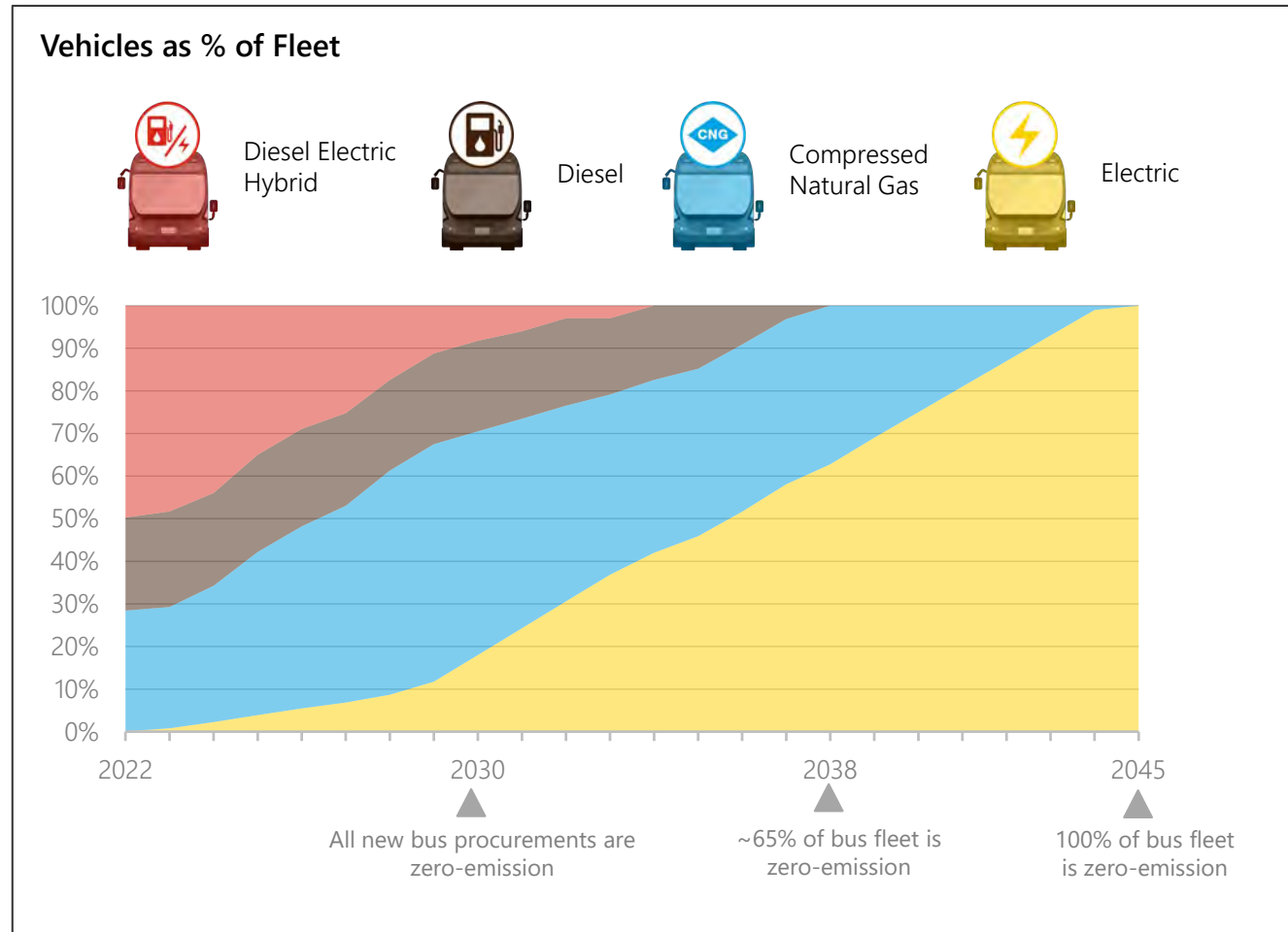
Spare ratios are expressed as a percentage. If a fleet had **100 vehicles** required for service and **20 spares**, the total fleet is 120 buses and has a **spare ratio of 20%**.

Draft Strategy: Bus Procurement



- Draft Bus Fleet Strategy contemplates **phased approach** to electric bus adoption
 - Purchase only **lower-emission and electric buses** in next bus procurement
 - Transition to **100% zero-emission bus purchases by 2030**
 - Fleet **100% zero-emission by 2045**
- Draft Strategy weighs flexibility and adaptability with the potential for faster adoption of electric or other zero-emission buses if:
 - 1-for-1 replacement is possible sooner
 - More funding is available
 - Facility capacity and infrastructure improvements are realized more quickly

Draft Strategy: Fuel Mix Implications



- **Flexibility and adaptability** considered in draft strategy, especially as technologies emerge and develop
- Draft target of 100% of new bus procurements to be **zero-emission by 2030**, **~65% zero-emission fleet by 2038**, **100% zero-emission fleet by 2045**
- Hydrogen fuel cell and other zero-emission bus types considered and evaluated in future

Draft Strategy: Electric Bus Support, Facility Requirements

Conversion of Metro facilities to support electric buses requires investment

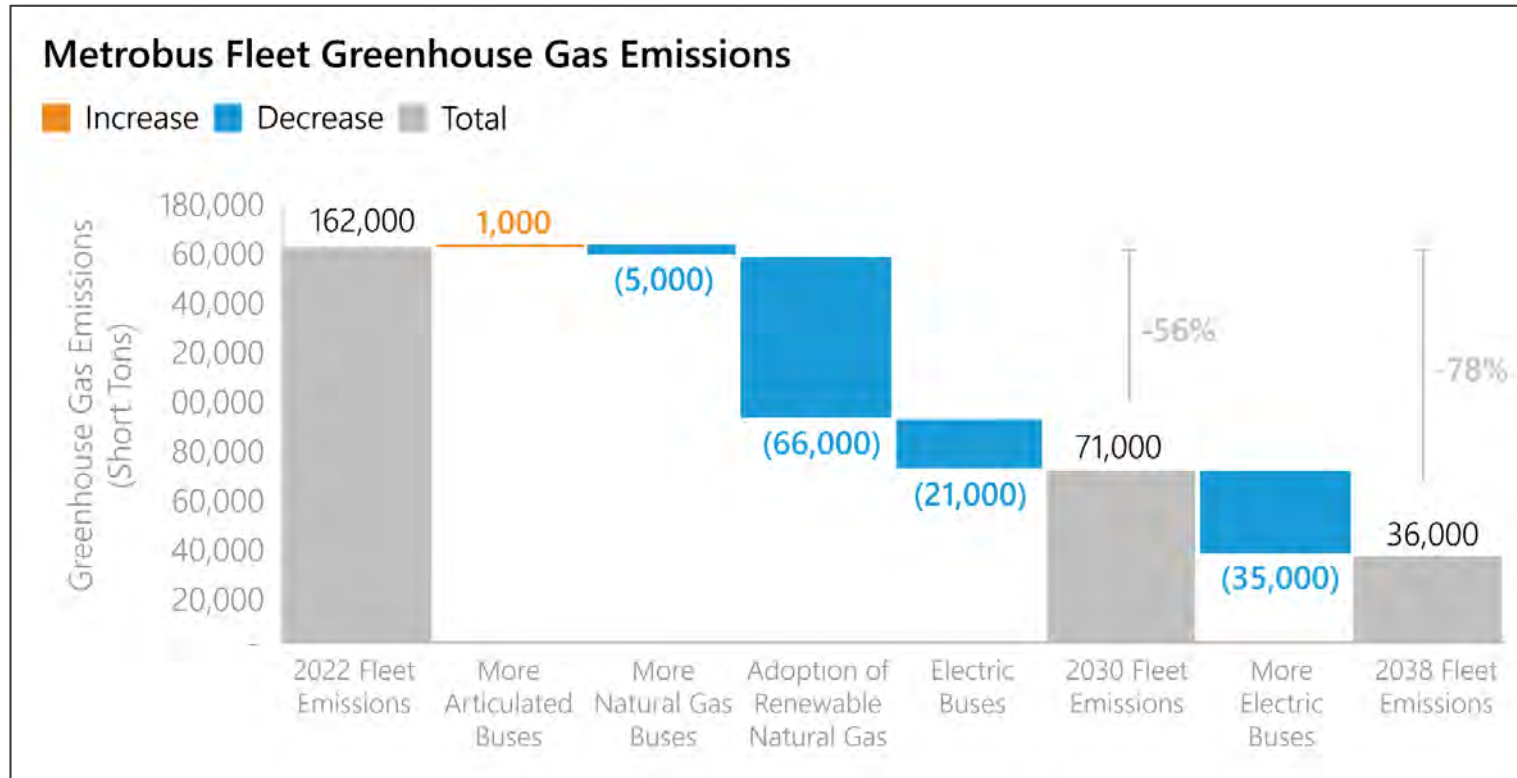
- **Charging equipment:** Chargers (plug-in, pantograph, etc.), conduits, transformers and other equipment must be installed in each garage offering electric bus support.
 - Potential exploration of in-route charging infrastructure, depending on deployment factors and fleet needs
- **Garage configuration:** Ceiling height, parking, and maintenance area dimensions and layouts likely to impact support for new bus technology.
- **Workforce opportunities and collaboration with labor:** New vehicle technologies will require new maintenance skillsets and training protocols, offer new skills and job training opportunities for workforce in the region.
- **Parts and materials storage:** New bus technology requires new parts inventories and other supporting materials and equipment.
- **Operational and safety considerations:** Time required for charging, operator role in bus charging likely to impact operations and require planning and review. Further modifications expected to ensure facility safety.

Facilities are the critical path to transition
Some factors within Metro's control, others to require regional coordination and support



Conceptual design of Division Charging Infrastructure
Source: LA Metro, ZEBGO December 2019

Draft Strategy: Emissions Implications, Greenhouse Gases



Source: EPA bus emissions data and 2020 Department of Energy Argonne National Laboratory model.

- Every trip taken with Metro instead of a car reduces the region's greenhouse gas emissions; **lower-emission vehicles provide additional benefit**
- Addition of **electric buses**, expansion of **CNG fleet**, adoption of **renewable natural gas** drive greenhouse gas emission reductions
- Estimated **~56% reduction** in annual emissions by 2030, **~78% reduction** by 2038

Metrobus Fleet Strategy Next Steps

- Metro staff presented draft Metrobus fleet strategy to Board of Directors on June 10, 2021 and recommended Board adoption of zero-emission vehicle goals:
 - Purchase only **lower-emission and electric buses** in next bus vehicle procurement
 - Transition to **100% zero-emission bus purchases by 2030**
 - **100% zero-emission bus fleet by 2045**
- Board currently considering proposed zero-emission vehicle goals



Art in Transit
New Leaf, 2006
Lisa Scheer

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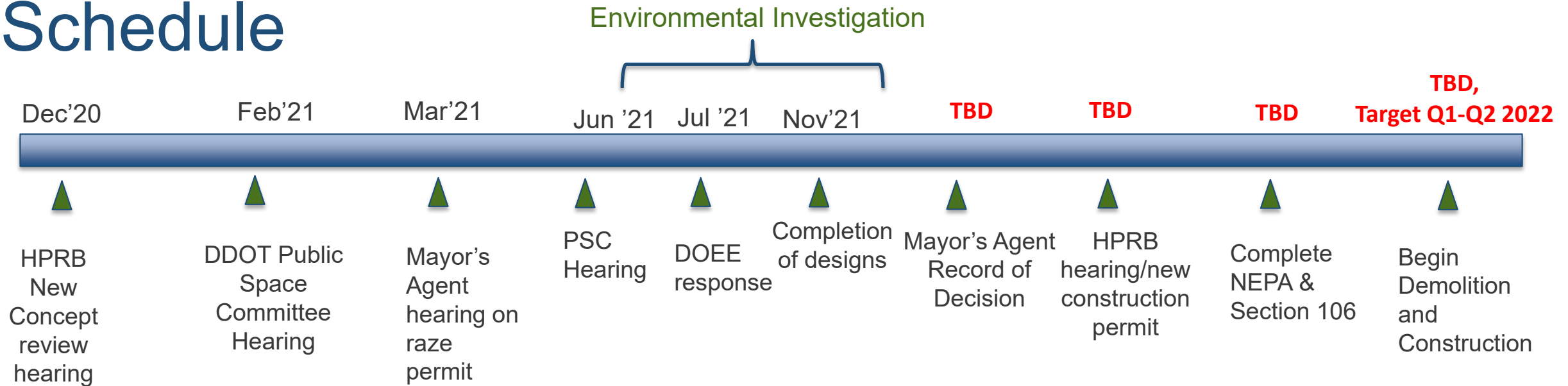


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What to Expect in 2021

Northern Bus Garage Reconstruction Project

Schedule



Mayor's Agent clearance of Raze Permit, NEPA review, and Section 106 process must be received/completed before project can begin demolition/construction

Upcoming Community Engagement Meetings



Fall
*Sept. 21, 2021



Winter
*Dec. 14, 2021

- Updates posted to wmata.com/NorthernBusGarage and shared via email
- Email MCAP_NBG_Reconstruction_Project@wmata.com to join the project's community contact list or request additional information

****Dates may be subject to change***

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Northern Bus Garage Reconstruction Project



**Summer Community Update
Meeting**

June 15, 2021



Meeting Etiquette

Metro wants to hear from you. Here are a few guidelines to keep this meeting productive and to maintain respect for all participants:

- You will have an opportunity to ask questions following each section of the presentation.
- To ensure we hear from as many community members as possible, please adhere to the Q&A protocol:
 -  Request to speak by typing your name in the chat
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 - Maintain a civil tone
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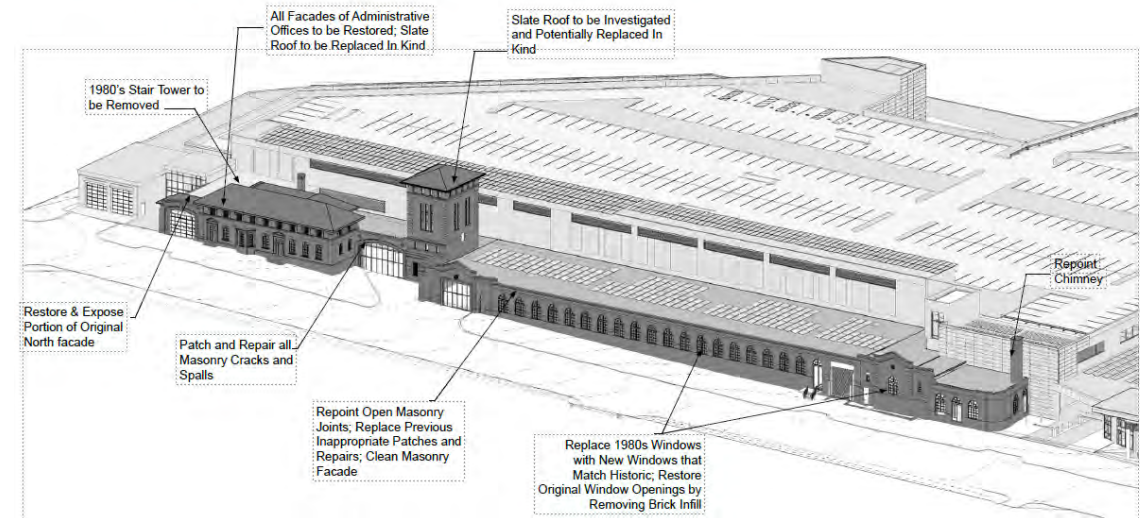
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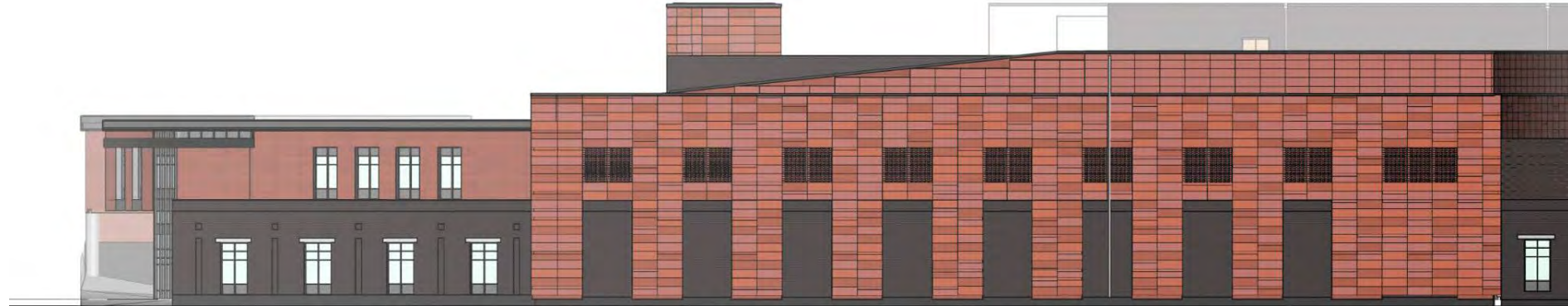
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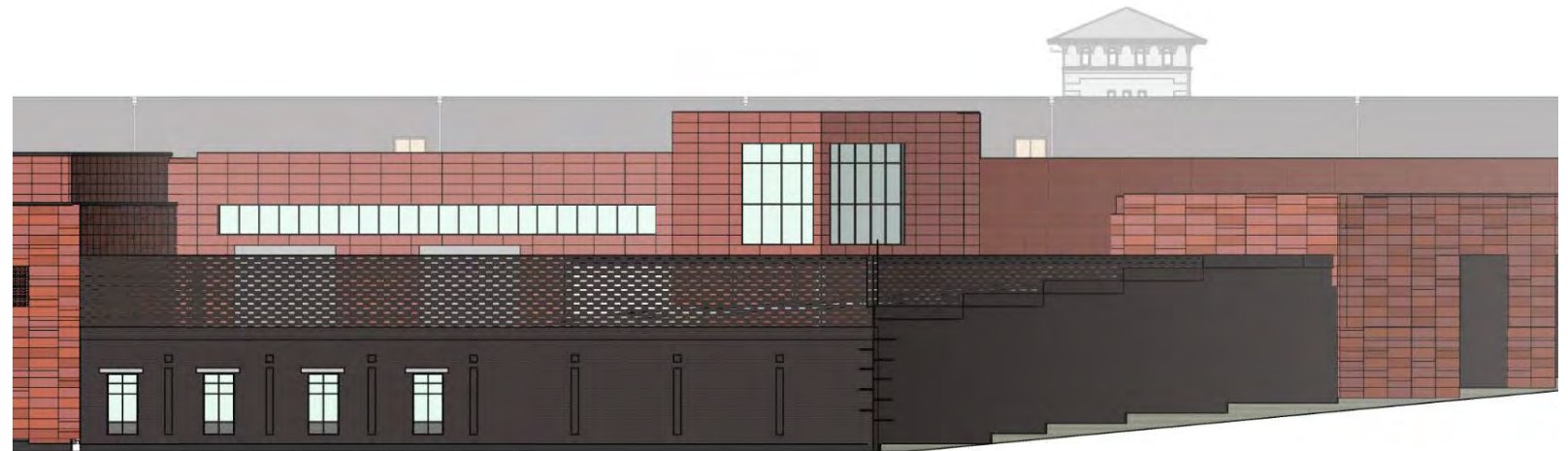
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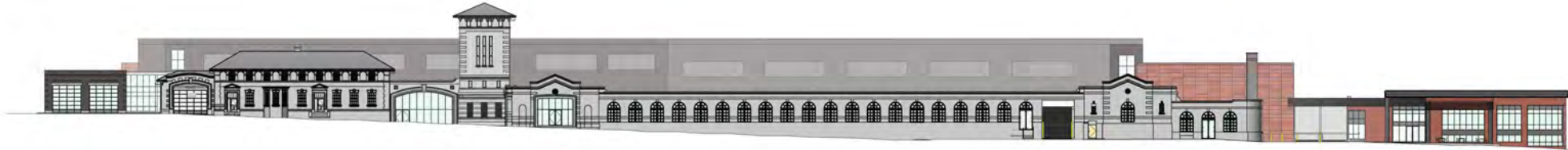
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Northern Bus Garage Reconstruction Project



VIEW 1



Northern Bus Garage Reconstruction Project



VIEW 2



Northern Bus Garage Reconstruction Project



VIEW 3



Northern Bus Garage Reconstruction Project



VIEW 4



Northern Bus Garage Reconstruction Project



VIEW 5



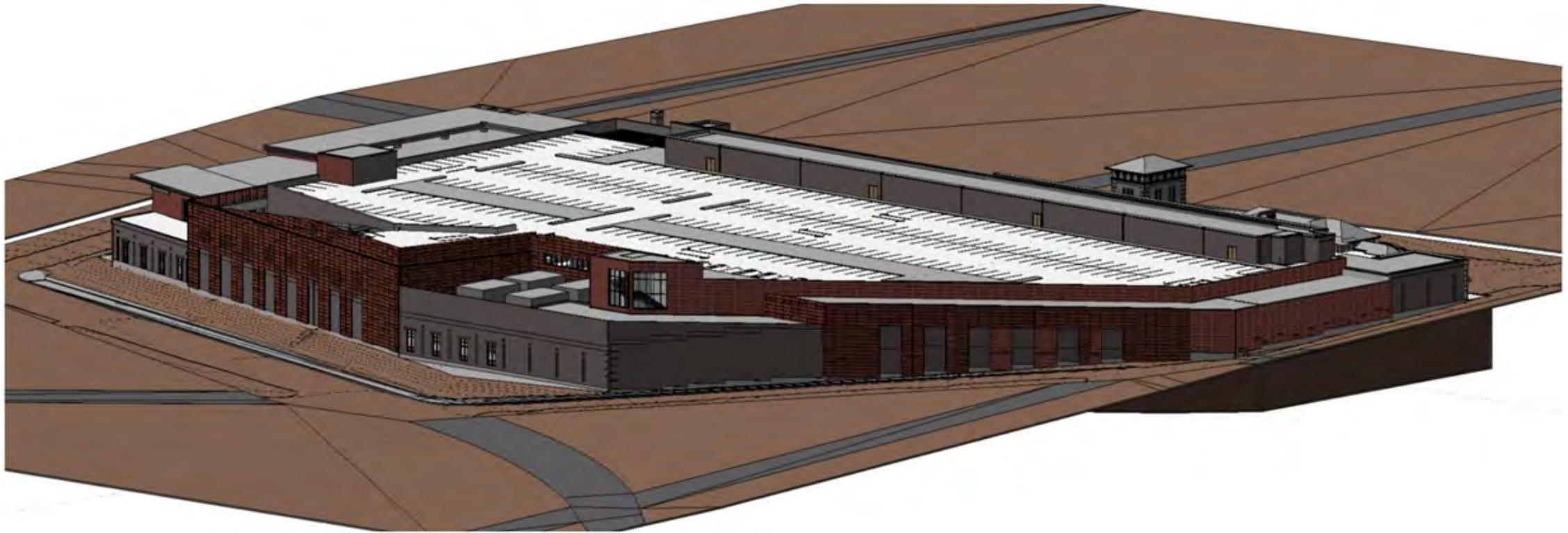
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VIEW 6



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View from Corner of Buchanan

NOTE: THE IMAGE PROVIDES AN ADDITIONAL VIEW OF THE TOP SETBACK AND IS NOT A PHOTOREALISTIC VIEW.



Design Progress Update

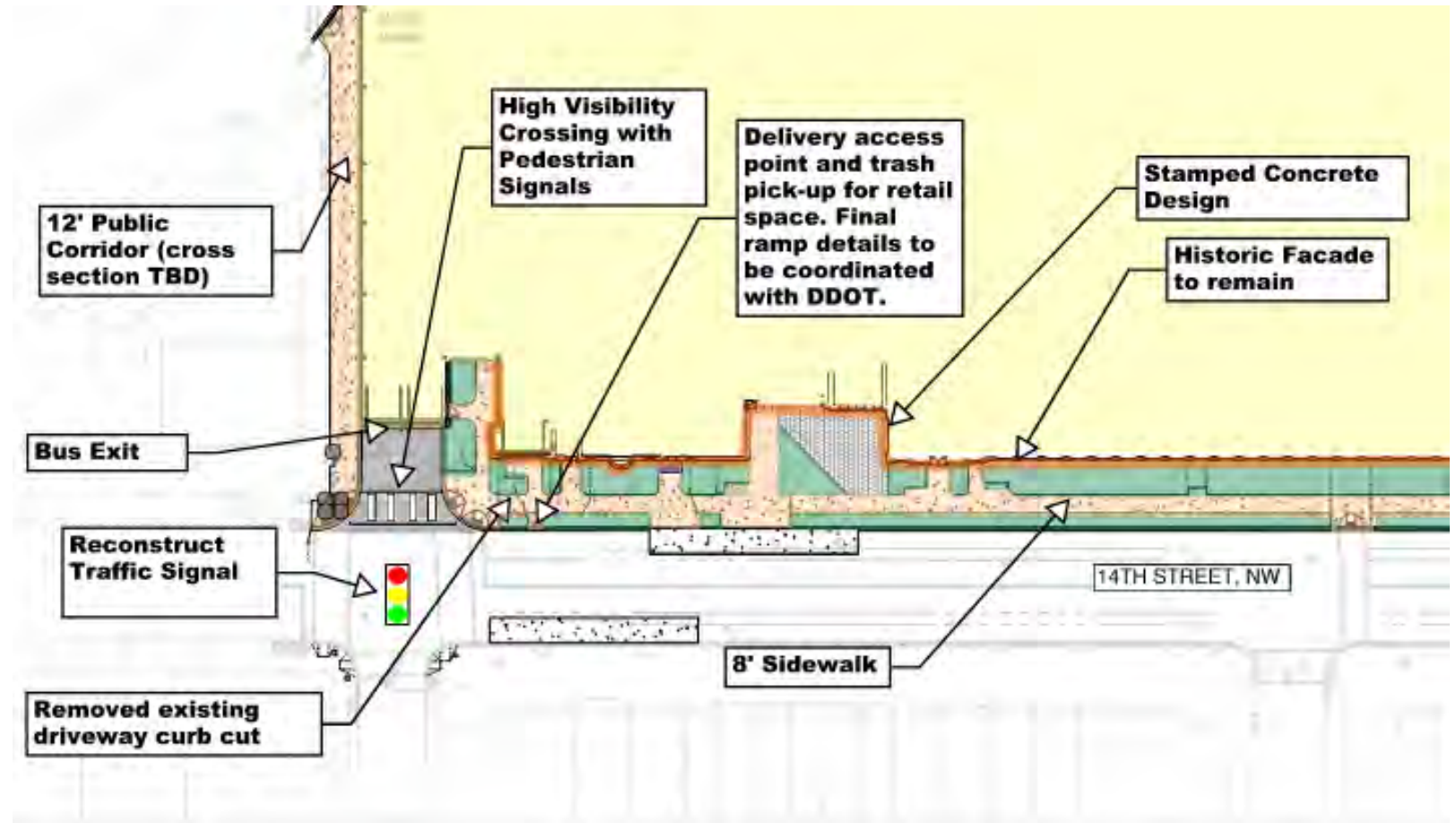
- Design Package 1 (DP1)
 - DP1 consists of civil, underground utilities and services, landscape, grading, foundation and structure
 - 75% design submitted to WMATA on April 16, 2021
 - DP1 90% submittal to WMATA is due on August 4, 2021
- Design Package 2 (DP2)
 - DP2 consists of mechanical, plumbing, electrical, building envelop, interior finishes and design
 - 75% design submittal expected on June 7, 2021
 - DP2 90% submittal expected on October 19, 2021

**Target Completion of Issue For Construction (IFC) Plans:
November 2021 and February 2022, respectively**

Proposed Site Plan

Improvements since last meeting:

- Articulating the historic trolley entry through hardscape design
- Refining retail delivery approach with DDOT
- Nominal adjustments to all curb cuts based on feedback received at the February Public Space Committee (PSC) hearing
- Return to June PSC hearing for final plan approval



Field Progress Update

- Historic Foundation Test Pitting Program
 - Purpose is to collect data on size and depth of the wall footings, top of rock elevation at the existing wall footings, the depth of the underground storage tank anchor slabs, and the depth and exact location of the sewer along 14th Street, which will provide us with the necessary information to finalize the bus garage design
- Caisson Load Test Program
 - Purpose is to validate the new building's foundation design by measuring the capacity of the soil and rock underneath the existing bus garage
- Work on both programs started on June 7 and is expected to be completed this month

Field Progress Update



- Shown (left) is the progress of the first test pit searching for a wall footing
- The test pitting requires us to remove a small section of the concrete slab to access the soil underneath
- The soil is then mostly hand-dug, once accessible
- All soils will be backfilled into the pits once the foundation elements are surveyed

Any Questions?

There are two ways to submit your questions



Request to speak by typing your name in the chat



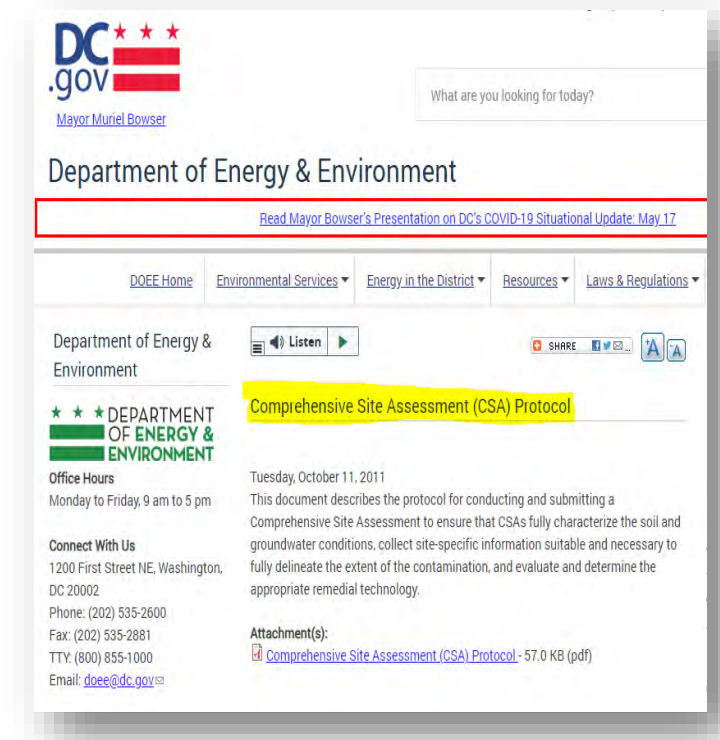
Type questions directly into the chat

Environmental Management: Overview and Status

Northern Bus Garage Reconstruction Project

DOEE Collaboration

- Comprehensive Site Assessment (CSA) Work Plan
 - Original submission February 2021
 - DOEE comments received & incorporated
 - Revised CSA report submitted in May 2021
- Revised CSA Work Plan includes workplan covering:
 - Four wells near Arkansas and Iowa Avenues
 - 18 well points (2 water samples per hole and 1-2 soil sample per hole)
 - Confirmatory sampling in excavated areas
 - Approval received June 4
- Next steps:
 - Secure permits
 - Complete investigations and provide findings to DOEE



Air Pollution Treatment Update

- WMATA & Clark performed review of MERV 14 filters versus MERV 16 filters to be used in the 14 units of Dry Scrubber Technology
- Use of MERV 16 filters, instead of MERV 14 filters as previously proposed, is achievable with several accommodations and changes to the current design
- ASHRAE estimated 95% efficiency in filtering particulate matters of all sizes with MERV 16 filters
- MERV Filters Maintenance:
 - Will be checked by monitoring pressure differences across the filters
 - Will be monitored monthly for the first six months to determine frequency of replacement, then quarterly after that

ASHRAE Standard 52.2-2017 -- Minimum Efficiency Reporting Value (MERV)

Standard 52.2 Minimum Efficiency Reporting Value (MERV)	Composite Average Particle Size Efficiency, % in Size Range, μm			
	Range 1 0.30 to 1.0	Range 2 1.0 to 3.0	Range 3 3.0 to 10.0	Average Arrestance, %
1	N/A	N/A	$E_3 < 20$	$A_{avg} < 65$
2	N/A	N/A	$E_3 < 20$	$65 \leq A_{avg}$
3	N/A	N/A	$E_3 < 20$	$70 \leq A_{avg}$
4	N/A	N/A	$E_3 < 20$	$75 \leq A_{avg}$
5	N/A	N/A	$20 \leq E_3$	N/A
6	N/A	N/A	$35 \leq E_3$	N/A
7	N/A	N/A	$50 \leq E_3$	N/A
8	N/A	$20 \leq E_2$	$70 \leq E_3$	N/A
9	N/A	$35 \leq E_2$	$75 \leq E_3$	N/A
10	N/A	$50 \leq E_2$	$80 \leq E_3$	N/A
11	$20 \leq E_1$	$65 \leq E_2$	$85 \leq E_3$	N/A
12	$35 \leq E_1$	$80 \leq E_2$	$90 \leq E_3$	N/A
13	$50 \leq E_1$	$85 \leq E_2$	$90 \leq E_3$	N/A
14	$75 \leq E_1$	$90 \leq E_2$	$95 \leq E_3$	N/A
15	$85 \leq E_1$	$90 \leq E_2$	$95 \leq E_3$	N/A
16	$95 \leq E_1$	$95 \leq E_2$	$95 \leq E_3$	N/A

Average Minimum PSE Designator	Corresponding Size Range Group, μm
E_1	0.30 to 1.0
E_2	1.0 to 3.0
E_3	3.0 to 10

Any Questions?

There are two ways to submit your questions



Request to speak by typing your name in the chat



Type questions directly into the chat

Construction Survey and Claims Processes

Northern Bus Garage Reconstruction Project

Construction Monitoring

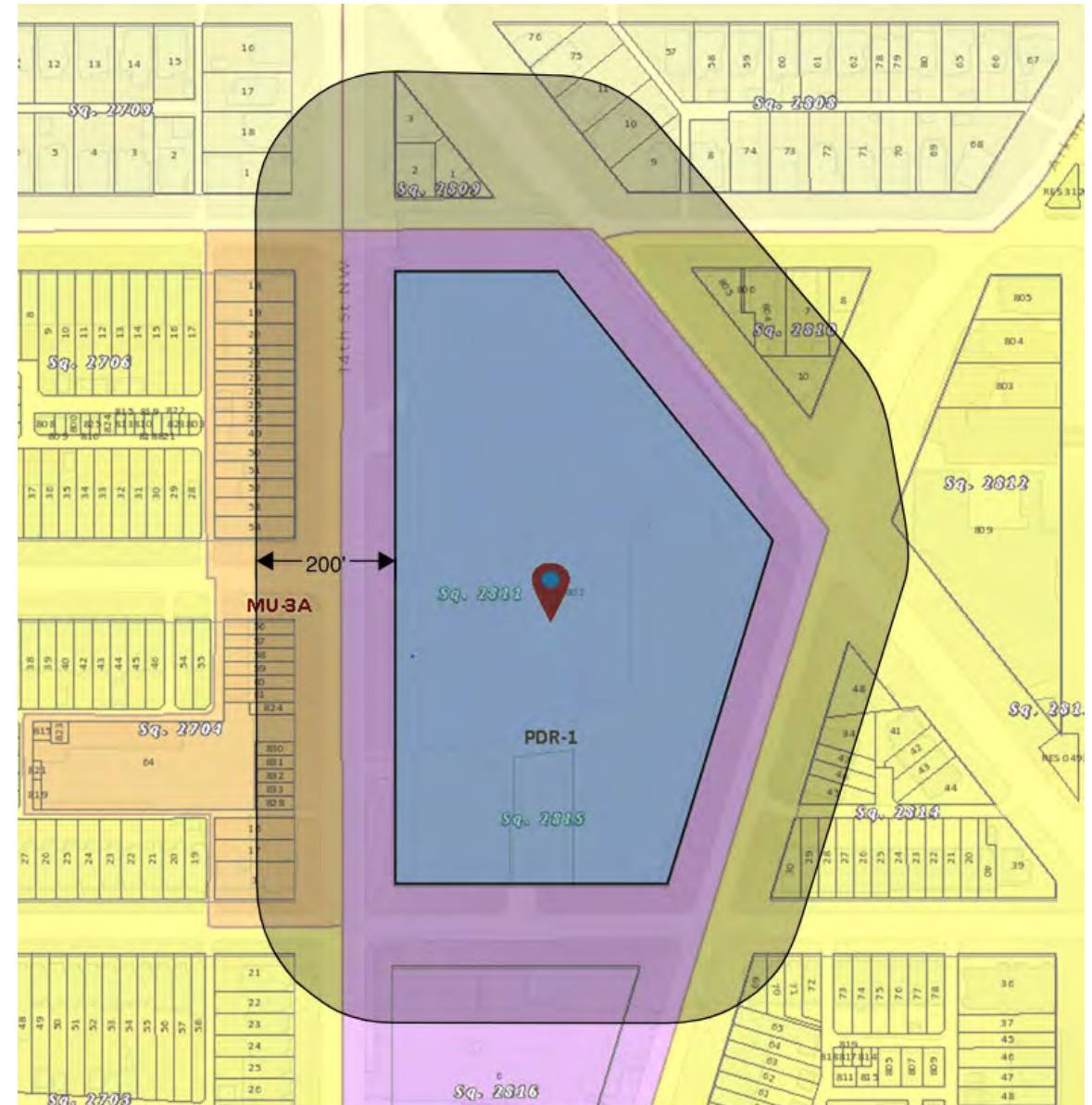
- Various instruments installed to monitor for movements as coordinated and permitted with District of Columbia agencies
 - In ground to measure movement and groundwater
 - On Adjacent Structures (with owner permission)
 - On Ground surface
 - On Utilities
- Vibration monitoring will occur at project perimeter
- Baseline readings of current background noise and vibration will be established for at least 30 days prior to the start of demolition

Pre- and Post-Construction Survey Overview

- Clark team will engage an engineering firm to conduct pre-existing condition surveys of homes and buildings in the neighborhood around the Northern Bus Garage
- These inspections will document the current interior and exterior condition of the surveyed properties and help expedite processing any future claims

Pre- and Post-Construction Surveys

- Map shows an overlay with the properties that fall within 200 ft of the proposed new bus garage



Recap: Pre- and Post-Construction Survey Process

- Surveys offered for all adjacent buildings within 200 ft of the WMATA property lines
 - Purpose is to document existing conditions of structures prior to the start of major construction
 - Baseline report prepared prior to start of demolition
 - Invite to opt into inspection program provided to property owner about 90 days prior to planned start of work
 - Property is eligible for a post-construction survey even if owner did not elect to get a pre-construction survey, though survey findings may be more limited, and damage claims maybe be more difficult absent a pre-construction survey
- Surveys performed by independent third-party engineering firm
 - A hard copy and digital copy (CD or thumb drive) is provided to the property owner via certified mail
 - Point of contact provided for property owner to discuss any questions on the survey findings

Damage Claims Process

Northern Bus Garage Reconstruction Project

Damage Claim Process

- Claim form will be available by request through the project website
 - wmata.com/NorthernBusGarage
- Clark project staff will review the claim form with property owners to make sure all required information is submitted
- Claim forms will be submitted to Clark's risk department by our safety manager
- Claims will be assigned to an adjuster by Clark's insurance company
- The insurance adjuster will contact the property owner to schedule an inspection of the reported damage

Damage Claim Process

- After inspection, the adjuster will provide a written estimate for the cost of repairs to the property owner
- The property owner may choose to get an independent opinion of cost for repairs
- Once a settlement agreement is reached between property owner and insurer, payment will be made to the property owner by the insurance company
- If the damage claim is found to not have merit, a findings letter will be prepared by the adjuster and mailed to the property owner
- There is an appeals process if the property owner disagrees with the adjuster's determination

Any Questions?

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Type questions directly into the chat

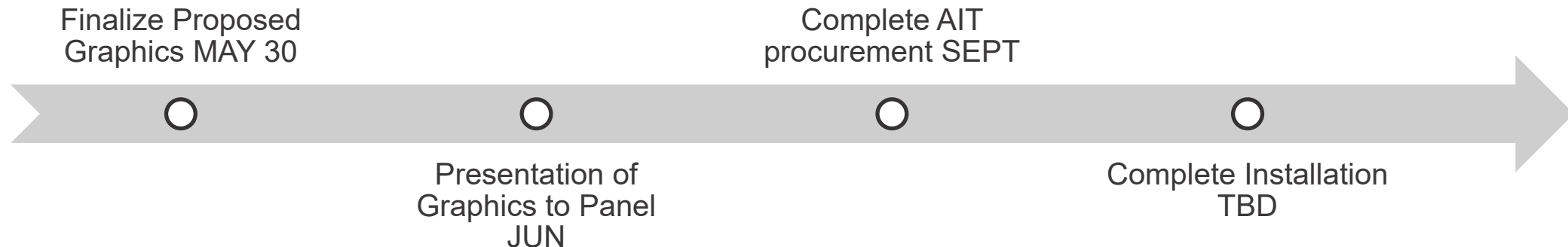
Art in Transit: Perimeter Fencing

Northern Bus Garage Reconstruction Project

Art in Transit (AIT): Perimeter Fencing

- Graphics are in the process of being completed by WMATA AIT graphic designer
- WMATA AIT & Government Relations teams will coordinate with panel of community representatives to present proposed graphics
- WMATA will launch procurement process to produce and install graphics on the perimeter fence

Interim AIT Planned Timeline CY21 (subject to change)



AIT: Perimeter Fencing Proposed Graphics

- Idea behind graphic:
 - Evolution of public transportation
 - Celebrating the neighborhood
 - Connecting the neighborhood
- Social media moment



Graphics are drafts and for preview purposes only

Any Questions?

There are two ways to submit your questions



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Type questions directly into the chat

Update on Metro's Zero-Emission Bus Strategy

Northern Bus Garage Reconstruction Project

Metrobus Fleet Strategy Key Questions



1. **What level of service** does Metro expect to supply in the future?
2. **How many buses** should Metro operate to meet demand and service requirements?
3. **What types of buses** should Metro operate?
4. **How will Metro's maintenance facilities and operations** meet evolving fleet needs?



Why Consider Electric Buses?

Benefits for regional air quality, customer experience



Cleaner air, reduced greenhouse gas and tailpipe emissions



Quieter vehicles, less vibration, increased passenger comfort



Decreased use of fossil fuels, reduced fuel costs

Local Air Quality Context

Metrobus fleet can help drive regional air quality improvements

The Metropolitan Washington Council of Governments (MWCOG) identifies ground level **ozone** and **particulate matter** as the two most important pollutants harmful to health in the region

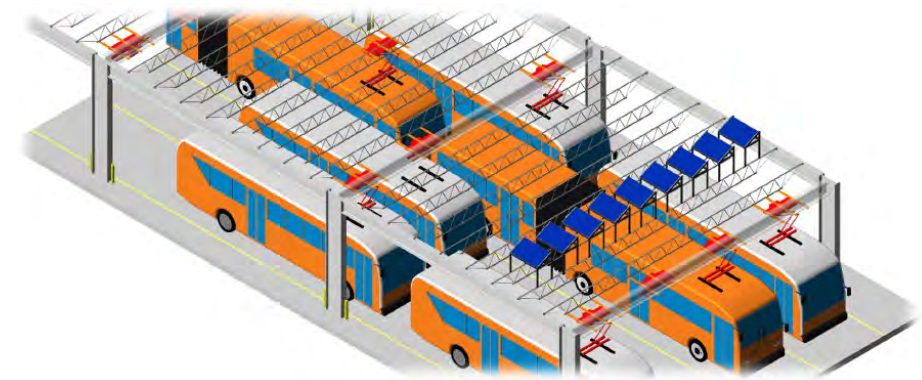
Ozone is formed by interaction between nitrogen oxides (NOx) and volatile organic compounds (VOC)

Region not meeting standards for ozone, is meeting standards for particulate matter with occasional exceedance days

Other pollutants tracked include carbon monoxide, for which region meets all standards

Electric Buses: Industry-wide momentum, varied approaches to adoption

- Of ~55,000 U.S. transit buses: approximately 29,000 diesel, 12,500 CNG, 9,000 diesel-electric hybrid, 3,600 biodiesel, 600 electric trolleybuses, **500 battery-electric buses** with an additional **500 additional battery-electric bus orders pending**
- Regional targets and regulations encouraging or requiring fleet conversion
- Peer approaches include
 - Full commitment to 100% zero-emission fleet, infrastructure support
 - Test deployments to evaluate technology in operation
 - Wait-and-see approach as technologies mature



LA Metro Bus Division Overhead Charging Concept

Current and Upcoming Electric Bus Activities

- **Electric Bus Test & Evaluation**

- Pilot program operating out of Shepherd Parkway to include deployment, testing and evaluation of ~10 standard-length electric buses and ~2 articulated electric buses.
- Project work is ongoing, with bus deliveries expected in early FY2023 and project closeout completed by mid-FY2024.

- **Continued Coordination with Electric Utilities**

- Staff working with local electric utilities to define future fleet electrification requirements and outline requirements for successful integration with grid infrastructure.

- **Evaluation of Additional Funding Sources**

- Staff reviewing potential opportunities for funding support of electric bus technology adoption, including federal programs and grants.

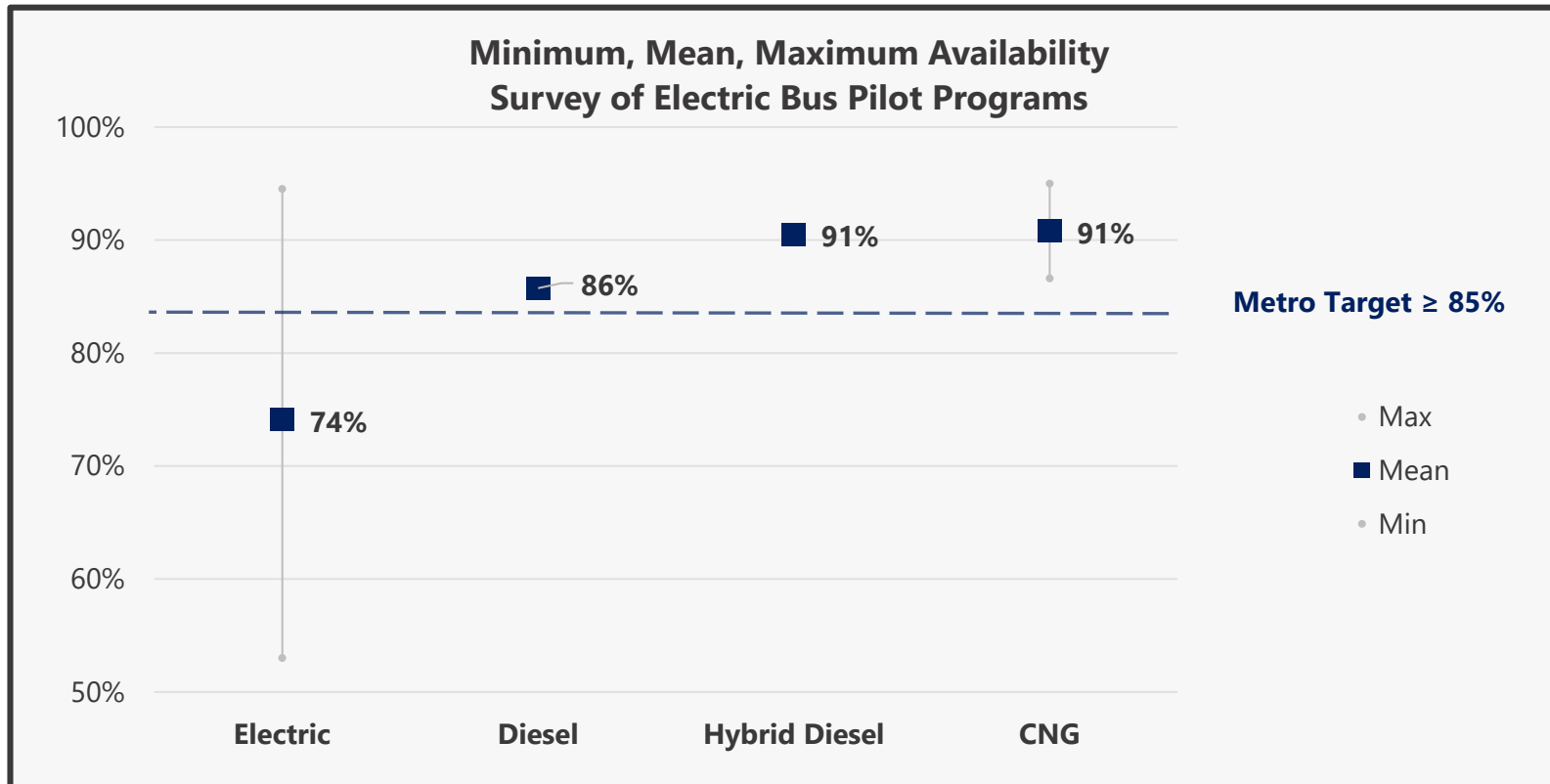


Current and Upcoming Electric Bus Activities

- **Upcoming Five-Year Bus Procurement**
 - Development of Metro's next five-year bus procurement contract, including vehicle specifications.
 - Initial procurement development is ongoing, with issuance of request for proposals expected in FY2022. Contract bus deliveries expected to begin in FY2024.
- **Hiring of Program Management Team**
 - Expansion of staff support required to manage program associated with fleet electrification. Hiring activities underway.
- **Planning and Capital Project Development for Garage Electrification**
 - Development and evaluation of capital projects to expand Metro capacity to support, maintain, charge and store electric buses. Identification of sequencing and timing of garage conversion to support future fleet needs.
 - **Exploration of Potential Hydrogen Fuel Cell Bus Test and Evaluation**
 - Staff to review potential program structure, implementation options and funding sources for test and evaluation of hydrogen fuel cell bus technologies.

Battery Electric Bus Availability, Survey of Pilots

Electric buses have not yet demonstrated consistent reliability on par with conventional vehicles








Improvements expected as technologies scale, market commitments shift to electric buses and manufacturers respond

Survey of publicly available industry test and evaluation data
5 manufacturers (4 electric), 96 buses (49 electric), 6 peer agencies

Metro Advancing Electric Bus Plans, Monitoring Technology

Expectation is electric buses will eventually be capable of 1-for-1 replacement of conventional buses

Every year, Metro's bus fleet covers 50 million miles and delivers 3.7 million hours of service

Performance Factor		Present	Target
	Miles/hours of service	Limited demonstration data suggests ~15,000-20,000 miles/year	On par with conventional vehicles ~30,000 miles/year
	Availability	Demonstrated availability averages ~75%	On par with conventional vehicles ~Available 85% of days
	Reliability	Limited demonstration data suggests ~2,500-5,000 miles between failures	On par with conventional vehicles, Metro target ~7,000 miles between failures
	Travel range	In ideal operating conditions ~150 miles	On par with conventional vehicles ~250+ miles
	Useful life	Useful life assumption of 12 years	On par with conventional vehicles 15 years

Upcoming Electric Bus Test and Evaluation will provide data and experience with electric bus performance in Metro operating conditions

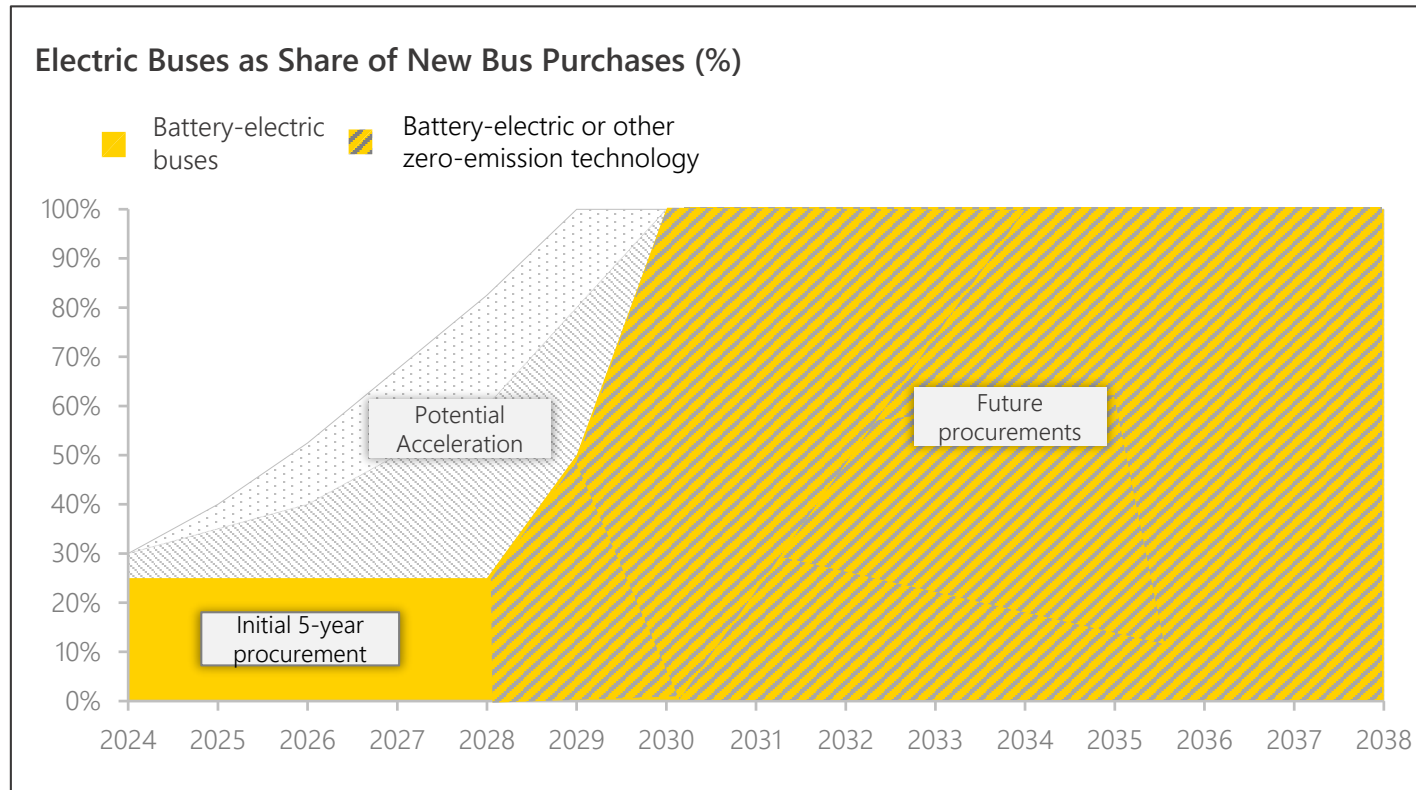
Draft Strategy: Metrobus Fleet Summary

- **Begin adoption of electric buses**, starting with next bus procurement, and transition new bus procurement to 100% electric or other zero-emission technologies by 2030, fleet fully zero-emission by 2045.
- Maintain **steady state** fleet size of approximately 1,593 buses, procuring 100 new vehicles per year.
- **Articulated 60-foot buses**: Grow share of overall bus fleet from current **4% to 12%**, or 180 buses, to address crowding and improve capacity on high ridership corridors.
- **Spare ratio of 19.5%**, changed from current 18.5%, to support bus technology transition, increase in articulated buses, reduced garage and fleet flexibility, and increased capital program support needs (e.g., Platform Improvement Project).

A fleet's **spare ratio** is defined as the number of **spare vehicles** (extra buses in the fleet for maintenance and training purposes) **divided by the number of vehicles required for annual maximum service** (running service at the busiest time on the busiest day).

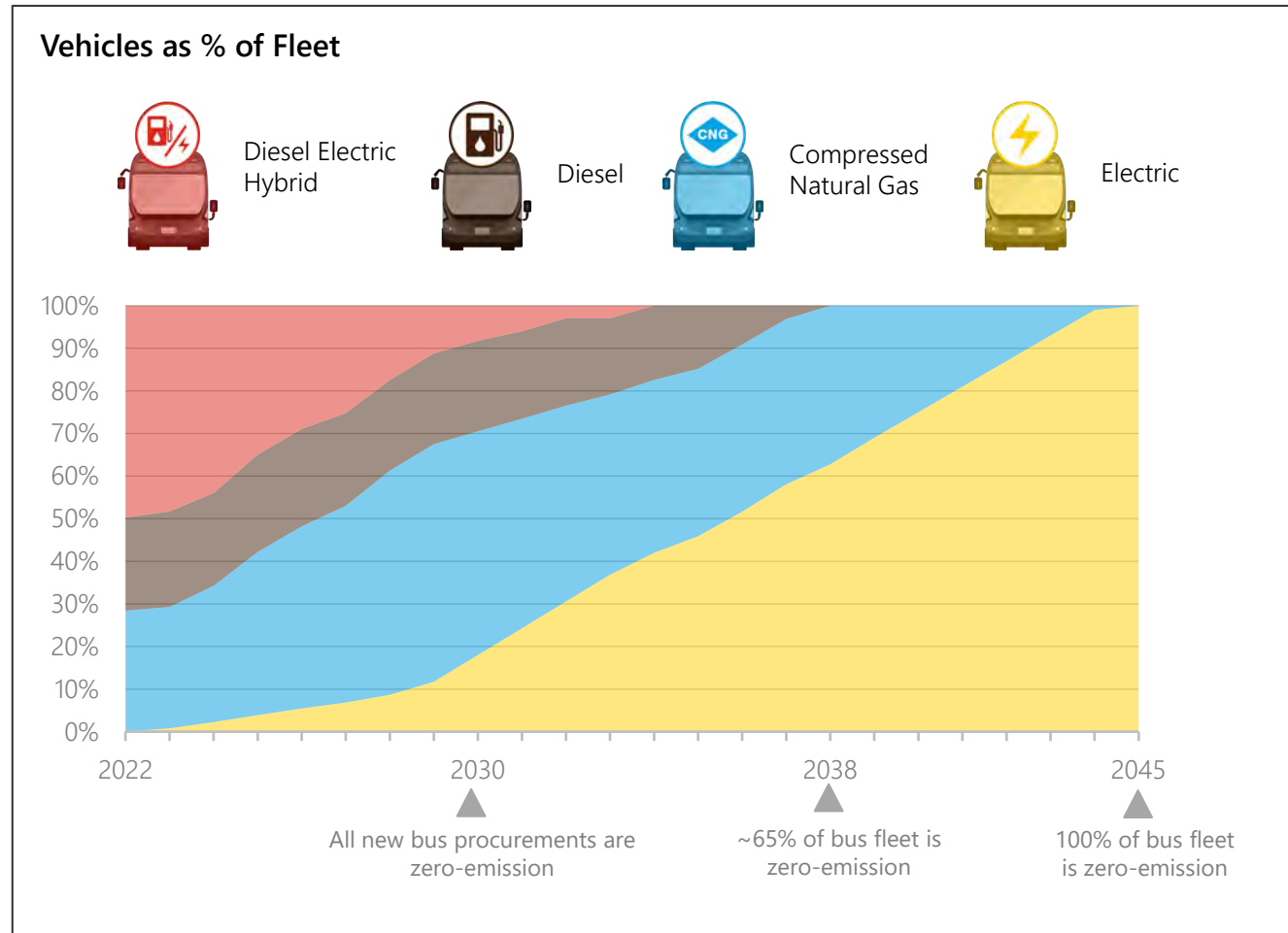
Spare ratios are expressed as a percentage. If a fleet had **100 vehicles** required for service and **20 spares**, the total fleet is 120 buses and has a **spare ratio of 20%**.

Draft Strategy: Bus Procurement



- Draft Bus Fleet Strategy contemplates **phased approach** to electric bus adoption
 - Purchase only **lower-emission and electric buses** in next bus procurement
 - Transition to **100% zero-emission bus purchases by 2030**
 - Fleet **100% zero-emission by 2045**
- Draft Strategy weighs flexibility and adaptability with the potential for faster adoption of electric or other zero-emission buses if:
 - 1-for-1 replacement is possible sooner
 - More funding is available
 - Facility capacity and infrastructure improvements are realized more quickly

Draft Strategy: Fuel Mix Implications



- **Flexibility and adaptability** considered in draft strategy, especially as technologies emerge and develop
- Draft target of 100% of new bus procurements to be **zero-emission by 2030**, **~65% zero-emission fleet by 2038**, **100% zero-emission fleet by 2045**
- Hydrogen fuel cell and other zero-emission bus types considered and evaluated in future

Draft Strategy: Electric Bus Support, Facility Requirements

Conversion of Metro facilities to support electric buses requires investment

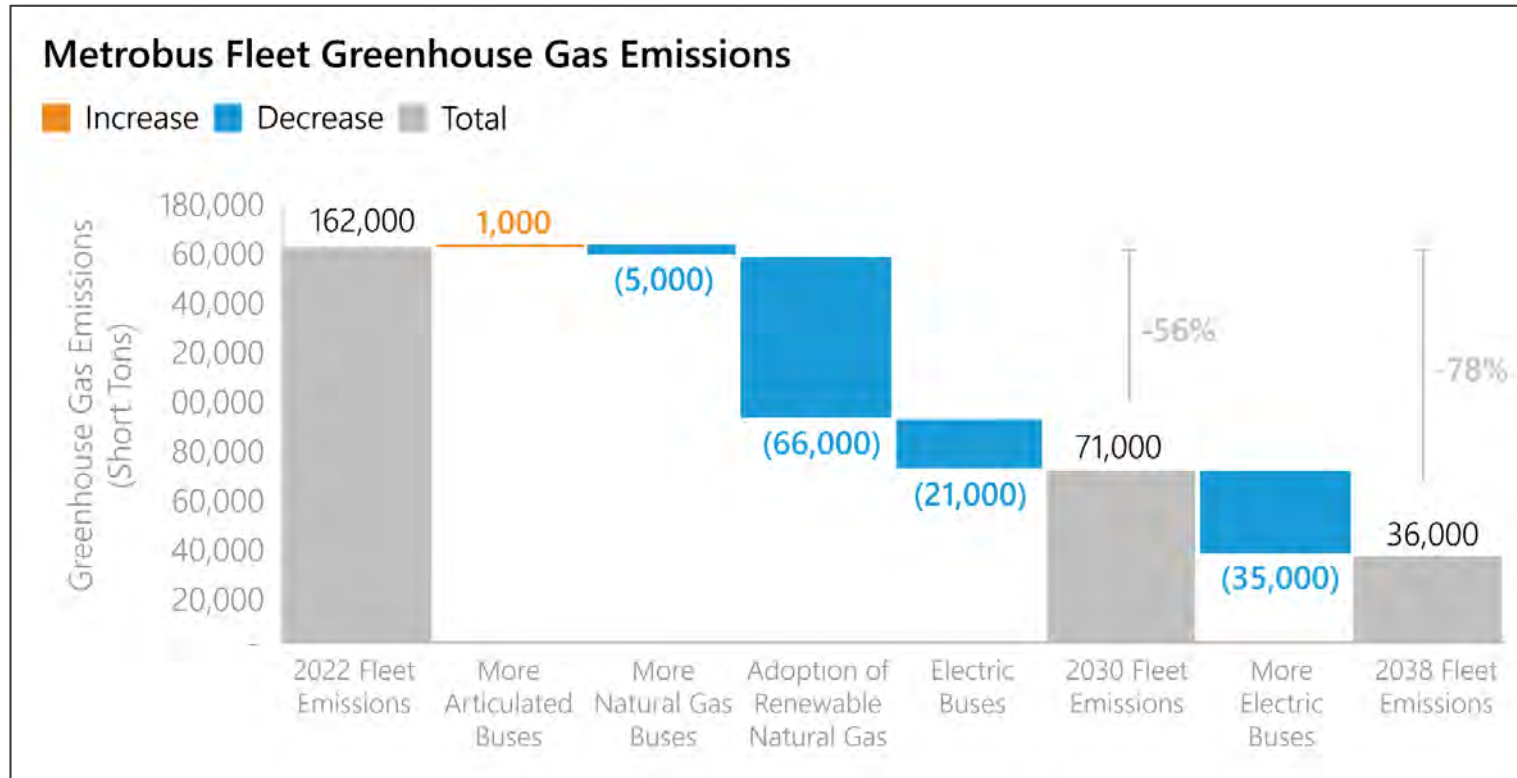
- **Charging equipment:** Chargers (plug-in, pantograph, etc.), conduits, transformers and other equipment must be installed in each garage offering electric bus support.
 - Potential exploration of in-route charging infrastructure, depending on deployment factors and fleet needs
- **Garage configuration:** Ceiling height, parking, and maintenance area dimensions and layouts likely to impact support for new bus technology.
- **Workforce opportunities and collaboration with labor:** New vehicle technologies will require new maintenance skillsets and training protocols, offer new skills and job training opportunities for workforce in the region.
- **Parts and materials storage:** New bus technology requires new parts inventories and other supporting materials and equipment.
- **Operational and safety considerations:** Time required for charging, operator role in bus charging likely to impact operations and require planning and review. Further modifications expected to ensure facility safety.

Facilities are the critical path to transition
Some factors within Metro's control, others to require regional coordination and support



Conceptual design of Division Charging Infrastructure
Source: LA Metro, ZEBGO December 2019

Draft Strategy: Emissions Implications, Greenhouse Gases



Source: EPA bus emissions data and 2020 Department of Energy Argonne National Laboratory model.

- Every trip taken with Metro instead of a car reduces the region's greenhouse gas emissions; **lower-emission vehicles provide additional benefit**
- Addition of **electric buses**, expansion of **CNG fleet**, adoption of **renewable natural gas** drive greenhouse gas emission reductions
- Estimated **~56% reduction** in annual emissions by 2030, **~78% reduction** by 2038

Metrobus Fleet Strategy Next Steps

- Metro staff presented draft Metrobus fleet strategy to Board of Directors on June 10, 2021 and recommended Board adoption of zero-emission vehicle goals:
 - Purchase only **lower-emission and electric buses** in next bus vehicle procurement
 - Transition to **100% zero-emission bus purchases by 2030**
 - **100% zero-emission bus fleet by 2045**
- Board currently considering proposed zero-emission vehicle goals



Art in Transit
New Leaf, 2006
Lisa Scheer

Any Questions?

There are two ways to submit your questions



Request to speak by typing your name in the chat

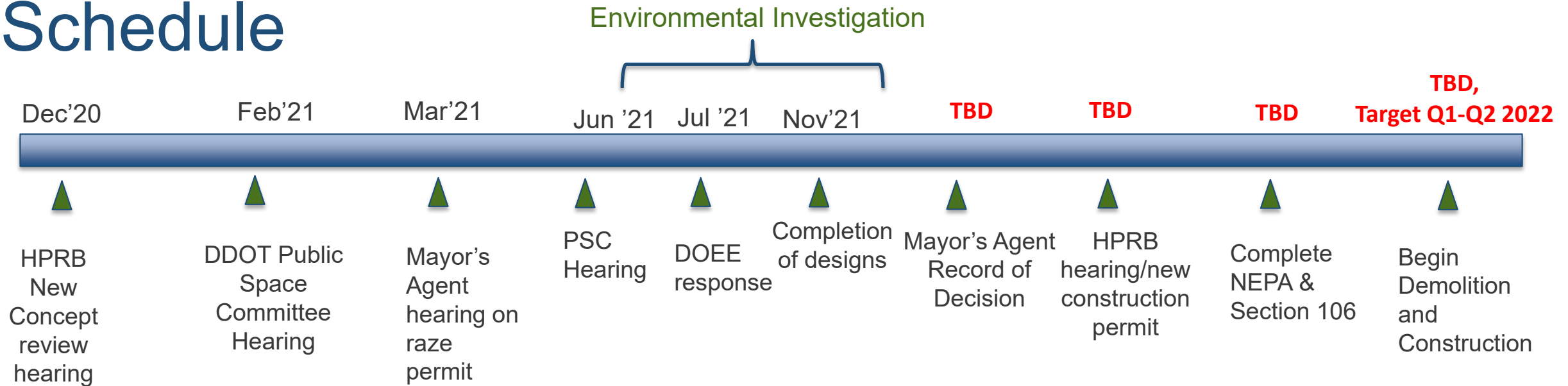


Type questions directly into the chat

What to Expect in 2021

Northern Bus Garage Reconstruction Project

Schedule



Mayor's Agent clearance of Raze Permit, NEPA review, and Section 106 process must be received/completed before project can begin demolition/construction

Upcoming Community Engagement Meetings



Fall
*Sept. 21, 2021



Winter
*Dec. 14, 2021

- Updates posted to wmata.com/NorthernBusGarage and shared via email
- Email MCAP_NBG_Reconstruction_Project@wmata.com to join the project's community contact list or request additional information

****Dates may be subject to change***

Any Questions?

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Type questions directly into the chat

APPENDIX 3: REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM AMENDMENT
NUMBER 5857

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Appendix A: DC STIP Project List

Introduction to Project Listings

The first and second years of the program contain a priority listing of those projects selected for funding. Each transportation improvement project must be included in the first or second year at key stages in its implementation (preliminary engineering, right-of-way acquisition, and construction) as a basis and condition for all federal funding assistance. This includes all FAST Act funding under Title I (Surface Transportation) and Title III (Transit) to state, local, and regional implementing agencies for highway, transit, bicycle and pedestrian capital improvements and transit operating assistance. Projects are grouped according to the agency or jurisdiction responsible for implementation.

Identification of the funding source is for programming purposes only and does not necessarily represent approval from the appropriate federal agency. Projects may appear in programs at various times: when applications for federal funds are made for preliminary engineering, right-of-way acquisition, construction, study or other. Funding source codes are defined in Appendix C of this document.

All major projects in the TIP come from Visualize 2045. In addition, a number of projects appear in the TIP which are minor in nature and are shown in order to establish eligibility for federal funding assistance. Also, some non-federally funded projects are shown, which are either recommended in the Plan, or are considered regionally significant and important to identify for air quality analysis and informational purposes.

Grouping of Projects

Some projects in the program are considered to be too small in scale for individual identification in the TIP. These types of projects include signalization, traffic engineering, various safety, noise abatement, modernization projects, preventive maintenance and rehabilitation that do not change the use or scale of existing facilities, and certain small-scale highway and transit projects, do not trigger and air quality conformity analysis, and typically require a NEPA Categorical Exclusion or Programmatic Categorical Exclusion. These types of projects are grouped together under type of project, funding source, and programming agency. In February 1994, the TPB approved a set of criteria for grouping projects based upon those project types that are exempt in the EPA air quality conformity regulations.

<i>TIP ID</i>	5857	<i>Agency Project ID</i>		<i>Total Cost</i>	\$318,910,000
<i>Lead Agency</i>	Washington Metropolitan Area Transit Authority	<i>Municipality</i>	Region-wide	<i>County</i>	
<i>Project Type</i>	Transit - Maintenance	<i>Completion Date</i>		<i>TCM</i>	
<i>Project Name</i>	Bus Garages - Systemwide Maintenance, Expansion, Rehabilitation, and Replacement				
<i>Project Limits</i>	Not Location Specific				
<i>Description</i>	Provides funds for: a. Rehabilitation and Replacement of Bus Garages: upgrades, rehabilitation, and/or replacement of bus garages and maintenance facilities, including Bladensburg and Northern Bus Facilities. Maintenance of Bus Garages: maintenance of bus garages/maintenance facilities. c. Expansion of Bus Garages: expansion of bus garages to meet storage and maintenance needs of growing fleet.				

Phase	Fund Source	Prior	FY2021	FY2022	FY2023	FY2024	Future	Total
OTHER	SECT. 5307	\$15,840,000	\$17,416,000	\$3,600,000	\$6,000,000	\$2,600,000	-	\$45,456,000
OTHER	LOCAL	\$29,260,000	\$4,354,000	\$26,070,000	\$81,000,000	\$132,770,000	-	\$273,454,000
	<i>Total Other</i>	\$45,100,000	\$21,770,000	\$29,670,000	\$87,000,000	\$135,370,000	-	\$318,910,000
	<i>Total Programmed</i>	\$45,100,000	\$21,770,000	\$29,670,000	\$87,000,000	\$135,370,000	-	\$318,910,000



*Not Location Specific

Version History

<i>TIP Document</i>			<i>MPO</i>	<i>State</i>	<i>FHWA</i>	<i>FTA</i>
			<i>Approval</i>	<i>Approval</i>	<i>Approval</i>	<i>Approval</i>
21-00	Adoption	2021-2024	03/20/2020	10/01/2020	05/27/2020	05/27/2020

Current Change Reason

SCHEDULE / FUNDING / SCOPE - Programming Update

APPENDIX 4: AIR QUALITY MANAGEMENT

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WMATA NORTHERN BUS GARAGE REPLACEMENT

AIR QUALITY CONFORMITY AND HOT SPOT ANALYSES

APRIL 23, 2020

Prepared by: HNTB

Introduction

WMATA intends to use federal funding from the Federal Transit Administration (FTA) for the replacement of the Northern Bus Garage. The following explains the role of air quality conformity and hot spot analyses for the project.

The Environmental Protection Agency (EPA) sets limits on each of the six criteria pollutants in the National Ambient Air Quality Standards (NAAQS), limiting the level of concentration of these pollutants in the air for each jurisdiction:

- Carbon monoxide (CO)
- Small particulate matter (PM2.5, PM10)
- Ozone (O3)
- Nitrogen dioxide (NO2)
- Sulfur dioxide (SO2)
- Lead (Pb)

Air Quality Conformity

Air quality conformity is a process intended to ensure that FTA funding goes to transit activities that are consistent with the air quality goals set forth in the CAA. Air quality conformity applies to two levels of transportation activity described below.

Regional Plans

Regional plan conformity is a process required of National Capital Region Transportation Planning Board (TPB), as the region's metropolitan planning organization, to ensure that only those transportation activities that are consistent with air quality goals receive federal funding and approval. TPB staff test the draft plans and Transportation Improvement Programs (TIPs) to ensure that the region's planned transportation projects, when considered collectively, contribute to the air quality improvement goals embodied in the Clean Air Act. Staff perform a series of tests with computer models that estimate air pollution levels from mobile sources over the next 25 years. Once the TPB finds that the plan meets the regional air quality goals, federal agencies certify that the plan is "in conformity." In other words, the TPB ensures that its plan and TIP conform to air quality improvement goals. This project is included in the DC Statewide Transportation Improvement Program (DC STIP) FY2021-2024 with a project ID 5857.

Individual Projects

Individual projects funded by FTA and located in areas that do not meet (non-attainment areas) or previously have not met (maintenance areas) the NAAQS for a transportation-related pollutant are subject to conformity. The Northern Bus Garage project is located in northwest Washington DC,

which is part of the EPA-defined Metropolitan Washington Air Quality designation area. The area is in attainment for carbon monoxide (CO), particulate matter less than 10 microns (PM10), 2.5 microns (PM2.5), nitrogen dioxide (NO2), sulfur dioxide (SO2), and lead (Pb).¹ However, the Washington DC area is currently designated as non-attainment for 8-hour ozone (O3).

When each air pollutant standard is set, the EPA defines geographic areas (generally counties clustered around a metropolitan area) that must be evaluated for each pollutant. Meanwhile, data are continually collected from monitors set all around the country that read the level of the criteria pollutants. If, based on a very specific definition, an area's data show levels above the standard, the area is designated as "non-attainment." Based on the monitor levels, each non-attainment area is given a level of severity (marginal, moderate, serious, severe, or extreme) that defines how many years the area has to attain the standard.

This project is in an area where the State Implementation Plan (SIP) contains transportation control measures to demonstrate attainment for ozone. A SIP is a collection of regulations and documents used by a state, territory, or local air district to reduce air pollution in areas that do not meet NAAQS. Conformity, for the purpose of the SIP, means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the NAAQS. Inclusion in the region's conforming TIP serves as project-level analysis for Ozone.

Hot-Spot Analyses

Under the CAA, a transit project must not cause or contribute to any air quality hotspots. This requirement is explained in the EPA conformity regulation at 40 CFR § 93.116. A hot spot is a small geographic area within a metropolitan area, such as the vicinity of a congested highway intersection, where pollutant emissions build up to a level that exceeds the NAAQS for that pollutant. A short distance from the hot spot, the pollutant concentration is much lower because the pollutant disperses as it drifts away from its source within the hot spot. This requirement applies only to projects that are located in a nonattainment or maintenance area for CO, PM2.5, or PM10. The other transportation pollutants (ozone and nitrogen dioxide) are regional in nature and do not form hot-spots.

To analyze air quality impacts of transportation projects, hot-spot analyses may be required if it meets criteria stated in the 40 CFR 93.123 - "Procedures for determining localized CO, PM10, and PM2.5 concentrations (hot-spot analysis)". A hot-spot analysis estimates how the proposed project might influence local pollutant concentrations, and how the estimated condition compares to NAAQS. Based on the criteria in the EPA regulations, as the project is in a location that is in attainment for CO, PM2.5, or PM10, a quantitative hot spot analysis is not required.

If the project area was in non-attainment or maintenance for any of the three pollutants, two additional criteria would be considered determine whether a hot-spot analysis was required:

1. The first is whether the project would increase the number of diesel vehicles congregating at a single location (see 40 CFR 92.123(b)(1)(iv)). The proposed project would reduce the number of diesel-buses located in the facility from 175 to 150 buses.
2. The second is whether the project will significantly degrade the Level-of-Service (LOS) at nearby signalized intersections due to increase in diesel vehicles (see 40 CFR 92.123(a)(1)(ii) and 92.123(b)(1)(ii)). This includes projects affecting intersections that are at (LOS) D, E, or F (i.e., congested), or those that will change to LOS D, E, or F because of increased traffic volumes related to the project. As shown in the 2015 MoveDC Plan, the

¹ <https://doee.dc.gov/service/air-quality-planning>

peak AM and PM traffic volumes on the adjacent street network are very low. Since traffic volumes would not increase as a result of the project, congestion is not anticipated.

Conclusion

This project is in an area where the SIP contains transportation control measures. Inclusion in the region's conforming TIP serves as project level analysis for ozone; therefore no further analysis of ozone emission is required.

Since the project is in an area of attainment for CO, PM 2.5, and PM10, no further hot-spot analyses for CO, PM2.5, and PM10 are required.

The conformity requirements for transportation are found in Section 176(c) of the Clean Air Act (42 USC § 7506(c)). The U.S. Environmental Protection Agency (EPA) regulation to implement the requirements is found at 40 CFR Part 93.

APPENDIX 5: CULTURAL RESOURCES CORRESPONDENCE

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U.S. Department
of Transportation

**Federal Transit
Administration**

REGION III
Delaware, District of
Columbia, Maryland,
Pennsylvania, Virginia,
West Virginia

1760 Market Street
Suite 500
Philadelphia, PA 19103-4124
215-656-7100
215-656-7260 (fax)

April 16, 2019

Mr. Andrew Lewis
Senior Historic Preservation Officer
Historic Preservation Office
District of Columbia, Office of Planning
Washington, D.C. 20024

RE: Section 106 Initiation, WMATA Northern Bus Garage Replacement Project

Dear Mr. Lewis:

The Washington Area Metropolitan Transit Authority (WMATA), with the Federal Transit Administration (FTA) as the lead federal agency, proposes a major renovation of WMATA's existing Northern Bus Garage, located at 4615 14th Street, N.W., Washington, DC. As a federally-funded undertaking, the project is subject to Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and the associated implementing regulations. This letter serves as an initiation of the Section 106 consultation for the following undertaking.

WMATA proposes to maintain the historic 14th Street NW building façade, and reconstruct the remaining building, which is listed as the Capital Traction Company building (NR#13000290, listed May 22, 2013).¹ As stated in the National Register of Historic Places (NRHP) nomination, in 1959, the original trolley tracks and transfer tables were removed and replaced with a concrete floor. The 1984 renovation plans call for demolition of existing masonry partitions and construction of a corridor, stair tower, and storage rooms as indicated" suggesting a good deal of the interior was replaced at that time.²

WMATA submitted a Section 106 Historic Finding for the Northern Bus Garage in 1985 "as to the effects that proposed improvements and property acquisition will have on the historic and know archaeological resources of the garage and its site"³. Correspondence pertaining to this undertaking states:

"Since that time [1956 conversion to bus only facility] several major renovation projects have taken place at the Northern Garage. The facility interior has undergone major changes and several major additions have been made to the eastern side lower level to accommodate the storage, maintenance and servicing of buses. In 1983 a 12 foot high brick wall was constructed along the facility's northern, eastern and southern sides to screen the garage and ameliorate the garage noise from the adjoining residential areas. Only the front facade of the garage structure facing 14th Street has not undergone any

¹ National Register of Historic Places, Capital Traction Company, Washington, D.C., National Register #13000290.

² Austin L. Spriggs Associates. *Northern Division Metrobus Garage Renovation Phase II, Part 3*. 1984, Sheet A-3).

³ Valge, Ado, WMATA Acting Director of Engineering & Architecture, Correspondence to Carol B. Thompson, District of Columbia Historic Preservation Officer, November 15, 1985. WMATA.

significant changes since it was constructed. The Authority's proposal would not change the 14th Street façade of the structure and would be architecturally compatible with the historic nature of the structure.

The existing structure is in bad need of repairs, and improvements are needed to improve the garage's working conditions and operating efficiency and to make the garage environmentally compatible with the surrounding community, and at the same time preserve the historic nature of the facility."

Between 1989 and 1992, WMATA substantially enlarged the building with the construction of one-story maintenance facility and storage area. With the completion of this addition, the building that originally occupied nearly half of Square 2811 now occupies all of Squares 2811 and 2815. The formally rectangular building now presents a pentagram-shaped footprint (Capital Traction Company Car Barn, listed April 05 2013). Based on prior consultation and existing documentation, the 14th Street façade of the building is the only area of historic fabric that appears of concern.

Proposed Project Undertaking

The Northern Division Garage is one of four facilities where articulated (expanded) buses are stored and maintained, and it is also an operating base and day-to-day maintenance facility. Current capacity accommodates 155 small/standard buses (40 ft. long) and 20 articulated buses (60 ft. long). The building contains 13 maintenance bays, two of which accommodate articulated buses.

Northern Division Bus Garage is situated proximate to its area of service, which minimizes the amount of deadheading (non-revenue service). The garage serves as a route terminal point for the 14th Street line. The current garage is an ideal location to store and maintain buses that serve high demand routes in central Washington, D.C. The facility, however, has insufficient storage and maintenance space; the concrete building structure is failing. The nearest garage facility is Bladensburg Bus Garage, located on Bladensburg Road, which is at capacity.

The 2018 Metrobus Facilities Plan Study considered the relocation of the Northern Bus Division facility to several sites in the District of Columbia, and concluded to retain and rebuild on the existing site because the analysis indicated that moving the current Northern Division to the alternative allocations results in 30-50 percent increases in annual operational cost. The 2018 study determined that the existing facility is functionally obsolete and costly to operate. Remedies for the functional deficiencies identified require extensive reconstruction within the current facility including:

- Service lanes slope downward, causing a risk of rolling if brakes are not engaged properly.
- Multiple access points along its perimeter, creating access control challenges.
- Only two of the 13 bays are large enough to service articulated buses limiting the maintenance capabilities.
- Site circulation is clockwise rather than the preferred counter-clockwise direction. Counter-clockwise circulation enables better visibility out of the driver's side window while turning, and improves safety.
- Multiple level changes within the building.

April 16, 2019
Mr. Andrew Lewis
Page 3

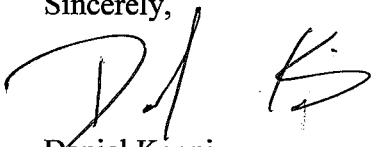
Recommendations in the study could be implemented only as part of a major reconstruction.

- Design most or all service bays to accommodate more articulated buses; this allows better service for the nearby downtown routes.
- Set structural column spacing to support 14 ft. minimum stall width.
- Place service lanes on level paving to minimize the risk of rolling buses.
- Minimize the number of access points along the perimeter to allow for proper access control.
- Design the facility with counter-clockwise circulation to improve operators' visibility while turning.
- Minimize the number of level changes within bus circulation and parking areas.

Enclosed you will find the Northern Bus Garage Replacement Project plans and the Section 106 Consultation Report including a proposed Area of Potential Effects (APE), and identification and evaluation of the NRHP listed or eligible properties in the APE (see **Enclosures 1-3**). As consultation proceeds, FTA and WMATA will send out public notification letters and project information to interested parties. Any received comments will be provided to the your office.

FTA seeks your review of the enclosures and concurrence of the proposed APE. We also request a list of potential consulting parties for this undertaking. We look forward to coordinating further on this project.

Sincerely,



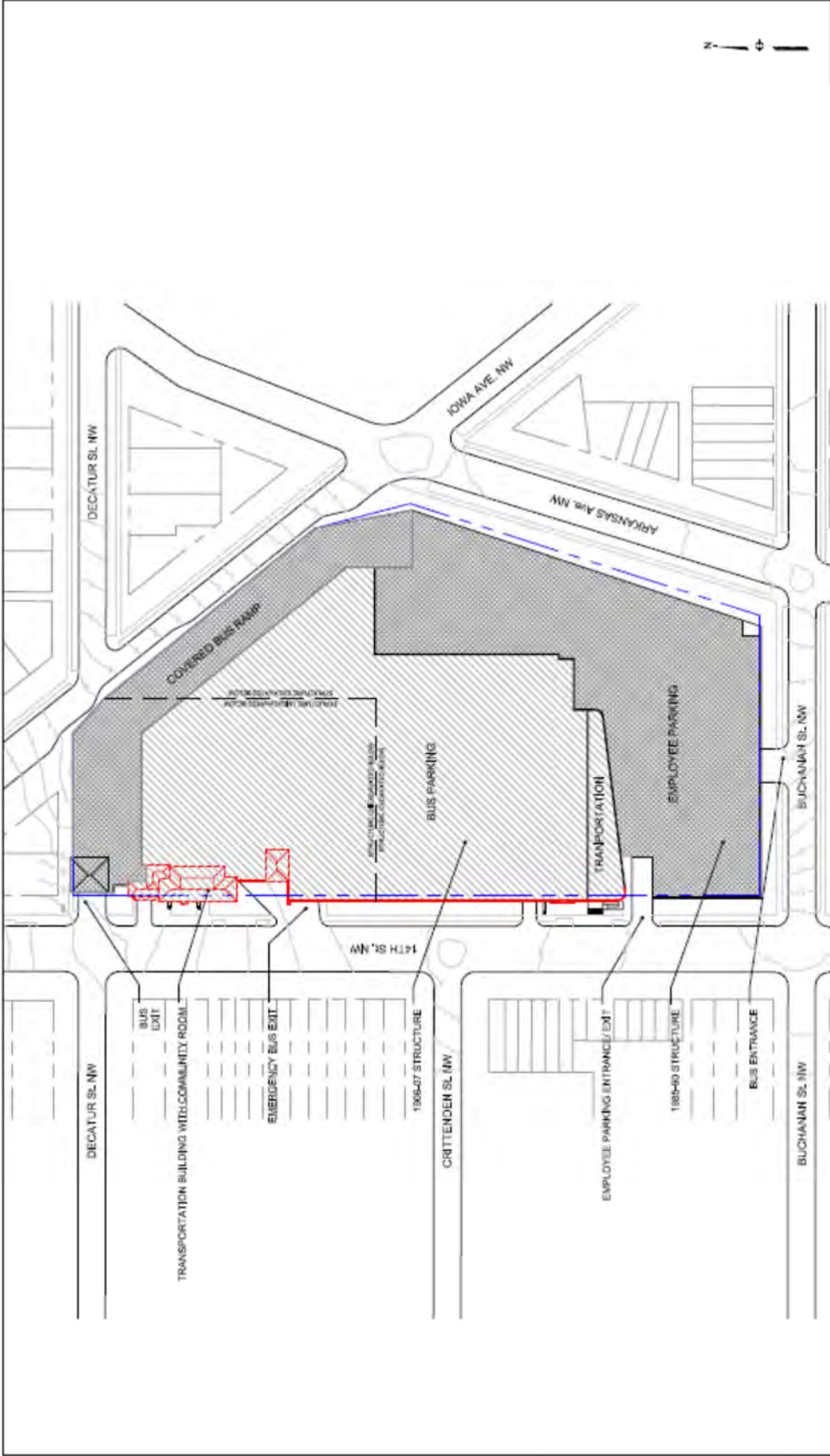
Daniel Koenig,
Community Planner

cc: Jeff Winstel, WMATA

Enclosure 1: Northern Bus Garage Replacement Project Plans
Enclosure 2: Section 106 Consultation Report
Enclosure 3: 2018 Metrobus Facilities Summary Report

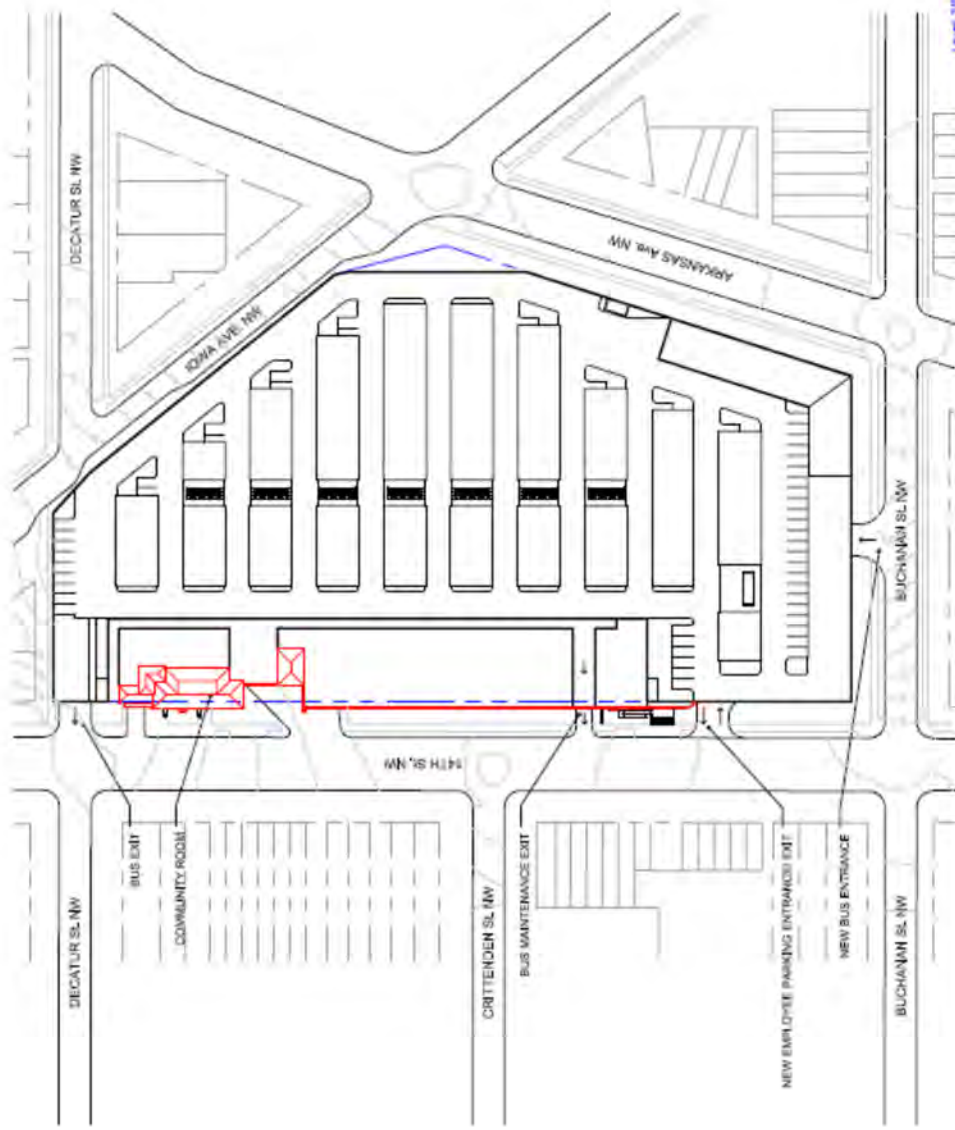
ENCLOSURE 1

Northern Bus Garage Replacement Project Plans



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NORTHERN BUS GARAGE REPLACEMENT PROJECT Existing Conditions Site Plan		DATE 08/11/2017	
REFERENCE DRAWINGS 17-0047-010 17-0047-011 17-0047-012 17-0047-013 17-0047-014 17-0047-015 17-0047-016 17-0047-017 17-0047-018 17-0047-019 17-0047-020 17-0047-021 17-0047-022 17-0047-023 17-0047-024 17-0047-025 17-0047-026 17-0047-027 17-0047-028 17-0047-029 17-0047-030 17-0047-031 17-0047-032 17-0047-033 17-0047-034 17-0047-035 17-0047-036 17-0047-037 17-0047-038 17-0047-039 17-0047-040 17-0047-041 17-0047-042 17-0047-043 17-0047-044 17-0047-045 17-0047-046 17-0047-047 17-0047-048 17-0047-049 17-0047-050 17-0047-051 17-0047-052 17-0047-053 17-0047-054 17-0047-055 17-0047-056 17-0047-057 17-0047-058 17-0047-059 17-0047-060 17-0047-061 17-0047-062 17-0047-063 17-0047-064 17-0047-065 17-0047-066 17-0047-067 17-0047-068 17-0047-069 17-0047-070 17-0047-071 17-0047-072 17-0047-073 17-0047-074 17-0047-075 17-0047-076 17-0047-077 17-0047-078 17-0047-079 17-0047-080 17-0047-081 17-0047-082 17-0047-083 17-0047-084 17-0047-085 17-0047-086 17-0047-087 17-0047-088 17-0047-089 17-0047-090 17-0047-091 17-0047-092 17-0047-093 17-0047-094 17-0047-095 17-0047-096 17-0047-097 17-0047-098 17-0047-099 17-0047-100		DATE 08/11/2017	
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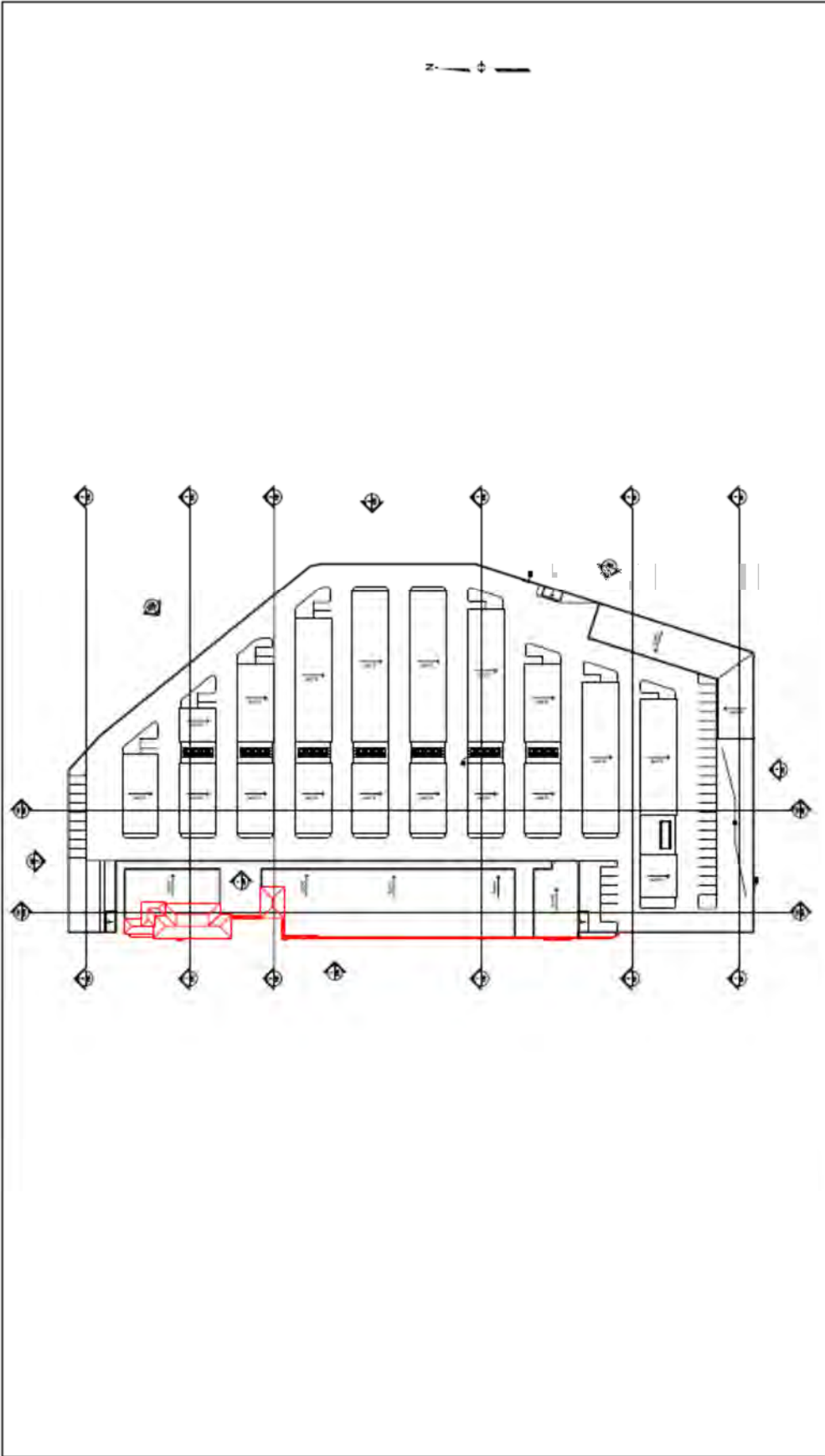


WASHINGTON METROPOLITAN TRANSIT AUTHORITY
 DEPARTMENT OF TRANSIT INFRASTRUCTURE AND ENGINEERING SERVICES
 OFFICE OF THE CHIEF ENGINEER, INFRASTRUCTURE

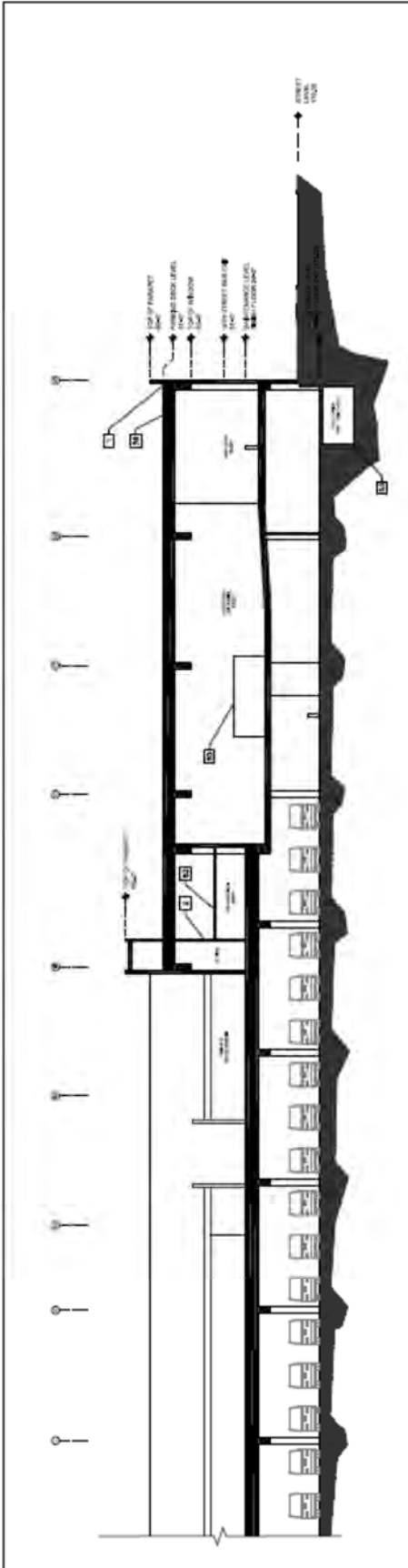
PROJECT: NORTHERN BUS GARAGE REPLACEMENT PROJECT
 DRAWING: Final Site Plan

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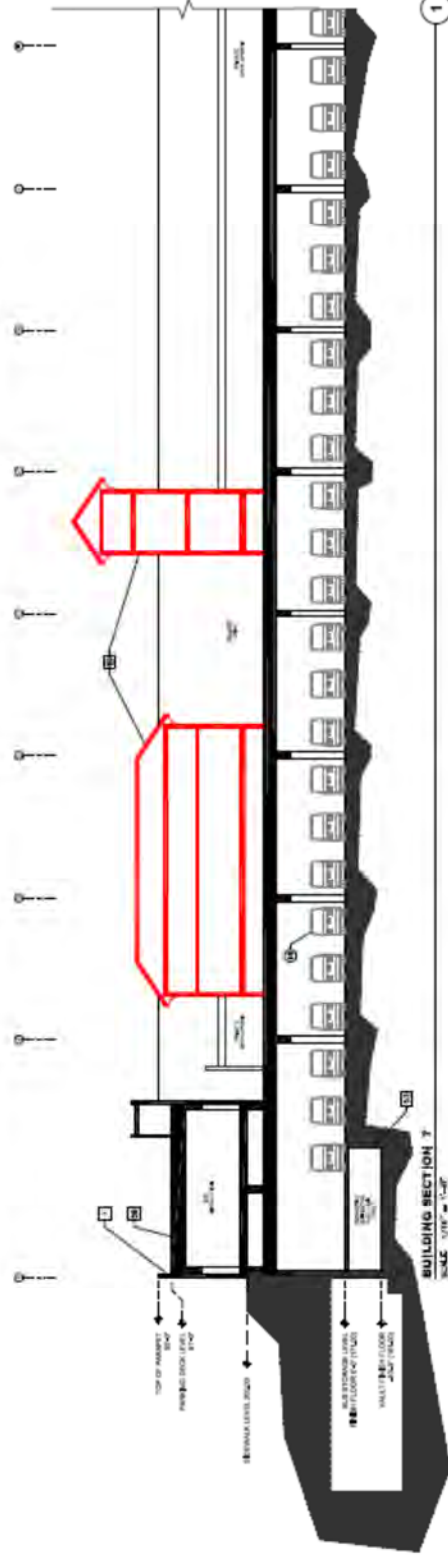


CONTRACT NO. F01218		NORTHERN BUS GARAGE REPLACEMENT PROJECT Roof Plan		SHEET NO. 008/008	
SCALE 1"=30'-0"		DRAWING NO. 008		DATE 02/20/19	
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BUILDING SECTION 7 (CONTINUED)
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BUILDING SECTION 7
SCALE: 1/8" = 1'-0"

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CONTRACT NO. 07-02039	REFERENCE DRAWING 02039-01	SHEET NO. 01	CONTRACT NO. 07-02039	SHEET NO. 01	CONTRACT NO. 07-02039	SHEET NO. 01
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ENCLOSURE 2

Section 106 Consultation Report

Section 106 Consultation Report Northern Bus Garage Replacement

Contents

Overview
Area of Potential Effects (APE)
Historic Architectural Properties in the APE
Preliminary Determination of Effects
Bibliography

Figures

Figure 1: Northern Bus Garage Aerial Photograph, facing Southeast
Figure 2: Figure 2: Architectural/Historical Area of Potential Effect. Source: Google Maps
Figure 3: Figure 3: Existing Conditions, Capital Company Barn and WMATA Northern Bus Garage Addition. Source: WMATA
Figure 4: Figure 4: Capital Traction Company Car Barn, Sanborn Fire Insurance Company, 1959. Source: NRHP #13000290

Overview

The proposed undertaking is the FTA-funded WMATA façade preservation, demolition, and replacement of the Northern Division Bus Garage, located at 4615 14th Street, N.W. This building is listed in the National Register of Historic Places (NRHP) (#13000290, listed May 22, 2013). The building has been subjected to numerous alterations beginning with a small one-story addition in 1926. The last alteration occurred in 1987, a “substantial renovation” as stated on the building permit. This work included the replacement of all original windows, part of the existing roof and steel framing, adding new bus service lanes and a concrete slab parking area. A 2015 Metrobus Facilities Plan Study analyzed relocating the Northern Bus Division elsewhere in Washington, D.C. (Metro 2015). The study determined that the existing location has several operational advantages. The 2018 Metrobus Facilities Plan found the Northern Bus Garage, despite its locational advantage, was “functionally obsolete and costly to operate” (Metro 2018). This latest study determines that realization of its recommended repairs and improvements “could be implemented only as part of a major reconstruction” (Metro 2018).

Area of Potential Effects

The Capital Traction Company Car Barn as constructed contained a lower level. The proposed undertaking will not include ground disturbance in areas that have not been previously disturbed. This undertaking does not include new ground disturbance, so there is no archaeological Area of Potential Effect (APE).

The Northern Bus Garage is located in the Northwest Quadrant of Washington, D.C., east of Rock Creek Park. The building is bound by 14th Street NW, Iowa Avenue NW, Arkansas Avenue NW and Buchanan Street NW. The area is a low-density residential neighborhood (Figure 1). The neighborhood developed shortly after the streetcar barn opened in 1906.

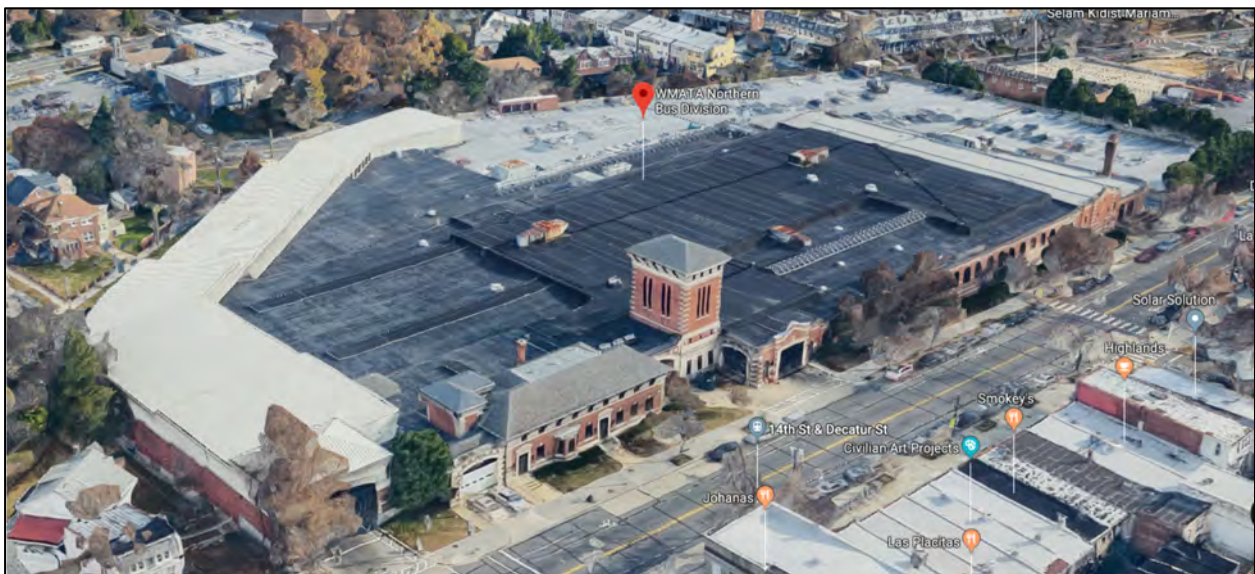


Figure 1: Northern Bus Garage Aerial Photograph, facing Southeast

The Historic/Architectural APE for this undertaking is determined by the distance from which a person could see the proposed undertaking, as established by on-site investigation. The area is a mature neighborhood with established trees. A small length of commercial strip along 14th Street NW faces the Northern Bus Garage. The APE boundary includes the entire block length of some side streets, as unobstructed views are possible from the middle of these streets (Figure 2).



Figure 2: Architectural/Historical Area of Potential Effect. Source: Google Maps

Scale 1"=100', N↑, APE Boundary —

Historic/Architectural Properties in the APE

The historic/architecturally significant properties in the APE are limited to the Capital Traction Company Car Barn. The low-density residential neighborhood appears primarily to consist of early 20th century houses, which evidence façade alterations and infill construction. The DC Office of Planning Office’s interactive mapping, PropertyQuest, does not identify any historic

properties within the APE other than the car barn (DC Office of Planning). The boundaries for this historic property include all of Squares 2811 and 2815, mostly taken up by the footprint of the existing building, including the last additions dating up to 1990 (Figure 3).

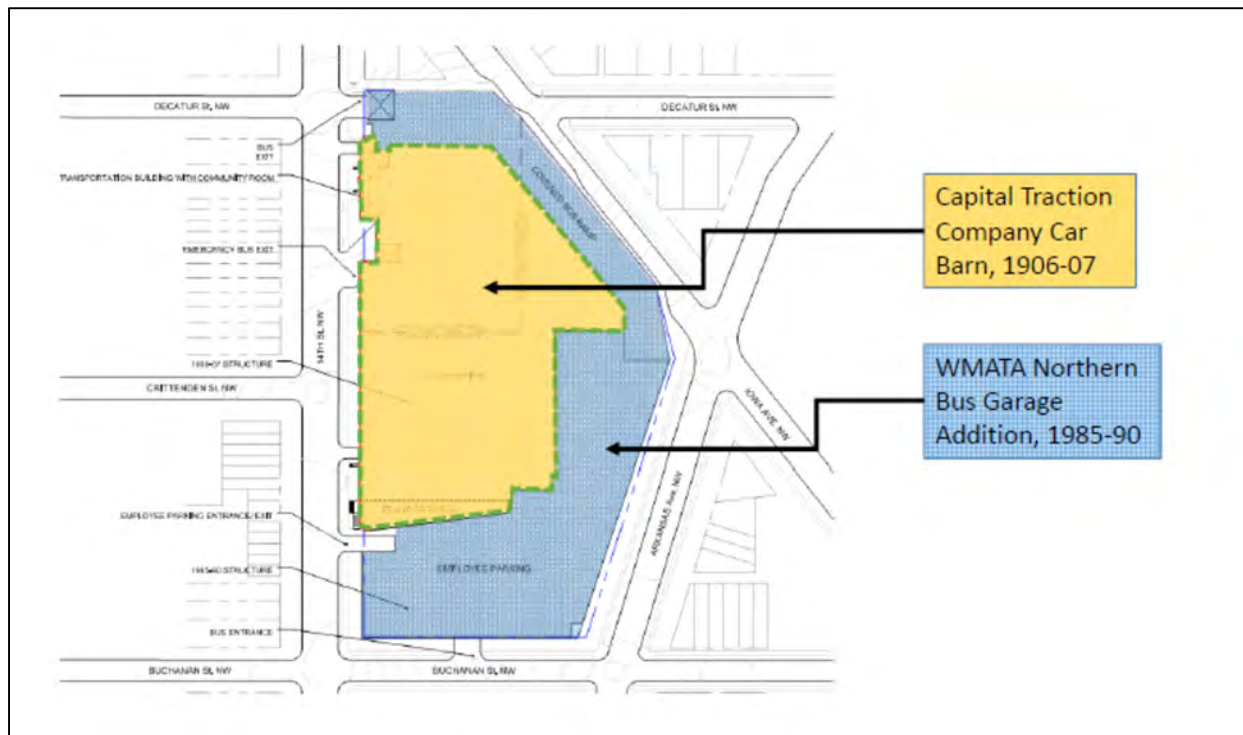


Figure 3: Existing Conditions, Capital Company Barn and WMATA Northern Bus Garage Addition. Source: WMATA

Preliminary Determination of Effect(s)

The project will preserve the 14th Street façade of the building, but have an indirect adverse effect of the view of the façade. The new construction will project above the face and beyond the sides of the façade, altering the visual and spatial relationship between the street and the building. The proposed Northern Bus Garage Replacement Project will likely result in an adverse effect on the historic significance of the Capital Company Transit Barn.

In addition, despite the building’s façade being a character-defining feature of the historic building, the project likely includes the demolition of the building fabric that existed in 1959, the ending year of the nomination’s period of significance. The extent to which the building retains architectural elements from 1906-1959 is small, given the extensive alterations done to the interior and three non-façade exterior walls. Nonetheless, the criteria of adverse effect included in Section 106 of the National Historic Preservation Act, 36 CFR Part 800.5 includes alteration to a historic property that is not consistent with the Secretary’s Standards for the Treatment of Historic Properties (SOI Standards) 36 CFR part 68 (NPS). SOI Standard 2 states, “The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.” Removal of the 1906 building, except for the façade, does not definitively avoid the removal of historic materials, or alteration of character-defining features and spaces. In addition,

SOI Standard 9 states that new construction shall not destroy historic materials that characterize the property (Figure 4). The 1906 car barn, except for the façade along 14th Street NW, will be demolished as part of this undertaking, and the visual appearance of the character-defining façade will be altered.

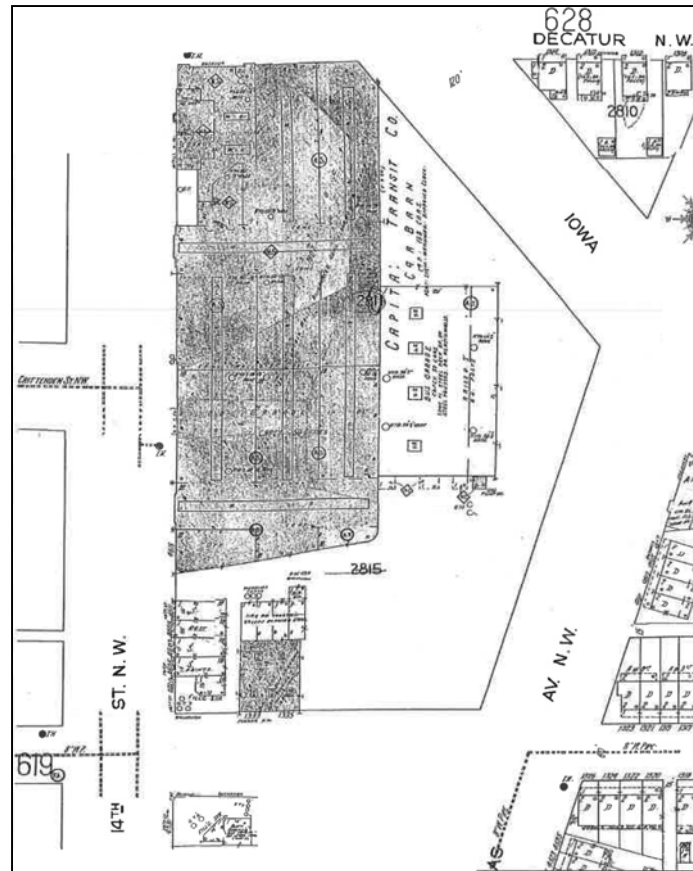


Figure 4: Capital Traction Company Car Barn, Sanborn Fire Insurance Company, 1959. Source: NRHP #13000290

The FTA believes the proposed Northern Bus Garage Replacement will result in an adverse effect on the historic fabric of the NRHP listed Capital Traction Bus Garage.

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2018 METROBUS FACILITIES PLAN

Summary



Office of Bus Planning

Washington Metropolitan Area Transit Authority

Draft – September 2018, Version 1.0



2018 METROBUS FACILITIES PLAN

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2018 METROBUS FACILITIES PLAN

Signature Page

Approved by:

James Hamre, Director, Office of Bus Planning

Date



2018 METROBUS FACILITIES PLAN

Table of Contents

Signature Page	ii
List of Figures	vi
List of Tables	vi
1 Introduction	1
1.1 Organization of Report.....	2
1.2 Studies and Plans	2
2 Operating and Maintenance Facilities Existing Conditions Summary	4
2.1 Current Operating and Maintenance Facilities.....	4
2.2 Major Constraints	7
3 Operating and Maintenance Facilities Summary of Identified Needs.....	8
3.1 Storage Capacity	8
3.2 Maintenance Capacity	9
3.3 Existing Facilities	9
3.3.1 Northern Division	9
3.3.2 Western Division	10
3.3.3 Bladensburg Division.....	10
3.3.4 Shepherd Parkway Division.....	11
3.3.5 Southern Avenue Division.....	12
3.3.6 Landover Division.....	12
3.3.7 Montgomery Division.....	13
3.3.8 Four Mile Run Division	13
3.3.9 West Ox Division	14
3.4 Future Considerations.....	15
3.4.1 Capacity for Operation and Maintenance	15
3.4.2 Articulated Bus Service	16
4 Operating and Maintenance Facilities Recommendations.....	19
4.1 System-wide Recommendations	19
4.2 Retain and Rebuild Northern Division	20



2018 METROBUS FACILITIES PLAN

4.3	Retain and Rebuild Western Division	20
4.4	Rebuild Bladensburg On-Site	20
4.5	Potential New Division and Shared Facilities.....	21
4.6	Capital Improvement Needs for Existing Divisions	21
4.6.1	Northern Division	22
4.6.2	Western Division	22
4.6.3	Bladensburg Division.....	23
4.6.4	Shepherd Parkway Division.....	23
4.6.5	Southern Avenue Division.....	24
4.6.6	Landover Division.....	25
4.6.7	Montgomery Division.....	25
4.6.8	Four Mile Run Division	26
5	Bus Customer Facilities	29
5.1	Introduction	29
5.2	Bus Stops.....	29
5.2.1	Existing Conditions.....	29
5.2.2	Needs	30
5.3	Bus Stop Shelters	31
5.3.1	Existing Conditions.....	31
5.3.2	Needs	32
5.4	Other Bus Customer Support Facilities.....	34
5.4.1	Existing Conditions.....	34
5.5	Bus Transit Centers	36
5.5.1	Existing Conditions.....	36
5.5.2	Needs	36
5.6	Customer Information Electronic Display Signs (CIEDS)	37
5.6.1	Existing Conditions.....	37
5.6.2	Needs	38
5.7	Closed Circuit TV (CCTV) and Pubic Address (PA).....	39



2018 METROBUS FACILITIES PLAN

5.7.1	Existing Conditions.....	39
5.7.2	Needs	40
5.8	Off-Street Bus Terminals.....	40
5.8.1	Existing Conditions.....	40
5.8.2	Needs	40
5.9	Bus Operators Restrooms and Break Rooms.....	41
5.9.1	Existing Conditions.....	41
5.9.2	Needs	43
5.10	Bus Operators – Commercial Driving License (CDL) Training Facility	45
5.10.1	Existing Conditions.....	45
5.10.2	Needs	46
5.11	Other	47
5.11.1	Asset Replacement and Customer Facility Enhancement Plan.....	47
6	Bus Customer Facility Recommendations.....	48
6.1	Bus Stops.....	48
6.2	Bus Stop Shelters	48
6.3	Bus Bays	48
6.4	CIEDS	49
6.5	CCTV and PA.....	49
6.6	Transit Centers.....	50
6.7	Off-Street Bus Terminals.....	50
6.8	Bus Operators Restrooms and Break Rooms.....	50
6.9	Bus Training and CDL Facility	50
7	Conclusion.....	51



2018 METROBUS FACILITIES PLAN

List of Figures

Figure 1: Current and Future WMATA Metrobus Operating Facilities	6
Figure 2: Projected Bus Fleet Supply, New Fleet Procurement and Storage Capacity	8
Figure 3: Ideal Location for a New Maryland Operating and Maintenance Division.....	28
Figure 4: Current WMATA Owned Bus Shelter Stations and Bus Loops.....	35

List of Tables

Table 1: Projected Maintenance Demand (Bus:Bay Ratios)	9
Table 2: Existing and Planned Bus Fleet and Storage Capacity.....	15
Table 3: Corridors Identified for Expansion and Conversion to Articulated Bus Service.....	17
Table 4: Current and Projected Articulated Bus Fleet	18
Table 5: Planned New and Realigned Metrobus Facilities.....	27
Table 6: WMATA Owned Bus Shelters by Jurisdiction	31
Table 7: WMATA Owned Bus Shelters Condition	32
Table 8: Metrorail Station Shelters to Be Replaced by Others	32
Table 9: WMATA Owned Bus Shelters Needing Replacement	33
Table 10: Bus Stop, Bus Bays, Shelters, Park and Ride and HOV Lanes by Jurisdiction	34
Table 11: Transit Centers Served By Metrobus	36
Table 12: Summary of Metrobus CIEDS.....	38
Table 13: Current CCTV and PA Location.....	39
Table 14: WMATA Bus Terminals and Restroom Availability	42
Table 15: Metrobus Portable Restroom Locations.....	42
Table 16: Top Ten Metrobus Terminals and Portable Restrooms	43
Table 17: Top Ten Metrobus Terminals with Non-WMATA Restrooms	44
Table 18: Top Ten Metrobus Terminals without Restrooms	45
Table 19: Priority Bus Stations for CCTV and PA.....	49
Table 20: Six Year Capital Investment Plan Summary (2018 – 2023)	53
Table 21: Facilities Plan Recommendations - Plan of Action.....	54
Table 22: Customer Facilities Investment Plan.....	55



2018 METROBUS FACILITIES PLAN

1 Introduction

The Washington Metropolitan Area Transit Authority (WMATA)'s Metrobus system currently serves a population of 3.9 million persons who live and work in its 1,500 square mile service area. Metrobus has a broad reach: a fleet of over 1,500 vehicles serving regional activity centers and neighborhoods with 165 lines, 255 route variations, and over 10,000 bus stops. Metrobus is projected to carry 118 million passenger trips in FY2018, and ridership is projected to increase by 1% each year thereafter.

Although the Metrobus fleet has received substantial investments, until recently, facility condition has lagged behind. Bus maintenance and storage facilities form a critical part of the Metrobus operating system. The geographic location of these operating facilities plays a critical role in the overall cost of bus operation and service efficiency. The main challenges currently are:

1. Outdated facilities that restrict an efficient and effective working environment;
2. The capacity to maintain and operate Compressed Natural Gas (CNG) buses is constrained due to lack of sufficient CNG facility and locational dispersion;
3. The capacity to maintain and operate articulated buses is constrained due to the spatial mismatch between articulated bus routes and articulated bus bays at garage facilities; and
4. The efficiency of Metrobus service is heavily impacted by the prevalence of deadhead mileage (movement from garage to revenue service and vice versa) and time, due to the unfavorable location of several operating divisions.
5. Customer facilities are outdated, need electrification, some of the security upgrades are not accessible and have exceeded their lifecycle.

The purpose of the 2018 Metrobus Facilities Plan Summary is to provide a summary of the 2015 Metrobus Facilities Plan Study together with an assessment of identified needs for Metrobus Customer Facilities. The Metrobus Facilities Plan Study reviewed the needs and capacity constraints of existing bus operating and maintenance facilities, physical conditions of selected garages, identified shortcomings and prepared recommendations for capital improvement. The recommended plan addresses short, medium, and long-term investment needs based on projected changes to fleet size, technology, composition, service growth, and plans for structural and/or locational changes to operating divisions.

This summary highlights the constraints of existing facilities, bus terminals, shelters and bus stop customer information system, identifies the short, medium and long-term needs and provide a plan that serves as a blueprint for future investments.



2018 METROBUS FACILITIES PLAN

1.1 Organization of Report

The 2018 Metrobus Facilities Plan presents a summary of current conditions, identified needs, and recommendations that address facility requirements. This is a planning document that summarizes facility requirements from FY18 through FY25, based on the 2017 Metrobus Fleet Management Plan fleet projections and taking into consideration the capacities of the fleet maintenance and storage and bus customer facilities.

This report is structured as follows:

Section 2 – Bus Operating and Maintenance Facilities Existing Conditions Summary: This section summarizes current conditions and capacities of bus operating and maintenance facilities, garage facilities under construction, new plans for rebuilding old facilities and adding new fueling capacity. It also presents the major constraints at the existing facilities.

Section 3 – Bus Operating and Maintenance Facilities Summary of Identified Needs: This section summarizes findings of bus operating and maintenance needs for storage, running repairs and maintenance capacity, individual garage facility and future considerations.

Section 4 – Bus Operating and Maintenance Facilities Recommendations: This section presents capital improvement recommendations that address identified deficiencies for bus operating and maintenance facilities.

Section 5 – Bus Customer Facilities Existing Conditions and Identified Needs Summary: This section summarizes current conditions and identified needs for bus stop, shelters, transit centers, customer information systems, CCTV and personal announcement, off-street bus terminals, bus operator’s restroom and breakrooms and others.

Section 6 – Bus Customer Facility Recommendations: This section presents capital improvement recommendations that address identified deficiencies for bus stop customer facilities.

Section 7 – Conclusion: This section presents a summary of the process followed to prepare the facilities plan, stakeholder’s involvement and next steps to finalize the 2018 Metrobus Facilities Plan.

1.2 Studies and Plans

The following studies are used in preparation of the summary of the 2018 Metrobus Facilities Plan:

1. 2017 Metrobus Fleet Management Plan, July 2017



2018 METROBUS FACILITIES PLAN

2. 2015 Metrobus Facilities Plan Study, August 2016
3. Asset (Bus Shelter) Improvement Evaluation Study, June 2013
4. On-street Bus Terminal Study, March 2013
5. Guideline for the Design and Placement of Transit Stops, December 2009
6. Metrobus Operator Restroom/Break Room Facilities Study - Ongoing
7. Asset Replacement and Customer Facility Enhancement Plan – Started May, 2018.



2018 METROBUS FACILITIES PLAN

2 Operating and Maintenance Facilities Existing Conditions Summary

2.1 Current Operating and Maintenance Facilities

Metrobus vehicles are operated and maintained at nine operating and 11 maintenance facilities. Four operating and five maintenance facilities are located in the District of Columbia, currently three operating and four maintenance facilities in Maryland and currently two operating and maintenance facilities in Virginia. WMATA's existing operating/maintenance capacity is 1,691 buses. With the near-term plans for additional facilities at Cinder Bed Road and Andrews Federal Center, overall capacity will increase to 1,876 buses. WMATA has a current capacity of 160 articulated buses based at four divisions. This capacity will increase to 213 with the addition of the two new facilities, Cinder Bed and Andrews Federal Center. WMATA has a compressed natural gas (CNG) capacity of 468 buses, or approximately 29% of the FY2015 fleet which will grow by up to 250 with the completion of CNG installation at Shepherd Parkway.

Two existing support facilities provide specialized maintenance services for the Metrobus System. The Carmen Turner Facility is a heavy maintenance and training facility in Prince George's County in Maryland. Buses that are in need of major repairs are cycled through Carmen Turner Facility for major body work, paint and maintenance functions. The Bladensburg Heavy Overhaul Shop (HOS), collocated with the Bladensburg Operating Division, is a heavy repair shop that serves as the home of the Metro Heavy Maintenance Overhaul Program.

WMATA has the following plans for new and existing Bus Maintenance Facilities:

1. Two new operating and maintenance facilities are presently under construction;
 - 1.1. Cinder Bed Division, located at 7901 Cinder Bed Road, Newington, Virginia, and
 - 1.2. Andrews Federal Center Division, located at 4311 Forestville Road, District Heights, MD.
2. Existing facility at Bladensburg will be demolished, and a new building for the Bladensburg Operating Division will be constructed at this site.
3. Existing facility at Northern will be replaced with the construction of a new facility on-site.
4. Heavy Overhaul Shop to be relocated from Bladensburg to Andrews Federal Center.
5. Installation of CNG facility at Shepherd Parkway Division.
6. Existing facility at Southern division is planned for closure after completion of the previously mentioned garage projects.
7. Existing facilities at Western is under consideration for replacement on-site.
8. Miscellaneous facility upgrades and renovations at other garages.



2018 METROBUS FACILITIES PLAN

Cinder Bed Division is planned as a replacement for the recently closed Royal Street Division (2014). Cinder Bed Division will be located along Cinder Bed Road in the Newington area of Fairfax County. This facility is planned to house 113 buses (95 standard 40 feet and 18 articulated buses), an increase in capacity over the 77 buses previously stored and maintained at Royal Street. It is anticipated that this facility will open in December, 2018.

A replacement for Southern Avenue Division is planned at Andrews Federal Center in Southern Prince Georges County. This facility is planned to have a capacity of up to 175 buses (140 standard and 35 articulated buses). This is significantly higher than the 103 buses currently stored and maintained at Southern Avenue Division. WMATA anticipates this facility being completed in 2019.

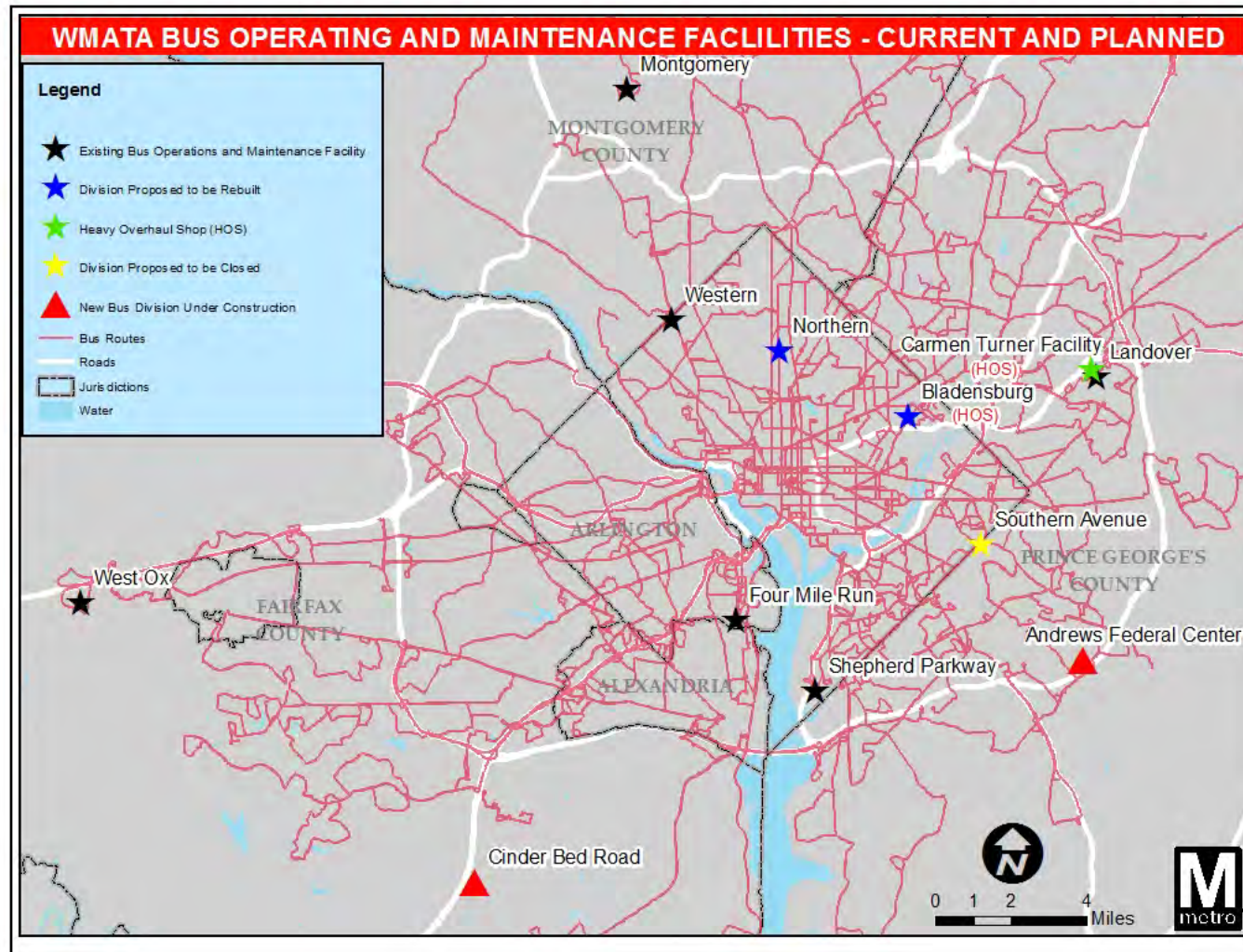
The operating and heavy repair facility at Bladensburg is anticipated to be closed in 2019. The existing buildings will be demolished and a new operating division garage will be constructed on the site. The heavy repair functions will be permanently relocated to Andrews Federal Center.

Northern Division operating and repair facility is anticipated to be closed by 2019. The existing buildings will be demolished and a new operating division garage will be constructed on the site with expanded capacity to handle articulated buses. A map showing the location of existing and new facilities is presented in **Figure 1**.



2018 METROBUS FACILITIES PLAN

Figure 1: Current and Future WMATA Metrobus Operating Facilities





2018 METROBUS FACILITIES PLAN

2.2 Major Constraints

The Metrobus Facilities Plan Study conducted a physical examination of the operating and maintenance facilities, interviewed managers, met with stakeholders and identified the following major constraints:

1. Some of the facilities are very old with chronic electrical and fire alarm issues, water intrusion, ventilation and access control problems, and old storage tanks. This resulted in functional deficiencies and deteriorating building conditions.
2. Some safety and security concerns were identified and long term remediation needed.
3. Articulated bus storage and maintenance capacity is lacking to meet the service needs of the core areas. This has led to some articulated bus routes to operate out of distant divisions.
4. The location of some existing and planned maintenance facilities, at a distance from the service area, increase vehicle miles traveled, and concomitantly increases the number of operators needed to provide service, the consumption of fuel, the frequency of maintenance inspections, the use of consumables, and the number of mechanics required to maintain the fleet. The lack of sufficient maintenance capacity at the regions core has resulted in operational inefficiency, close to 28% of total vehicle miles currently travelled are in non-revenue service.
5. Lack of facilities equipped to maintain Compressed Natural Gas (CNG) fleets per Metro Board fleet mix policy guide of 50% CNG and 50% Hybrid.
6. Insufficient bus parking dimensions in some facilities create safety and operational efficiency challenges as they do not provide enough clearance space for testing ADA ramps without moving the bus, vehicle movement, mirrors and safe passage of personnel. In addition, insufficient bus parking dimensions impact operational capacity.
7. Several facilities have gasoline underground storage tanks directly adjacent to buildings which is a safety concern. It would be desirable to have them at a greater distance from buildings.
8. Replace outdated fare collection vaults in service lanes.
9. Implement a key card system to operate non-revenue service fuel pumps.

The 2013 Asset (Bus Shelters) Improvement Evaluation Study and other bus customer facilities assessments have identified the following constraints:

1. Very old shelters (approaching 40 years-of-age) with rust, damaged Plexiglas panels, structural cracks, and paint chips.
2. Lack of capital investment to maintain and renovate the old off-street bus loops.
3. Lack of suitable bus bays and layover areas in many service areas.
4. Issue of real-time bus service information to riders.
5. Insufficient CCTV across the network to enhance customer security.
6. Lack of bus operator restrooms and break rooms.



2018 METROBUS FACILITIES PLAN

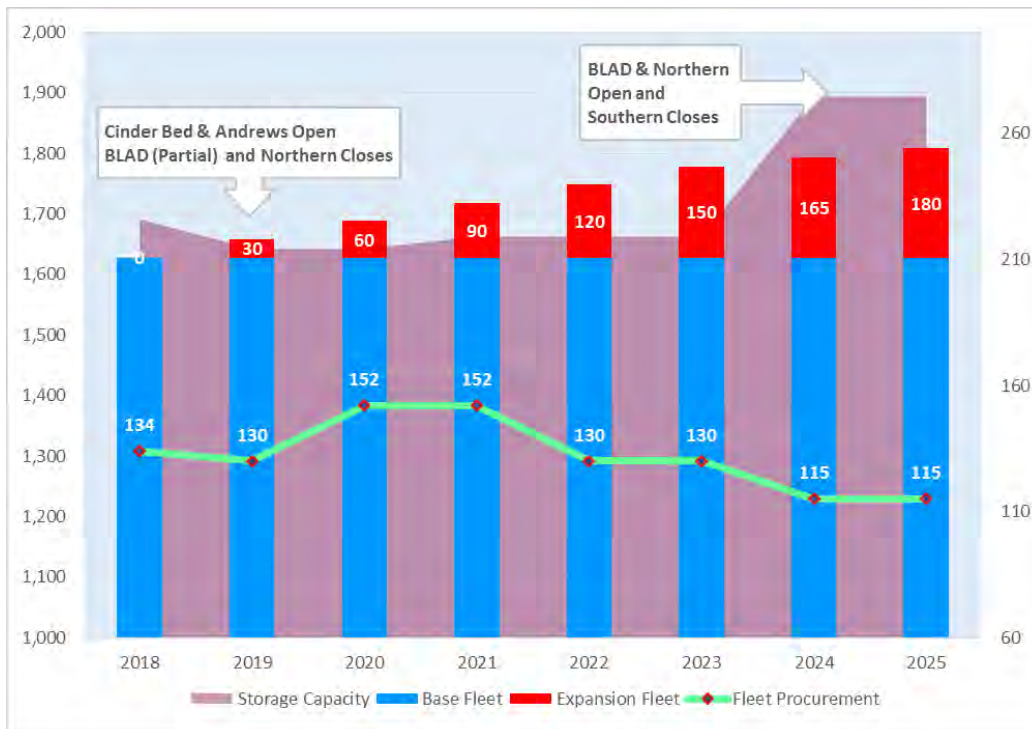
3 Operating and Maintenance Facilities Summary of Identified Needs

This section summarizes findings regarding Metrobus operating and maintenance facility need for storage of the projected fleet, running repairs and maintenance capacity and individual facility considerations.

3.1 Storage Capacity

As of December 17, 2017, Metrobus had a total of 1,583 assigned buses of which 1,258 are peak vehicle requirement (PVR), 195 spares and 130 are used for special projects and ready reserve. The expansion of the fleet supply based on the 2017 Metrobus Fleet Management Plan is used to assess storage capacity needs. The 2017 Metrobus Fleet Management Plan projected the fleet supply based on planned fleet procurement for replacement and a moderate fleet expansion for each year. The fleet plan projected a total fleet expansion amounting to 180 buses until 2025. **Figure 2** presents the projected total fleet supply compared to the system storage capacity for each year until 2025 together with the total fleet and expansion fleets for each year. The chart shows that the fleet supply starts to climb above the storage capacity beginning 2019 when Northern fully and Bladensburg partially are closed for reconstruction. The storage capacity starts to climb above the fleet supply beginning 2024. The system capacity take into account divisions closing for rebuilding and new divisions to open, as shown below.

Figure 2: Projected Bus Fleet Supply, New Fleet Procurement and Storage Capacity





2018 METROBUS FACILITIES PLAN

3.2 Maintenance Capacity

Maintenance capacity is assessed using fleet-to-bay ratio. The target capacity is 12:1 fleet-to-bay ratio. Using the division operating schedule, and projected fleet supply size from the 2017 Metrobus Fleet Management Plan, the system-wide bus:bay ratio is shown in **Table 1**. Overall, the system is expected to have sufficient capacity to perform required maintenance, as the overall ratio is under the target of 12:1. Individual divisions may become more constrained for maintenance capacity, depending on bus allocation and the unique needs of the CNG and articulated fleets maintenance requirements.

Table 1: Projected Maintenance Demand (Bus:Bay Ratios)

Year	Projected Fleet Supply	Available Bus Bay Capacity	Bus Bay Demand (@12:1)	Spare Bus Bay Capacity
2018	1,628	150	136	14
2019	1,658	169	138	31
2020	1,688	169	141	28
2021	1,718	169	143	26
2022	1,748	156	146	10
2023	1,778	156	148	8
2024	1,793	162	149	13
2025	1,808	175	151	24

Note: All ratio figures are rounded to the nearest whole number

3.3 Existing Facilities

This section identifies actions that should be considered to improve safety and functional efficiency in existing bus operating facilities.

3.3.1 Northern Division

Northern Division is located on 14th Street NW between Buchanan Street NW and Decatur Street NW in Washington, DC. Northern Division is one of the four divisions where articulated buses are stored and maintained. Northern Division serves as an operating base that performs day-to-day maintenance functions and heavy maintenance functions are not conducted at Northern Division. Northern Division has a capacity for 155 small/standard buses and 20 articulated buses with a total capacity of 175 buses. Northern Division has a total of 13 maintenance bays, two of which are used for articulated buses.

The 2015 Metrobus Facilities Plan Study considered the future relocation of the Northern Bus Division facility on various sites in the District of Columbia and concluded to retain and rebuild on the existing



2018 METROBUS FACILITIES PLAN

site. The existing facility is functionally obsolete and costly to operate. It is located in a low-density residential community and the neighbors complain about noise and diesel fumes. Remedies for the functional deficiencies identified in this section would require extensive reconstruction if accomplished within the current facility. Facility modification needs include:

1. Service lanes slope downward, causing a risk of rolling if brakes are not engaged properly.
2. The facility has multiple access points along its perimeter, creating access control challenges.
3. Only two of the 13 bays are large enough to service articulated buses; this limits the maintenance capability of the division.
4. Site circulation is clockwise rather than the preferred counter-clockwise direction. Counter-clockwise circulation would enable better visibility out of the driver's side window while turning.
5. There are multiple level changes within the building.

3.3.2 Western Division

Western Division is located near the intersection of Jenifer Street NW and 44th Street NW in the Friendship Heights neighborhood of Washington, DC. Western Division serves primarily as an operating base, and also performs day-to-day maintenance functions. Heavy maintenance functions are not conducted at Western Division. Western Division has a capacity for 138 standard sized buses and has a total of 14 maintenance bays. Facility modification needs include:

1. Vehicle servicing circulation should be modified to alleviate constricted turning in the approach to the fueling lanes, thereby preventing incidents where buses strike building structures and servicing equipment while entering the building.
2. Bus parking is insufficient in terms of quantities, configuration, and dimensions leading to accidents.
3. Expansion of the shop mechanic's cafeteria in the maintenance building should be considered to relieve crowding.
4. The recently-upgraded CCTV system should be extended to the south end staff parking lot so that this area can be monitored by the lead-person office clerk who is responsible for that area.

3.3.3 Bladensburg Division

Bladensburg Division is located on Bladensburg Road NE at 26th Street NE in Washington, DC. Bladensburg Division is one of the four divisions where articulated buses are stored and maintained and is one of the two divisions that is equipped to fuel CNG buses. The Bladensburg site serves as both an operating base and a heavy maintenance facility. Bladensburg Division is the largest of the WMATA Metrobus operating and maintenance divisions and has a capacity for 257 buses; 21 small buses, 214 standard size buses, and 22 articulated buses. There are a total of 26 maintenance bays, three of which are used for articulated buses. The heavy maintenance section, conducted in the Heavy Overhaul Shop



2018 METROBUS FACILITIES PLAN

(HOS), undertakes the Mid-life overhaul functions which is an integral part of the preventative maintenance program. It provides for the rehabilitation of bus mechanical and electrical systems, including overhaul of the engine, transmission, and other structural components. It incorporates new technology and provides safety enhancements.

Bladensburg Division is slated for reconstruction after the completion of the new Andrews Federal Center Division. If the division remains open for service beyond 2019 the following improvements should be considered.

1. Obsolete Closed Circuit Television (CCTV) security system should be replaced with the VERINT platform.
2. Replace front gate guard officer with a card access system for permitted personnel.
3. For better pedestrian safety, reconfigure the stop sign at the guard gate and provide protected employee shuttle drop-off location.
4. To improve operations, a reconfiguration of the bus wash flow path is recommended.
5. Low natural gas pressure feed from the supply lines is restricting production of compressed natural gas (CNG) during cooler temperatures.
6. Resolve the lack of onsite Privately Owned Vehicle (POV) parking

3.3.4 Shepherd Parkway Division

Shepherd Parkway Division was constructed and opened in 2012 and is located near the intersection of Blue Plains Drive SW and DC Village Lane SW in southwest Washington, DC. Shepherd Parkway Division is one of the four divisions that can store and maintain articulated buses. Shepherd Parkway Division serves solely as an operating and maintenance base with heavy maintenance functions performed at other facilities. Shepherd Parkway Division has a capacity for 250 buses; including 80 articulated buses, although there are currently no articulated buses based at this division. There are a total of 26 maintenance bays, six of which can be used for articulated buses. A new CNG fueling facility is under construction at Shepherd Parkway which will add new capability to support the CNG fleet during the closure and reconstruction of Bladensburg Division. Facility modification needs include:

1. Develop and implement measures to reduce risk of collisions at the entrance gate. The entrance gate is shared by revenue vehicles and POVs. This causes crossing conflicts between exiting buses and entering Privately Owned Vehicles (POV).
2. Improvements to the intersection of Blue Plains Drive SW and Shepherd Parkway SW with wider lanes and improved sight lines and turning radius. The deficiency of the intersection has been identified as a significant operational delay and safety hazard.
3. A corrective measure should address hazardous ice build-up on the POV parking ramp and deck, and ice and snow build-up on the pedestrian bridge.



2018 METROBUS FACILITIES PLAN

4. Consider relocating the shop supervisor offices. In the maintenance building, shop supervisors are located across the building from the shops and are operationally isolated from the shop floor.
5. Install CNG fueling facility.

3.3.5 Southern Avenue Division

Southern Avenue Division is located near the intersection of Southern Avenue and Marlboro Pike in Prince George's County Maryland, near the District of Columbia border. Southern Avenue Division serves solely as an operating and maintenance base with heavy maintenance functions performed elsewhere. Metrobus services only use this facility on weekdays, with weekend services operating from other divisions. Southern Avenue Division has a capacity for 103 standard buses and 12 maintenance bays. This division was planned for closure once the new Andrews Federal Center Division opens but will remain open for capacity reason when Bladensburg and Northern divisions close for reconstruction. There are improvements to safety, security and vehicle flow from which this facility could benefit.

1. The site and building should be reconfigured to provide better vehicle flows for fueling, daily servicing and washing.
2. The aging wash equipment should be replaced, as maintenance personnel are presently required to hand-wash parts of the buses for complete coverage.
3. Relocate the fueling lanes and garage entrance away from the adjacent public street, thereby eliminating open public access into the garage, which presents security risks.
4. Add a security camera system and a 24-hour security booth at the main entrance along with card access to permitted personnel.
5. A dedicated battery charging and storage room should be created.
6. A new door be provided to enable direct access to the 2-post maintenance bays.
7. Add a chassis wash bay with vehicle lift to improve the site's functionality.
8. Reconfigure, inside building, restricted flow paths due to the low door height on Pear Street.

3.3.6 Landover Division

Landover Division is located on Pennsy Drive between Landover and New Carrollton Metrorail Stations in Prince George's County Maryland. Landover Division serves as an operating and maintenance base with heavy maintenance functions performed elsewhere. Landover Division has a capacity for 210 standard buses and 16 maintenance bays. A major service lane and storage area project was completed in 2016 that will improve operations of the facility. Additional facility modification needs include:

1. Replace the perimeter Closed-Circuit Television (CCTV) security system, and repair of the access gate at the POV parking lot.



2018 METROBUS FACILITIES PLAN

2. Reconfigure lot circulation and flow pattern designs should consider constraints due to the on-site driver training program, and potential return of the driver certification course currently held at Landover Metrorail station.
3. Ventilation system should be replaced to provide better heating and cooling.
4. Building expansion and the addition of three-post lifts would be required to accommodate articulated buses to meet fleet plans.
5. Lifts in the Bus Maintenance Building have had reliability problems, monitor and consider earlier replacement.

3.3.7 Montgomery Division

Montgomery Division is located on Marinelli Road between Citadel Avenue and Nebel Street near White Flint Metrorail Station in Montgomery County, Maryland. Montgomery Division is one of the four divisions that can accommodate articulated buses. Montgomery Division has a capacity for 240 buses, including 20 articulated buses. The Division has a total of 17 maintenance bays, three of which are used for articulated buses. Montgomery Division is scheduled for a replacement and rebuilding of its HVAC, bus maintenance, industrial, mechanical, electrical equipment's, safety, security and communications systems. Capital improvement needed for facility modification include:

1. Addition of street traffic-light signalization at the Marinelli Road entrance
2. Improved parking lot and maintenance bay lighting.
3. A replacement of the chassis wash parallelogram lift.
4. Proper access to the ventilation fans at the maintenance bays.
5. Increase the size of the shop lead persons' office by adding a mezzanine space.

3.3.8 Four Mile Run Division

Four Mile Run Division is located on South Eads Street between Four Mile Run and 32nd Street South in Arlington County, Virginia. The project site is split by South Glebe Road and the site was reduced in size due to adjacent roadway widening in the 1980's.

Four Mile Run Division is currently the only division in Virginia from which buses operate during weekends. This division is also one of the two divisions where CNG buses can be fueled, stored, and maintained and therefore has a dedicated fleet of CNG-powered buses that are currently being replaced with newer models.

Four Mile Run Division serves solely as an operating and maintenance base with heavy maintenance functions performed at other facilities. This Division has a storage capacity of 218 buses, 17 maintenance bays, and the facility was modified in 2004 to store and maintain CNG buses.



2018 METROBUS FACILITIES PLAN

Buses are stored in two separate lots flanking South Glebe Road. The main bus lot is on the Maintenance Building site to the north, with a remote lot to the south that accommodates approximately 100 buses. The remote parking site is located adjacent to the Dominion Virginia Power Glebe Substation. Currently Dominion Virginia Power has project for a new, approximately 2-mile 230kV underground transmission line from its existing Glebe Substation in Arlington to Pepco's existing Potomac River Substation in Alexandria. Dominion's undergrounding project work is anticipated to take up to two years. The remote parking may need to be relocated during this period and its future can't be committed until the undergrounding work is completed.

Facility modification needs include:

1. Lifecycle replacement of CNG plant.
2. An upgrade to the security of the remote Bus and POV parking lots.
3. A new, safe drop-off location should be established, for the shuttle bus from remote POV parking, outside the lot fence.
4. Extra time is required to park the buses at night due to inadequate bus storage capacity. Buses must be parked in tight configurations, resulting in delays in the parking process. Acquire or lease additional space to achieve a more accessible parking layout.
5. Increased space for tool box storage is required to improve maintenance shop efficiency.
6. Replacements for all exhaust fume hose reels.
7. An investigation of the adequacy of the heating system and insulation of the vehicle wash and fueling building is. Roof upgrades should also be considered for this same building.
8. To provide more service bays to meet the preferred fleet-to-bay ratio of 12:1, consider better utilization of the triple-length bay in the maintenance building.
9. The existing five-bus-long body shop at the service building should be considered for conversion to maintenance bays.

3.3.9 West Ox Division

West Ox Division is located on Alliance Drive between Piney Branch Road and Fairfax County Parkway in Fairfax County, Virginia. This facility is owned and managed by Fairfax County and WMATA is in the 10th year of a 50 year lease. Metrobus services only use this facility on weekdays, with weekend services operating from other divisions. West Ox Division serves solely as an operating and maintenance base with heavy maintenance functions performed elsewhere. This Division has a storage capacity for 100 buses with nine maintenance bays. Fairfax County has expanded the facility and relocated WMATA's designated bays to the newly expanded portion of the building. This location replaced the former Arlington Division.

West Ox Division is in a state of good repair with no significant deficiencies.



2018 METROBUS FACILITIES PLAN

3.4 Future Considerations

3.4.1 Capacity for Operation and Maintenance

The future capacity analysis shows a minor storage capacity constraints in 2022 and 2023 resulting from the projected fleet growth. Current parking widths, in many of the facilities, fall short of what is needed and increasing the parking width will create further capacity constraints. However, the addition of two new operating divisions in FY2019, Cinder Bed Road and Andrews Federal Center, provides additional capacity for Metrobus that can accommodate the full closure of Northern and partial closure of Bladensburg.

With the completion of the reconstruction of Northern and Bladensburg Divisions bus parking capacity for Metrobus will increase from 1,691 in 2018 to 1894 in 2025. During the reconstruction of Bladensburg and Northern division's storage capacity shortages are prevalent. The challenge for Metrobus also remains that sufficient capacity have not been created to support for the growing service demand operating in the downtown core service area. To overcome this an additional new division will be required.

Table 2 presents existing and planned bus fleet supply compared to the system-wide storage capacity.

Table 2: Existing and Planned Bus Fleet and Storage Capacity

Year	Base Fleet	Planned Fleet Expansion	Fleet Procurement			Total Fleet Planned	Storage Capacity	Storage Capacity Balance
			Standard	Artics	Total			
2018	1628	0	134	0	134	1628	1,691	63
2019	1628	30	120	10	130	1658	1,643	(16)
2020	1628	30	120	32	152	1688	1,643	(46)
2021	1628	30	120	32	152	1718	1,663	(56)
2022	1628	30	120	10	130	1748	1,663	(86)
2023	1628	30	120	10	130	1778	1,663	(116)
2024	1628	15	115	0	115	1793	1,894	101
2025	1628	15	115	0	115	1808	1,894	86

The 2015 Metrobus Facilities Plan Study conducted a spatial analysis to select appropriate locations (based on zip codes) for the construction of potential new facilities, based on improving operational efficiency, minimizing deadhead and operator relief costs. The high number of deadhead movements to and from Silver Spring Metrorail Station resulted in the zip code containing Silver Spring Metrorail being an ideal location for a new operating division. The construction of a new facility in the Silver Spring area



2018 METROBUS FACILITIES PLAN

will provide support and capacity for services operating in Northern Prince Georges and Eastern Montgomery, improve service efficiency and reduce deadheading costs.

Montgomery County is planning to expand its transit network to support the County's land use, environmental, and economic development goals. Towards this end the county has approved a 102-mile bus rapid transit (BRT) network comprising 10 corridors in addition to the Corridor Cities Transitway (CCT). Three corridors, Veirs Mill Road (MD 586), Colesville Road (US 29), and Rockville Pike (MD 355), are currently undergoing more detailed analyses. It is anticipated that the BRT services will be using articulated buses which require new storage and maintenance facility.

Montgomery County has indicated that they are planning to close the Nicholson Court, Small Transit Shop. Therefore, the development of a new facility should consider the total bus storage and maintenance needs of the region. Shared facilities could be a good way to serve the needs of both Metrobus and Ride On due to the overlapping service areas. Metro has built a successful working experience of sharing facilities with Fairfax Connector at West Ox Division and the new facility in the Silver Spring area could be built to serve the needs of both Metrobus and Ride On.

3.4.2 Articulated Bus Service

In major corridors where there is additional ridership demand and overcrowding problems, Metrobus is planning to increase the use of articulated 60' buses in place of the standard 40' buses. Among the corridors that could benefit from the usage of additional artic buses are listed below.

Table 3 presents bus corridors that could benefit from the expansion and conversion to artic bus service.



2018 METROBUS FACILITIES PLAN

Table 3: Corridors Identified for Expansion and Conversion to Articulated Bus Service

No	Corridor	PVR
1	16th Street (DC)	53
2	Columbia Pike (VA)	43
3	Anacostia/Congress Heights (DC)	41
4	Wisconsin Avenue (DC)	31
5	14th Street (DC)	29
6	Pennsylvania Avenue (DC/MD)	29
7	Colesville Road (MD)	28
8	Georgia Avenue/7th Street (DC)	27
9	H Street / Benning Road (DC)	27
10	U Street – Garfield (DC)	27
11	University Boulevard (MD)	21
12	Georgia Avenue (MD)	17
13	Veirs Mill Road (MD)	15
14	Leesburg Pike (VA)	14
15	Riggs Road (MD)	11
Total		413

The focus of the future plan is to convert some of the services in these corridors into a fully articulated bus service operation during all time periods and use articulators selectively on others to address crowding and capacity issues. The expansion of articulated services to a large extent depends on the availability of storage and maintenance capacity in the core service area. Converting standard buses to articulated service will necessitate expansion of the articulated bus fleet and support capabilities.

The 2017 Fleet Management Plan projected the number of articulated buses will increase from 65 to 135 by 2025 of which 10 additional articulators to be delivered in 2019. In order to efficiently implement the planned expansion of articulator services, a corresponding increase in articulator storage and maintenance capacity in the downtown DC area would be required. It is anticipated that the storage and maintenance capacity for articulated buses may be increased from the current 40 to 75 when Northern Division is reconstructed.

Table 4 presents current and projected total articulated bus fleet.



2018 METROBUS FACILITIES PLAN

Table 4: Current and Projected Articulated Bus Fleet

Division	Articulated Fleet		
	Current	2020	2025
Bladensburg	25	25	-
Montgomery	19	19	-
Northern	21	21	-
Shepherd Parkway	-	20	-
New Bladensburg	-	-	45
New Northern	-	-	50
New Montgomery	-	-	40
Total	65	85	135



2018 METROBUS FACILITIES PLAN

4 Operating and Maintenance Facilities Recommendations

The 2018 Metrobus Facilities Plan recommendations are put forward, both system wide and for individual operating divisions, to address the list of identified deficiencies. The recommended capital improvements would improve operational efficiency and address major State of Good Repair issues. The recommendations are listed below. **Table 5** provides the planned new and realigned Metrobus facilities.

4.1 System-wide Recommendations

This section identifies needs that apply to most or all of the existing bus operating divisions:

1. Implement WMATA's proposed policy of requiring 14'-0" minimum bus parking stall width in all new construction. The 14' dimension provides space for testing ADA ramps without moving the bus, and more clearance for vehicle movement, mirrors and safe passage of personnel. System-wide restriping is not presently under consideration because of the loss of storage capacity that would result. However, when restriping individual facilities, consideration should be given to increasing the dimension, perhaps in a limited number of locations.
2. For new construction, enforce WMATA's current policy of limiting back-in bus parking to two buses deep.
3. Establish system-wide criteria for site perimeter control at operating divisions and heavy maintenance facilities. Potential improvements under this category include: access-controlled turnstiles with key card access¹ and provisions for access by persons with disabilities, and motion or fence perimeter sensors to detect unauthorized personnel.
4. Upgrade service lane and bus facility cameras to replace all existing analog Closed Circuit Television (CCTV) cameras with Ethernet based technologies. Upgrade should include standardizing the video management software (VMS) with video analytics from VERINT to actively process live or archived video systems. In addition, upgrade should include modification of analog video servers with digital servers and increase the video storage capacity.
5. Replace fare collection vaults in service lanes. This would likely be part of a system-wide fare collection replacement program.
6. Implement a key card system to operate non-revenue service fuel pumps. This would avoid circulation problems at several facilities. At present, parked vehicles outside the key pickup locations block circulation, and in some cases force staff to cross bus access lanes.

¹ This would require resolution of Authority-wide policy regarding use and management of the cards and access points.



2018 METROBUS FACILITIES PLAN

7. When planning new or renovated Transportation offices within operating divisions, reserve enough office space for Field Supervisors and a location for physical exercise to promote employee wellness.
8. Add storage at multiple facilities to support the Sign and Shelter Crew. This crew is presently based at the Carmen Turner Facility (they will relocate to Andrews when it opens), and better distribution of storage facilities would improve the efficiency of their operations.

4.2 Retain and Rebuild Northern Division

The present location of Northern Division is very efficient in terms of its location relative to the location of deadhead points that are served. The location itself serves as a route terminal point for the 50s Line, which operates along 14th Street. There are a number of lines assigned to this division that would be candidates to utilize articulated buses, including certain routes that would logically be stored at this facility however there is no space to store and maintain buses for the service such as Route 70. The current division is located in an ideal location to store and maintain buses that serve high demand routes in central DC.

The 2015 Metrobus Facilities Plan Study evaluated the operational and efficiency effects of relocating Northern Division. The analysis indicated that moving the current Northern division to the alternative locations results in a 30% – 50% increases in annual operational cost. It confirms, therefore, the operational benefits of the current site and the need to retain the existing Northern Division.

The deteriorating condition of this facility requires an urgent action for rebuilding the facility. The recommended plan is to build to 140 bus capacity with capability to support up to 70 articulated buses.

4.3 Retain and Rebuild Western Division

The Western Division site is operationally efficient. At a timeframe yet to be determined, Western Division is slated to be redeveloped as a joint use site. This recommendation is to maintain a Metrobus operations and maintenance division as part of development in the vicinity of this location that is approximately the same size.

4.4 Rebuild Bladensburg On-Site

Bladensburg is programmed for reconstruction in the short-term (2019). It is slated to re-open in 2023, which is in the mid-term period. Various alternatives were evaluated and the recommendation is to build Bladensburg as a 275 – 300 bus capacity division. The rebuilt Bladensburg will have 25 maintenance bays, multiple points of access for ingress and egress, parking space to handle 300 buses,



2018 METROBUS FACILITIES PLAN

on-site employee parking lot, utility and CNG fueling capacity to support the maximum capacity of the facility.

4.5 Potential New Division and Shared Facilities

To improve operational efficiency, minimize deadhead and operator relief costs a spatial analysis, for selecting appropriate locations, was conducted (based on zip codes) for the construction of one or more potential new facilities in the 2015 Metrobus Facilities Plan Study.

The high number of deadhead movements to and from Silver Spring Transit Center (SSTC) resulted in the zip code containing SSTC being an ideal location for a new operating division. This is due to the large number of services operating in the area and their potential to have the greatest impact on reducing deadhead movements. Currently there are 21 lines with 32 route variations operating in the Silver Spring area. These routes have a combined peak vehicle requirement of over 220 buses. The lines operate from four different divisions, Bladensburg, Landover, Montgomery and Northern which contributes to the high number of deadhead movements with higher operational cost and lower service reliability. To address this operational problem a new operating division in the Silver Spring area close to the Prince George's/Montgomery County borders is recommended. **Figure 3** presents the general location for the future new operating division.

The development of a new facility should consider the total bus storage and maintenance needs throughout the region. Besides the need in Metrobus services, the locally-operated systems will experience growth and may have additional bus storage and maintenance needs. Shared facilities may be a good way to serve the needs of both Metrobus and local operators due to overlapping service areas. Metro has built a successful working experience of sharing facilities with Fairfax Connector at West Ox Division. A facility in the Silver Spring area could not only serve the Metrobus fleet but could also be used as a shared facility with Ride On or The Bus since it would be very close to the Montgomery County/Prince George's County border.

Metro has had an initial exchange of ideas with Montgomery County on the possibility of developing a shared facility in the Silver Spring area. Montgomery County has an interest of closing the Nicholson Court, Small Transit Shop and replacing it with a new facility. Metro will continue the discussion to affirm our common interest and develop a plan that will support both Metrobus and Ride On fleets in a shared facility.

4.6 Capital Improvement Needs for Existing Divisions

This section presents capital improvement recommendations for each operating division.



2018 METROBUS FACILITIES PLAN

4.6.1 Northern Division

The recommendations in this section could be implemented only as part of a major reconstruction.

1. Design most or all service bays to accommodate articulated buses; this would allow the division to better serve nearby downtown routes.
2. Set structural column spacing to support 14' minimum stall width
3. Place service lanes on level paving so as to minimize the risk of rolling buses.
4. Minimize the number of access points along the perimeter to allow for proper access control.
5. Design the facility with counter-clockwise circulation to improve operators' visibility while turning.
6. Minimize the number of level changes within bus circulation and parking areas.

4.6.2 Western Division

Near-term functional and Building Condition/State of Good Repair (SOGR) improvement recommendations for Western Division include:

1. Modify bus service circulation to avoid turning movement constraints when approaching the fueling lanes. This would reduce the number of incidents where buses strike building structures and servicing equipment while entering the building. One possible solution in this regard would be to widen the Jenifer Street gate, and transition the flow path out to 44th Street NW, then back into the lot from Jenifer Street NW during servicing hours. Jenifer Street is not reported to have traffic congestion during bus servicing hours, and this would improve bus access to the fueling lanes.
2. Extend the CCTV system to the south end staff parking lot so that this area can be monitored by facility security staff responsible for that area.
3. Expand the shop mechanic's cafeteria in the maintenance building to relieve crowding.
4. Initiate a comprehensive renovation and repair program to address serious building envelope deficiencies at the Bus Maintenance and Service Lane buildings.
5. Repair and restore masonry veneer at exterior of both the Bus Maintenance and Service Lane buildings. As previously noted, falling bricks due to veneer failure at the Service Lane Building present a hazard to personnel. This problem at the service bay should be immediately addressed, and access to the area should be limited as noted in Technical Memo 1.
 - a. Remove and replace single-ply roofing at east wing of Bus Maintenance Building.
6. Initiate a comprehensive investigation and repair program to address mechanical and electrical deficiencies at the Bus Maintenance and Service Lane buildings.



2018 METROBUS FACILITIES PLAN

4.6.3 Bladensburg Division

Bladensburg Division is slated for complete reconstruction and many of the recommendations in this section would be implemented only as part of this major reconstruction. The planned closure of Bladensburg Division, for reconstruction, requires a new CNG fueling capacity in order to provide service for CNG fleets that are currently operating at Bladensburg. Metro is in the process of building a new CNG fueling facility at Shepherd Parkway, to accommodate the future fleet relocation from Bladensburg. The gas pipeline construction project, done by Washington Gas, has been in the making since 2016. Metro anticipates the CNG facility at Shepherd Parkway to be ready for operation before the closure of Bladensburg Division. Some of these improvements may also be considered if the plan is changed and the division stays open beyond the planned closure date.

1. Replace the obsolete analog Closed Circuit Television (CCTV) security system with an Ethernet based system using the VERINT VMS platform. The front gate, which now relies on an officer, should also be monitored with an access control system for authorized personnel, allowing gate security personnel to focus on site monitoring.
2. For better pedestrian safety, a new configuration of the stop sign at the guard gate and a protected location for employee shuttle drop-off should be considered.
3. Reconfigure the bus wash flow path to reduce tight turns that currently cause the operators to either run into the interior wall or to damage bus wash lane actuators as they backup to perform three-point turns.
4. Work with Washington Gas to develop and implement a strategy to enable pressuring up CNG tanks more quickly.
5. Provide more onsite parking for Privately Owned Vehicles (POV).
6. Improve vehicle flows into and out of the site with the addition of more entrances and exits to perimeter streets.

4.6.4 Shepherd Parkway Division

Facility modification needs include:

1. Implement the planned improvements to Blue Plains Drive and Shepherd Parkway with wider lanes and improved sight lines and turning radius at the intersection of the two roadways. The deficiency of the intersection has been identified as a significant operational delay and safety hazard.
2. Develop and implement measures to reduce risk of collisions at the entrance gate. As currently configured, this gate is shared by revenue vehicles and POVs. This causes crossing conflicts between exiting buses and entering POVs. Corrective measures may include: warning signage and signals, or adding a separate entrance for buses.



2018 METROBUS FACILITIES PLAN

3. Develop and implement corrective measures to address hazardous ice build-up on the POV parking ramp and deck. Add windscreens to the pedestrian bridge to reduce ice and snow build-up. Consider a snow melt system to prevent ice buildup on the POV parking ramp and deck.
4. Relocate the shop supervisor offices in the maintenance building so that they are closer to the shop floor, and reduce or eliminate the present dead-end hallway leading to these offices.

4.6.5 Southern Avenue Division

This facility is slated to close in 2023, and there are at present no plans to reconstruct the facility. In the interim, potential improvements to address current issues not requiring major modifications to the facility include the following:

1. A security camera system would remedy the lack of CCTV coverage at the site. Re-configuration of the site entrance should include a 24-hour security booth at the main entrance along with card access to permitted personnel. Presently the site's security booth is not staffed for 24 hours.
2. Provide a new door to enable direct access to the 2-post maintenance bay that is adjacent to the primary bay door facing the vehicle storage lot. This is needed because this bay sees heavy use and is currently difficult to enter.
3. Provide an efficient mobile bus wash system capable of removing soot grime from the rear of buses. The existing wash bay equipment presently does not cover these areas adequately, requiring personnel to wash those parts of the bus by hand. Mobile wash systems can be in the form of 2-step detergent spray systems (not high pressure) or self-powered vertical brush systems guided by the operator along the target wash surface.

The closure and reconstruction of Bladensburg and Northern Divisions may require more garage facility space in addition to the new garages opened. As a result it may be necessary for Southern Avenue Division to be retained for swing space to support the anticipated closure and reconstruction works. This future consideration requires additional investment to keep the facility in a State of Good Repair. If WMATA chooses to keep the facility in operation past 2023, the following capital improvements should be considered:

1. If there were to be a major reconstruction (although none is planned at this point), reconfigure the site and building to provide better vehicle flows for fueling, daily servicing and washing.
 - a. The reconfiguration would relocate the fueling lanes and garage entrance away from the adjacent public street, thereby eliminating open public access into the garage, which presents security risks. This would also eliminate the need for vehicles to leave the lot to enter the service lanes.



2018 METROBUS FACILITIES PLAN

- b. Any reconfiguration should take into account the slope of the site to mitigate safety hazards caused by the sloping service lanes and vehicle storage areas.
 - c. Inside the building, reconfigurations would improve restricted flow paths due to the low door height on Pear Street.
2. Permanently replace existing wash equipment, for the reasons described above.
3. Add a dedicated battery charging and storage room.
4. Add a chassis wash bay with vehicle lift.

4.6.6 Landover Division

Functional improvement recommendations for Landover Division include:

1. Replace the existing perimeter analog Closed-Circuit Television (CCTV) security system with current Ethernet based technology.
2. Repair the access gate at the POV parking lot, which presently does not prevent non-employees from accessing the lot.
3. Monitor reliability of lifts in the Bus Maintenance Building. These lifts have had reliability problems, but none are nearing the end of their projected useful life. These units should continue to be monitored, and may be warranted for earlier replacement.

4.6.7 Montgomery Division

Functional and Building Condition/State of Good Repair (SOGR) improvement recommendations for Montgomery Division include:

1. Address conflicts at the Marinelli Road entrance by one of the following:
 - a. Traffic-light signalization; or
 - b. Require buses enter and exit the site using right turns only.
2. Improve parking lot and maintenance bay lighting.
3. Increase the size of the shop lead persons' office by adding a mezzanine space similar to the shop superintendent's office. This would provide more room for the office while providing the lead person with better views of the shop floor.
4. Replace the chassis wash parallelogram lift, as this unit is beyond its useful life and is rusted out.
5. Initiate a comprehensive investigation and repair program to address mechanical and electrical deficiencies at the Bus Maintenance building.
6. Replace HVAC unit, Switchgear, Transformers and Power Panels, install System Monitoring and Control System (SCADA), build a new equipment room and paint booth, replace two bus wash systems, build new sprinkler, etc.



2018 METROBUS FACILITIES PLAN

4.6.8 Four Mile Run Division

Functional improvement recommendations for Four Mile Run Division include:

1. Acquire or rent more lot space to meet demand for storage of buses assigned to Four Mile Run Division. Due to inadequate bus storage capacity, buses must be parked in very tight configurations. Because of this, the parking process at night takes longer, and arriving buses and drivers are queued waiting for lot attendants to find spaces to park the buses. Note that the intent of this recommendation is not to add storage capacity at this division, but to improve efficiency.
2. To provide more service bays to meet the preferred fleet-to-bay ratio of 12:1, Bay no. 15 should be refurbished for better efficiency and requalification as a multi-workstation bay. This is the only bay providing one-way traffic through the shop and an evaluation of potential improvements should consider modifying the present configuration to better utilize this bay as a resource. It is presently equipped with obsolete and abandoned in-ground brake test equipment and a legacy inspection pit. The inspection pit is used on rare occasions for quick troubleshoot inspections. The brake test equipment should be removed for better positioning of the one-axle tire work lifts.
3. The CNG facility requires a mid-life assessment and the current bus wash service lane roof needs to be replaced as it has structural safety issues with the trusses and/or the roof deck pans. Building a new service lanes and body shop building, replacing the bus wash systems and HVAC equipment, etc. are among the various projects targeted for implementation over the coming years.



2018 METROBUS FACILITIES PLAN

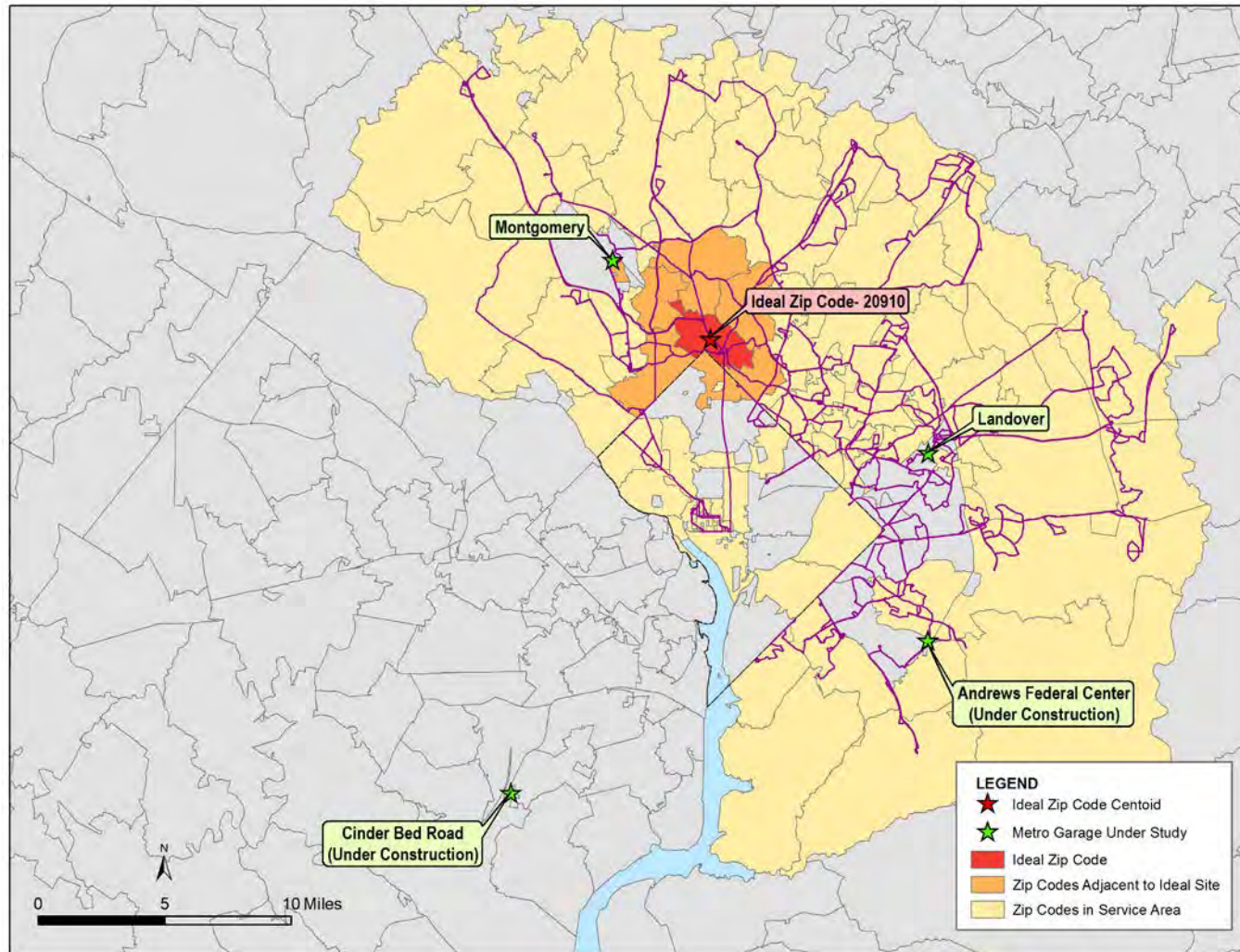
Table 5: Planned New and Realigned Metrobus Facilities

	2018	2019	2020	2021	2022	2023	2024
Cinder Bed	OPENS – 80 standard buses (From Shepherd, Four Mile & West Ox)	Opening+1 Year: 80 buses max, artics allowed;	Opening+2 Yrs: 100 buses max, artics allowed;			Opening+5 Yrs: 113 buses max, artics allowed;	
Andrews Federal Center		OPENS – Heavy Overhaul Shop (HOS) relocated from Bladensburg, 35 Artic capacity available					
Bladensburg (Heavy Overhaul Shop)		CLOSES – Heavy Overhaul Shop (HOS) moves to Andrews	DEMOLISHED				
Bladensburg (Operating Division)		PARTIAL CLOSURE – Portion of fleet moves to Shepherd	DEMOLISHED	CONSTRUCTION			OPENS as new Operating division
New Operating Division	Planning and design for a new operating division. New division would be based at a new site to be defined.		CONSTRUCTION		OPENS New Operating Division		
Northern		CLOSES - Fleet moves to other Operating Division	CONSTRUCTION				OPENS as new Operating division
Shepherd Parkway		OPENS CNG Fueling Facility Buses relocated from Bladensburg					
Southern							CLOSES
Western	Urban type replacement facility to be constructed near existing site - Time to be defined						
Note: Grey boxes indicate "closed" or inactive facilities and green box indicates partial closure							



2018 METROBUS FACILITIES PLAN

Figure 3: Ideal Location for a New Maryland Operating and Maintenance Division





2018 METROBUS FACILITIES PLAN

5 Bus Customer Facilities

5.1 Introduction

This section provides existing conditions and recommended actions for the various built elements that support the Metrobus experience, including bus stops, shelters, customer information, bus layover areas and operator facilities.

Following on the subject 2018 Metrobus Facilities Plan, the *Bus Customer Facility Asset Replacement and Enhancement Plan* study started in July 2018, with completion in spring 2019 for the FY2021 budget cycle development. The Asset Replacement Plan will create a comprehensive, system wide assessment and capital facility plan for all of the WMATA-owned customer-facing bus facility elements.

The Bus Customer Facility Asset Replacement and Enhancement Plan will provide recommendations that can be moved quickly into a final design and construction process as the level of capital funding available allows. The needs are large throughout the system and decades of deferred maintenance has taken its toll on the bus customer experience. This will be a roadmap for Metro to address these needs in a systematic and prioritized way and return the Metrobus customer facilities throughout the region to a state of good repair.

Metrobus Facility elements are extensive, and exist in a very dynamic atmosphere. Data presented herein for Customer Facilities are as of December, 2017.

5.2 Bus Stops

5.2.1 Existing Conditions

The customer's experience at their bus stop represents the first and last contact they have with the Metrobus service at the moment of their actual trip. WMATA has long recognized that providing accessible and easily understandable customer information is a key component of its service. Following the 2003 Regional Bus Study, WMATA developed and adopted uniform bus stop information and design guidelines as the "Guidelines for the Design and Placement of Transit Stops" published in September 2009.

Metro has 10,761 bus stops and 2,554 shelters. All Metrobus stops have bus stop flags, identifying the system and route numbers serving the stop, and over 7,000 stops have information cases displaying schedules and maps. WMATA and its jurisdictional partners work together to improve existing bus stops and make them ADA compliant. The Board of Directors' target is to improve 100 stops per year.



2018 METROBUS FACILITIES PLAN

1. In 2015, 255 stops were improved,
2. In 2016, 245 stops were improved,
3. In 2017, 138 stops were improved, and
4. 206 stops are currently under contract to be improved in 2018.

By policy, Metrobus ensures that new bus stops added to the system are ADA compliant but many legacy bus stops throughout the region still require construction work to bring them into compliance.

5.2.2 Needs

The 2009 “Guidelines for the Design and Placement of Transit Stops” provide Metro and its jurisdictional partners specific physical design criteria to be integrated with local comprehensive plan policies, land use ordinances, pedestrian plans, and street design.

The Metro Guidelines follow the Americans with Disabilities Act (ADA) accessibility standards for bus stops:

1. Firm landing surface
2. At least 5 feet wide and 8 feet long; and
3. Connects to the curb

To ensure that an accessible bus stop is also fully functional for the customer, Metro added a fourth criterion to its accessible bus stop standard:

4. A curb cut at the corner nearest the bus stop with a matching curb cut at (at least) one adjacent corner.

Accessible bus stops decrease dependence on paratransit service and are safer for all customers.

As of December 2017, only an estimated 25% of Metrobus stops were accessible. Metro’s ADA Planning and Policy (ADAP) is planning to undertake an inventory of current accessibility conditions at bus stops in order to identify stops needing improvement to meet the accessibility criteria’s listed above.

Metro needs additional resources and the active engagement of our jurisdictional partners to accelerate the change towards ADA complaint bus stops. Metro also needs to update approximately over 1,000 schedule panels and 45 bus maps every year to sustain customer information at various bus stops.



2018 METROBUS FACILITIES PLAN

5.3 Bus Stop Shelters

5.3.1 Existing Conditions

Throughout the metropolitan region there are a total of 2,554 bus shelters that serve Metrobuses. WMATA owns and maintains 523 shelters and the remaining 2,038 shelters serving Metrobuses are owned and maintained by other entities. Of the 523 shelters owned by WMATA, 425 of them are located at Metrorail stations and the remaining 98 shelters are on-street on jurisdictional right-of-way.

Table 6 provides an inventory of WMATA owned shelters by jurisdiction.

Table 6: WMATA Owned Bus Shelters by Jurisdiction

Shelter Type	DC	MD	VA	Total
Metrorail Station Shelters	69	185	117	371
Kiss & Ride Shelters	7	36	11	54
On-Street Shelters	0	15	83	98
Total Shelters	76	236	211	523

WMATA completed a \$5.5 million bus improvement project at Franconia-Springfield Metro station in 2015. The improvements expanded the capacity of the bus station by three bays (increasing it by nearly 40%) and provided amenities to enhance the customer experience, including ten large and modern bus shelters (in the new WMATA design) equipped with new real-time bus arrival display signs, sidewalk and crosswalk improvements to provide safe access. The 2014 WMATA Manual of Design Criteria specifies that new shelters shall be made of stainless steel, have transparent glass inserts constructed of tempered glass or laminated safety glazing, incorporate a stainless steel map case with an illuminated system map or neighborhood map and have roofs with skylights.

The majority of the 425 WMATA rail station bus shelters were built between 1976 and 1993. With many approaching 40 years-of-age, they now require replacement to address age and overall condition. In the 2013 study, 286 (68%) were identified as beyond their useful life and requiring immediate replacement. The main issues are rust, damaged Plexiglas panels and missing top domes, and structural cracks. The oldest sections of the Red and Orange Lines have the worst conditions. WMATA has sought funding through the FTA's Bus and Bus Facilities program to accelerate replacement as well as through the Capital Needs Inventory (CNI) process and development of the Capital Improvement Program (CIP).



2018 METROBUS FACILITIES PLAN

A 2013 Asset (Bus Shelters) Improvement Evaluation Study identified the bus shelters that are beyond their useful life, and developed a prioritized shelter replacement plan based on condition and bus and passenger volume.

Table 7 provides the current system wide conditions of WMATA bus shelters.

Table 7: WMATA Owned Bus Shelters Condition

Shelter Condition	Number
On Street Shelters	98
Metrorail Station Shelters	
Needing Replacement	276
Planned for Replacement	58
Shelters Replaced	46
New Shelters	20
Others	25
Total Metrorail Shelters	425
Total Shelters	523

5.3.2 Needs

A significant portion of the bus shelters at Metrorail stations require a program for replacement. Of the 425 shelters located at Metrorail stations, 334 (79%) need replacement. 58 Metrorail station bus shelters are planned for replacement by developers and other improvement projects.

Table 8 provides the Metrorail station shelters planned for replacement by others.

Table 8: Metrorail Station Shelters to Be Replaced by Others

Metrorail Station	Number	To Be Replaced
Ballston-MU	8	Arlington
Congress Heights	8	DC Govt.
College Park	5	Purple Line
Greenbelt	17	TBD
King Street	7	City of Alexandria
New Carrollton - North Side	6	Purple Line
New Carrollton - South Side	7	Joint Devt.
Total	58	



2018 METROBUS FACILITIES PLAN

There are 276 remaining Metrorail bus shelters that should be replaced with the modern design stainless steel shelter. A \$3.8 million FTA grant and CIP fund is available to support part of the bus shelter replacement program. Further funding source will be needed to fully implement the Metrorail Station shelter replacement program.

Table 9 presents the list of Metrorail bus shelters planned for replacement.

Table 9: WMATA Owned Bus Shelters Needing Replacement

No	STATION	Total Shelters	Year Installed	Metrorail Line	Planned Replacement Year
1	Fort Totten	11	1978	RD	2019
2	Brookland	10	1978	RD	
3	Minnesota Ave	11	1978	OR	
4	Rhode Island Ave	7	1976	RD	
5	Addison Road	5	1980	SV BL	
6	Huntington	12	1983	YL	
7	Shady Grove	14	1984	RD	2020
8	Takoma	10	1978	RD	
9	Medical Center	7	1984	RD	
10	Forest Glen	6	1990	RD	
10	Anacostia	12	1991	GR	
11	Rockville	13	1984	RD	2021
12	West Falls Church (S)	9	1986	OR	
13	Twinbrook	11	1984	RD	
14	Deanwood	6	1978	OR	
15	Naylor Road	10	2001	GR	
16	Southern Avenue	16	2001	GR	
17	Braddock Road	6	1983	BL YL	2022
18	East Falls Church	5	1986	OR SV	
19	Capitol Heights	7	1980	SV BL	
20	Suitland	15	2001	GR	
21	Wheaton	14	1990	RD	
22	Landover	5	1978	OR	2023
23	Cheverly	5	1978	OR	
24	Van Dorn St	8	1991	BL	
25	Eisenhower Ave	6	1983	YL	
26	Branch Ave	16	2001	GR	
27	West Hyattsville	8	1993	GR	
28	Grosvenor	11	1984	RD	
Total		276			



2018 METROBUS FACILITIES PLAN

5.4 Other Bus Customer Support Facilities

5.4.1 Existing Conditions

In addition to stops and shelters, bus customers’ journeys require the use of other facilities, including bus bays at Rail stations, park and ride lots, and High Occupancy Vehicle (HOV) lanes to allow faster bus travel. Of those listed park and ride and HOV lanes are generally owned and maintained by entities other than Metrobus, but are a crucial part of the Metrobus customers’ experience. Section 5.5 will present existing conditions of various transit centers served by Metrobus.

Table 10 provides an inclusive list of bus customer facilities by jurisdiction, including numbers of stops, shelters, bus bays, park and ride locations and parking spaces, and HOV lane miles.

Table 10: Bus Stop, Bus Bays, Shelters, Park and Ride and HOV Lanes by Jurisdiction

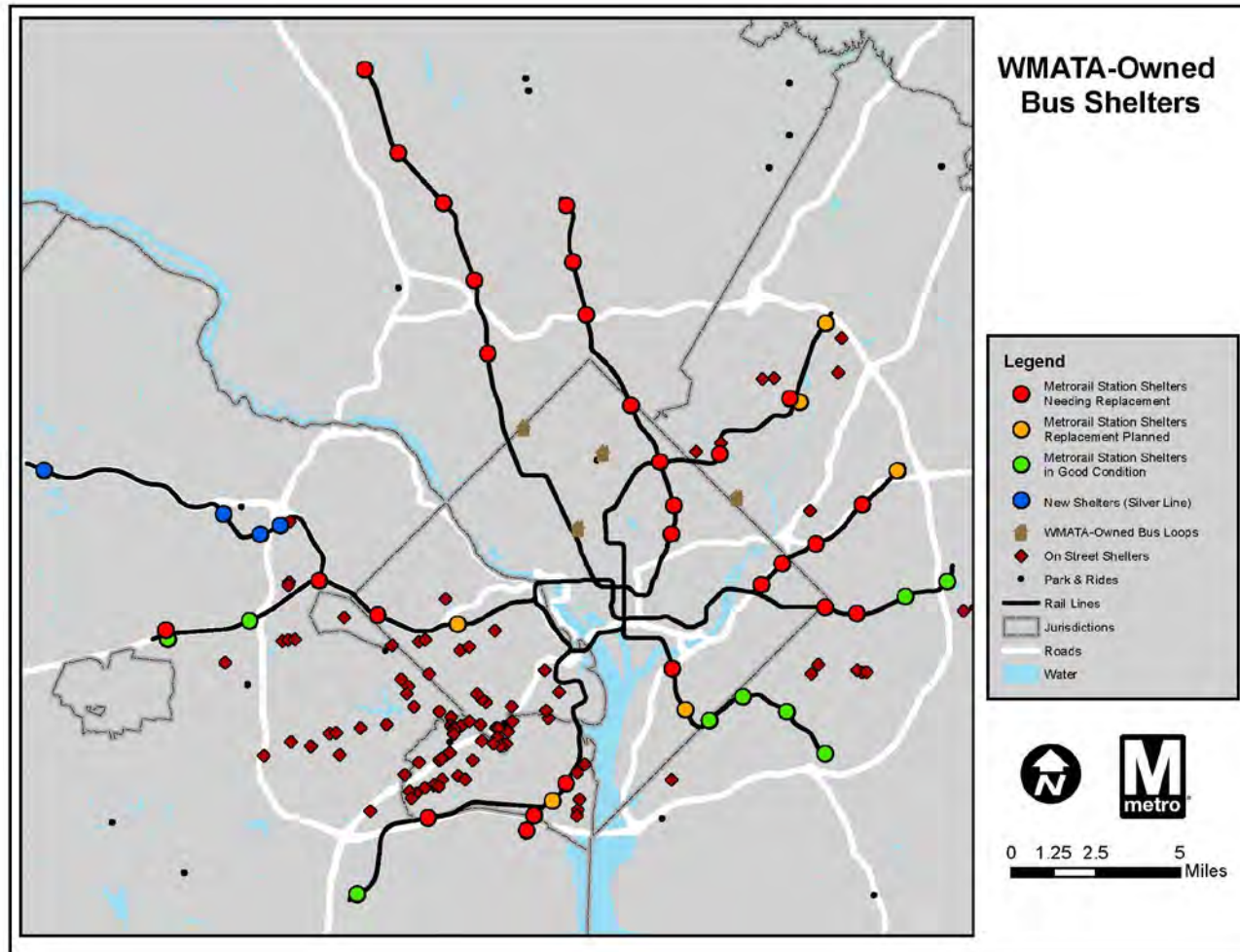
Jurisdiction	Number of Bus Stops	Number of Bus Shelters	Number of Bus Bays	Park and Ride		HOV Lanes (Miles)
				Locations	Parking Space	
District of Columbia	3,227	752	80	6	2,857	0
Maryland	4,605	1,035	196	150	83,038	20
Virginia	2,929	767	138	113	53,675	38
Total	10,761	2,554	414	269	139,570	58

A map of WMATA’s bus shelters, bus loops and Park & Rides lots served by Metrobus is presented in **Figure 4**.



2018 METROBUS FACILITIES PLAN

Figure 4: Current WMATA Owned Bus Shelter Stations and Bus Loops





2018 METROBUS FACILITIES PLAN

5.5 Bus Transit Centers

5.5.1 Existing Conditions

Metrobus serves nine transit centers in Maryland and Virginia. The completion and start of operation of the Silver Spring Transit Center, Takoma Langley Crossroads Transit Center, and Montgomery Mall Transit Center have added major customer facilities for Metrobus riders over the past few years. In addition Metrobus also serves Franconia-Springfield, Mark Center, Pentagon, Seven corners, Shirlington and White Oak Transit Centers. Metro’s Office of Bus Planning (BPLN) will continue to coordinate with the various agencies to meet the needs of our customers and keep Metro safe, reliable and affordable.

Table 11 provides a list of the major transit centers, ownership and year built, served by Metrobus.

Table 11: Transit Centers Served By Metrobus

Transit Center	Year Built	Number of Bus Bays	Ownership
Mark Center	2011	5	Alexandria
Montgomery Mall	2016	6	Montgomery
Pentagon*	1977	24	WMATA
Seven Corners	2011	3	Fairfax
Shirlington	2008	n/a	Arlington
Silver Spring	2015	22	WMATA
Takoma Langley Crossroads	2016	7	MTA
White Oak	2012	n/a	Montgomery

* - Pentagon Transit Center was rebuilt in 2015

5.5.2 Needs

Bus bay usage at the Pentagon Transit Center (PTC) has reached its capacity and WMATA, using the Transit Improvement Generating Economic Recovery (TIGER) grants, planned to add three additional bus bays. But due to excessive traffic at PTC, DOD indicated that adding new bus bays will aggravate the bus traffic problem. Instead, DOD offered a land for constructing a new transit facility on Army Navy Drive between S. Joyce and S. Hayes Streets. The transit center will have 8 bus bays and related infrastructure with direct pedestrian entryway to the Pentagon. DOD has also committed to cover the design and specifications cost and WMATA will cover the construction cost. Currently the design work is 100



2018 METROBUS FACILITIES PLAN

percent complete. The Army and Navy transit center is currently undergoing an environmental evaluation. Construction is anticipated to start by 2020.

5.6 Customer Information Electronic Display Signs (CIEDS)

5.6.1 Existing Conditions

In 2010 the Metro Board of Directors adopted the Guidelines for the Design and Placement of Transit Stops. Based on a bus stop hierarchy, the guideline states that enhanced service bus stops and transit centers qualify for a real-time information display. To provide real time information Metro introduced CIEDS (Customer Information Electronic Display Signs). CIEDS display real-time bus arrival information, route information, and MetroAlerts on delays, weather conditions, and detours. Approximately 800 CIEDS were approved for the initial phase of implementation.

The CIEDS systems was approved through prototype testing, factory acceptance testing and site acceptance testing processes. After the extensive testing period, CEIDS was first introduced in the Metrobus system in 2015. CIEDS currently consists of 362 signs installed across the region, on-street and at key Metrorail stations. The CIEDS design enables other public transit providers to also provide real-time bus arrival information at shared stops and transit centers, if provided in compatible data formats.

Metro plans to spread the reach of real-time bus arrival information to customers by expanding the CIEDS program. Metro is planning a multi-year installation and maintenance contract covering for new and reinstallation of existing signs. The availability of electric power at shelters has been the single most important factor in WMATA's ability to install CIEDS.

Table 12 below provides the location and number of CIEDS in the Metrobus system.



2018 METROBUS FACILITIES PLAN

Table 12: Summary of Metrobus CIEDS

Location	Shelter Signs	Station Signs	Total Signs
District of Columbia	163	0	163
Montgomery County	24	0	24
Prince George's County	16	0	16
Franconia-Springfield Metrorail Station	10	0	10
Pentagon Transit Center	0	24	24
Takoma Langley Park Transit Station	0	7	7
Metrobus Stations	58	0	58
Total WMATA - Signs	271	31	302
Silver Spring Transit Station	0	32	32
Shirlington Bus Station	4	0	4
Crystal City Station	3	0	3
Rosslyn Station	4	0	4
Metroway Stations	17	0	17
Total Other Agency Signs	28	32	60
Total Metrobus System	299	63	362

5.6.2 Needs

In spring 2018, WMATA initiated the “Asset Replacement and Customer Facility Enhancement Study” to provide a comprehensive plan to:

1. Identify CIEDS qualifying bus stops of regional-interest and local-initiative
2. Coordinate with utilities and sponsors for provision of electrical power, and
3. Integrate implementation schedules with related projects to complete the network in five years

The completed plan will provide complete information on CIEDS needs. Metro is also planning a multi-year installation and maintenance contract for new signs and reinstallation of existing signs.

Future installations will be focused on retrofitting existing Metrobus stations and bus loops and include more high-ridership and transfer locations served by other public transit providers. Additionally, new solar-powered and battery-powered “e-ink” displays, which may require less up-front power infrastructure, will be piloted to determine viability as an added option to provide customer



2018 METROBUS FACILITIES PLAN

5.7 Closed Circuit TV (CCTV) and Public Address (PA)

5.7.1 Existing Conditions

In order to enhance customer security WMATA has installed closed circuit television (CCTV) and public address (PA) speakers to monitor bus station platforms and communicate with customers. CCTV technology improves the protection of patrons and employees and creates a safe environment for transit riders. Overall a CCTV system, by capturing and recording images, reduces the fear of crime and reassures riders and employees, prevents and deters crime and unlawful activities. PA speakers are used to provide information to the public in passenger stations, buses, communicate with personnel in stations, service rooms, yards and shops.

Metro introduced 17 CCTV and 24 PA speakers at the Pentagon Transit Center (PTC) in 2016. Currently, CCTV technology has been installed at a number of Metrobus stations that are connected to Metrorail stations. But the overall coverage of the system within the Metrobus network is very limited.

Table 13 presents current location of CCTV and PA.

Table 13: Current CCTV and PA Location

No	Locations	CCTV	PA	No	Locations	CCTV	PA
1	Addison Road	1		13	Minnesota Avenue	2	
2	Anacostia	2		14	Morgan Boulevard	1	
3	Bethesda	2		15	Pentagon Transit Center	17	24
4	Brookland-CUA	1		16	Rockville	7	
5	Capitol Heights	1		17	Rhode Island Avenue	1	
6	Cheverly	1		18	Rosslyn	2	
7	College Park	2		19	Silver Spring Transit Center	60	
8	Deanwood	2		20	Takoma	1	
9	Franconia & Springfield	4		21	Takoma Langley Transit Center	11	10
10	Fort Totten	1		22	Twinbrook	2	
11	Huntington	1		23	Van Dorn	1	
12	King Street	1					



2018 METROBUS FACILITIES PLAN

5.7.2 Needs

While the use of CCTV technology is very effective in promoting riders' confidence and security, the availability of these systems throughout the Metrobus operating area is very limited. As indicated above, there are only a few transit stations that have the benefit of these systems. Metro is planning to expand and add new coverage of CCTV and PA throughout the Metrobus operating area. Safety and customer communication at WMATA-owned Metrobus stations is a priority particularly for stations with the highest bus ridership. In the coming years the investment priority should be to those stations that are currently serving over 1,000 boardings per day, but eventually all Metrobus station terminals should have coverage. The Asset Replacement and Customer Facility Enhancement Plan Study will provide a detailed list of the major bus terminals that will be targeted for capital investment to enable CCTV and PA systems coverage.

5.8 Off-Street Bus Terminals

5.8.1 Existing Conditions

WMATA owns and maintains four off-street bus terminal (bus loop) facilities at Chevy Chase Circle, 14th Street and Colorado Avenue, Duke Ellington Bridge, and Mount Rainier. They are remnants of the streetcar system that served Washington, DC and continue to serve as important terminal points and driver relief areas for Metrobus routes today.

A condition assessment of each loop was completed as part of the 2015 Metrobus Facilities Plan Study, leading to the conclusion that three (Chevy Chase, 14th Street and Colorado Avenue, Duke Ellington Bridge) of the four bus terminals are in need of substantial capital maintenance and rehabilitation. The Mount Rainier terminal was deemed to be in good condition, with 15 years of useful life remaining, however, some concrete failures and drainage problems were noted. The Chevy Chase Circle loop is currently undergoing repair with funding from a District of Columbia grant.

5.8.2 Needs

The conditions assessment of the off-street bus loops completed as part of the 2015 Metrobus Facilities Plan Study highlighted the following needs:

1. **14th Street and Colorado Avenue**
 - a. Reconstruct canopy areas
 - b. Remove existing roofing and deck; replace with new steel deck
 - c. Clean and repair all brick
 - d. Repair water damaged sections; inspect drainage



2018 METROBUS FACILITIES PLAN

- e. Repair and replace ceiling
- f. For ADA compliance doors and frames need replacement
- g. Interior and exterior security and lighting improvements
- h. Plumbing repair

2. Duke Ellington Bridge

- a. Replace south facing canopy structure
- b. Clean and repair all brick
- c. For ADA compliance doors and frames need replacement
- d. Interior improvements to plumbing

3. Mount Rainier Loop

- a. Some concrete failures need repair
- b. Drainage can be improved

4. Chevy Chase Loop

The 2015 conditions assessment observed several deficiencies in this structure; they are currently being remedied through a construction project funded by a District of Columbia grant.

The Mount Rainier, 14th Street, and Duke Ellington Bridge terminals need funding for safety enhancement, maintenance, rehabilitation and renovation to bring them to a state of good repair.

5.9 Bus Operators Restrooms and Break Rooms

5.9.1 Existing Conditions

Restrooms and break rooms are essential to meeting operator relief needs and enabling operators to provide quality customer service. Of the 291 Metrobus terminals, 72 (25%) have no access to restrooms and out of the available restrooms the share of non-WMATA restrooms accounts more than half.

Table 14 provides the total number of WMATA terminals, subdivided by terminals with and without restrooms.



2018 METROBUS FACILITIES PLAN

Table 14: WMATA Bus Terminals and Restroom Availability

Description	Number	%
Terminals with Portable Restroom	14	n/a
Terminals without Restrooms	74	26%
Terminals with Non-WMATA Restrooms	108	38%
Terminals with WMATA Restrooms	101	36%
Total Number of Terminals	283	100%

Metro has 14 portable restrooms that provide temporary late night/early morning operator access, mainly at rail stations where bus service extends beyond rail hours.

Table 15 present current locations of portable restrooms as an interim solution.

Table 15: Metrobus Portable Restroom Locations

No	Metrorail Station		Owned By Others
1	Addison Road Station	8 King Street Station	South Laurel Park & Ride
2	Brookland Station	9 Naylor Road Station	
3	Capitol Heights Station	10 Prince George's Plaza Station	
4	Congress Heights Station	11 New Carrollton	
5	Deanwood Station	12 Shady Grove Station	
6	Fort Totten Station	13 Takoma Station	
7	Huntington Station		

Currently, restroom facilities are not adequately available to meet Metrobus operators' needs, with some locations just served by single portable restrooms. To begin to address the inadequate facilities, Metro formed a committee that includes the offices of Bus Transportation, Safety, and Police, with participation by Union representatives, to recommend solutions.

Additionally, Metro has completed a Metrobus Operator Restroom/Break Room Facilities Study which provides a policy guideline document that can be used for planning future rest/break rooms for bus operators. The study, with expected completion by July 2018, builds on progress made by the WMATA



2018 METROBUS FACILITIES PLAN

Restroom and Break Room Committee, documenting existing conditions/needs, and prioritizing terminal locations for restrooms. The study will prepare guidance on general practices, specific solutions for priority locations, and a framework for decision making in the future. While interim solutions have provided relief at important locations, WMATA’s long term objective is to plan for adequate restroom facilities at all 219 Metrobus terminals.

5.9.2 Needs

Availability of bus operator restroom and break rooms at Metro stations, Metrobus terminals and at the beginning and end of routes is a major challenge. Currently, facilities are not adequately available to meet Metrobus operators' demands at all locations and all hours of service.

In core areas of the region, Metrobus service hours extend later and earlier than Metrorail hours, creating urgent restroom needs during the Metrorail off hours.

Table 16 presents the top 10 terminals with a restroom on WMATA property ranked by the number of buses that use the location as a terminal when a restroom is not available.

Table 16: Top Ten Metrobus Terminals and Portable Restrooms

Terminal Name	Metrorail Station Restroom Location	Trip Count (Daily)	Portable Restroom
Fort Totten Station	Fort Totten Metrorail Station	282	Yes
Archives (9th & Cons Nw)	Archives Metrorail Station	221	
Capitol Heights Station	Capitol Heights Metrorail Station	215	Yes
Ballston Station	Ballston Metrorail Station	171	
Farragut Sq (17th(E) & I Nw)	Farragut West Metrorail Station	165	
Takoma Station	Takoma Metrorail Station	164	Yes
9th St & F St	Gallery Place Metrorail Station	161	
L'enfant Plaza Station (D&7 SW)	L'Enfant Plaza Metrorail Station	160	
Deanwood Station	Deanwood Metrorail Station	156	Yes
Brookland Station	Brookland Metrorail Station	150	Yes

108 of the 283 bus terminals that have a restroom available that operators can use, but the restrooms are not on WMATA property, and the hours of restroom availability do vary from Metrobus service hours.



2018 METROBUS FACILITIES PLAN

Table 17 provides a list of the top 10 terminals that have a restroom on non-WMATA property, ranked by the number of buses that use the location as a terminal when a restroom is not available. This features bus trips before or after business hours throughout the week.

Table 17: Top Ten Metrobus Terminals with Non-WMATA Restrooms

Terminal Name	Restroom Location	Trip Count (Weekly)
Federal Triangle (10th-Cons Nw)	Natural History Museum	1929
Glover Park	Stoddert Elementary School	653
Ledroit Park-Howard University	Howard University	440
White Oak, Rear of Sears Building	Sears	358
Lincolnia & Quantrell	Lerner Excelsior Tower	347
S Washington St & Alfred St	The Thornton Apartments	336
Mt Pleasant (Lamont St NW)	Argyle Convenient Store	308
Southern Towers	Southern Towers	305
7 Corners Transit Ctr	Chipotle	257
Mt Rainier (Rhode Island Ave & 34th)	Mount Rainier City Hall	251

There are 74 terminals that do not have any identified restroom available. While operators with routes along these terminals can stop mid-route to use the restroom, it is not ideal and can cause delays. These terminals are often challenging due to the lack of available existing restrooms near them and might require more intensive solutions.

Table 18 below presents a list of the top 10 terminals that do not have a restroom, ranked by the number of buses that use the location as a terminal.



2018 METROBUS FACILITIES PLAN

Table 18: Top Ten Metrobus Terminals without Restrooms

Terminal Name	Trip Count (Weekly)	Non-Commercial Area
Livingston (4501 3rd St)	1769	Yes
Benning Heights (H-46th Pl Se)	1226	Yes
St Elizabeth's Rd & Coast Guard HQ	1090	Yes
Bladensburg & S Dakota NE	862	
Half & O St SW	808	
Alabama & Pa Se (Ffx Vil)	796	
Culmore (Gl Ca & Vista)	758	
Eastern Ave & Chapelwood La	742	
33rd St & Blaine St	732	Yes
Annandale (Patriot & Amer)	704	Yes

The 2018 Metrobus Restroom Planning Guide (the product of the Restroom/Break room study of July 2018) provides complete detail on restroom locations and needs, along with specific suggestions for ways to provide restroom access and prototypes for building solutions.

WMATA's long term objective is to plan for adequate restroom facilities at all Metrobus terminals. **Capital investment will be needed for building new and improving existing restroom and break room facilities for bus operators.**

5.10 Bus Operators – Commercial Driving License (CDL) Training Facility

5.10.1 Existing Conditions

Metrobus conducts bus operator training and Commercial Driver License (CDL) testing on a regular basis to support the recruitment and retention of bus operating and maintenance staff. This work is essential to the provision of bus services as all bus operators, Transit Field Supervisors and most mechanical staff have, as a job pre-requisite and requirement, the achievement and retention of CDL driving privileges. This represents over 3,000 members of the Bus Services Department.

WMATA works closely with state agencies responsible for their resident's licensing to ensure that operators of Metro buses are trained in compliance with standards and practices of their home state requirements. To conduct the driving component of this training, Metrobus currently uses a parking lot adjacent to Landover Metro Station which has been fenced and secured for this purpose. However, this



2018 METROBUS FACILITIES PLAN

present location is considered a “temporary” use of this parking area as the site is slated for development as part of Prince George’s County general land use plans.

5.10.2 Needs

A new, permanent facility is needed to meet this critical need and WMATA is actively working to identify a site and related project design to meet this critical need of the system well into the future. A general description of functional requirements for a permanent Bus Training and CDL Facility includes the following elements:

1. A secure fenced facility with access controls and area lighting
2. Parking for employees and trainees
3. A building consisting of the following functions
 - a. Office area
 - b. Management office and consultation space
 - c. Instruction/conference room
 - d. Simulator space
 - e. Locker room
 - f. Restrooms
 - g. Lunch room/kitchenette
 - h. Storage of training materials and equipment
4. A training lot of sufficient size to provide for a training course including
 - a. Narrow lane operation
 - b. Bus stop simulation near-side, far-side and partially blocked
 - c. Stopping distance testing
 - d. Backing left and right
 - e. Intersection Left turns
 - f. Intersection Right turns
5. On-site parking of (up to 5) training buses and related equipment
6. Storage for snow and course maintenance equipment
7. The facility will include the ability to support training requirements for regular bus (40-foot long coaches), articulated bus (up to 60-foot coaches), paratransit bus (less than 30-foot long vans and body-on-chassis coaches) and related mechanical trucks and non-revenue equipment.
8. The completed course and facility will be subject to review and approval by state licensing authorities and additional requirements may be applied to fulfill legal and regulatory obligations to maintain certification



2018 METROBUS FACILITIES PLAN

5.11 Other

5.11.1 Asset Replacement and Customer Facility Enhancement Plan

WMATA is initiating a study to conduct several investigations and make recommendations to improve the condition of customer-facing Metrobus assets throughout the system. The main tasks are:

1. A comprehensive and system wide condition update, and plan for replacement, of Metrobus shelters located on Metro property, along with bus related infrastructure project development at several stations.
2. A guidelines document focusing on performance management for bus loops and customer facing bus infrastructure.
3. A comprehensive and system wide update and plan for customer information signage enhancement at Metrorail stations, focusing on those bus loops with high activity.

The study is anticipated to be finalized in the Spring of 2019 and will include preliminary design and cost estimates for a number of projects to help speed up delivery of WMATA's capital program and translate system needs into achievable projects. Among the projects that will be covered by this study are:

1. Bus Station Canopies
2. Bus Bays and Layover Space
3. CCTV and PA Systems
4. Modifications to allow articulated buses
5. Restriping and Reconfiguring Facilities
6. Bus Layover Space
7. ADA Compliance
8. Lighting and Seating
9. Static and Electronic Signage



2018 METROBUS FACILITIES PLAN

6 Bus Customer Facility Recommendations

6.1 Bus Stops

Metro needs additional resources and the active engagement of our jurisdictional partners to accelerate the change towards ADA complaint bus stops.

6.2 Bus Stop Shelters

Develop a funding and implementation plan to replace all Metrorail station shelters with the new design shelter.

The Asset (Bus Shelters) Improvement Evaluation Study of 2013 recommended for a prioritized shelter replacement plan, as shown in Section 5.3.2, Table 8. As indicated many of the existing shelters are beyond their useful life and require full replacement. WMATA has designed a new bus shelter which will serve as the next generation bus shelter for the Authority. The shelter replacement will be based on condition and demand, with the poorest condition, highest use shelters being replaced first. Towards this end, Metro has planned a replacement program of approximately 45 shelters per year. Replacing old, rusted shelters with modern and sleek versions will have a positive customer impact by driving up customer satisfaction, improving safety conditions, and laying the groundwork for future ridership gains.

6.3 Bus Bays

An evaluation and feasibility determination of the following needs will be conducted as part of the “Asset Replacement and Customer Facility Enhancement Study”.

1. Addison Road Station – Construct three additional bus bays.
2. Anacostia Station – Convert three bus bays to accommodate articulated buses. Shepherd Parkway Division will receive articulated buses, to operate on routes 90 and W4. Currently, Anacostia Station does not have articulated sized bus bays and this project will make adjustments to bus bays A, E, and F.
3. Fort Totten Station – Change Kiss & Ride exits and intersection adjustment to remove conflict between buses and cars; build two new bus bays and adjust crosswalk; remove some of the median/sidewalk area to create bus layover space; adjust bus bay D&E curbs to fit articulated buses.
4. Landover Station – Build a new bus bay and shelter and extend sidewalk.
5. Prince George’s Plaza Station – Build one new articulated and two new standard bus bays, provide continuous sidewalk from the new bus bays around the railroad tracks to connect with existing sidewalk, and change Kiss & Ride circulation to allow for entrance and exit.



2018 METROBUS FACILITIES PLAN

- Silver Spring Transit Center – Concept design for a new bus loop and layover on the grass area in front of Silver Spring Transit Center.

6.4 CIEDS

Fund and implement recommendations from study currently underway. See the final report from the “Asset Replacement and Customer Facility Enhancement Study” in spring 2019 for an assessment, final design, and capital and construction plan for CIEDS. The Asset (Bus Shelter) Improvement Evaluation Study is anticipated to provide a comprehensive plan to identify qualifying bus stops of regional-interest and local-initiative, coordinate with utilities and sponsors for provision of electrical power and integrate implementation schedules with related projects to complete the network in five years. Metro is currently procuring a multi-year installation and maintenance contract covering over 500 CIEDS consisting of new and reinstallation of existing signs.

6.5 CCTV and PA

In the coming years, Metro is planning to expand and add new coverage of CCTV and PA systems throughout the Metrobus operating area. Safety and customer communication at WMATA-owned Metrobus stations is a priority particularly for stations with the highest bus ridership. For the initial phase it is determined that the investment priority should be to those stations that are currently serving over 1,000 boardings per day, but eventually all Metrobus station loops should have coverage. The Asset Replacement and Customer Facility Enhancement Plan Study will provide a detailed list of the major bus terminals that will be targeted for capital investment to enable CCTV and PA coverage.

Table 19 provides a preliminary list of priority stations based on ridership recommended for CCTV and PA system coverage and expansion.

Table 19: Priority Bus Stations for CCTV and PA

Location			
1	Anacostia	7	Wheaton
2	Minnesota Avenue	8	Addison Road
3	Southern Avenue	9	Suitland
4	Fort Totten	10	Naylor Road
5	Rhode Island Avenue	11	Capitol Heights
6	Brooklan-CUA	12	Rockville



2018 METROBUS FACILITIES PLAN

6.6 Transit Centers

Construct Army and Navy Drive Transit Center. Assess conditions regularly to keep facilities in a state of good repair. BPLN will develop annual review of the Transit Centers conditions in order to provide recommendations for Plant Maintenance.

6.7 Off-Street Bus Terminals

The Mount Rainier, Colorado Avenue, and Duke Ellington Bridge bus terminals need funding for safety enhancement, maintenance, rehabilitation and renovation to bring them to a state of good repair.

6.8 Bus Operators Restrooms and Break Rooms

The deficiency of restrooms and break rooms for bus operators to meet their essential relief must be addressed. Solutions for providing restroom facilities may include the following site-specific approaches with varying associated costs: restroom agreements with public and private entities, shared use with another transit operator, route modifications, joint development, existing facility retrofit including Metrorail restroom facility access at any hour, or a new restroom facility. Over the coming years Metro plans to:

1. Convert 13 portable restrooms to permanent restrooms and breakrooms,
2. Build additional bus operator restrooms and break rooms,
3. Make improvements to existing restrooms, and
4. Make existing and new restroom facilities ADA compliant. This metric includes but is not limited to: a 60" diameter free space inside the facility, adequate ramps leading to the facility, and 32-inch wide doors

Sites for new structures will need to include a water source, a place for the waste water to go, and electric power source. Adequate lighting, visual privacy, adequate ventilation, parking and access for maintenance and removal/replacement, security/monitoring of facility and surrounding area, access for the operator including: proximate, safe bus parking, and key/card key access (should be consistent) are required as well.

6.9 Bus Training and CDL Facility

Build a new permanent Bus Training and CDL Facility that incorporates the functional requirements as described in Section 5.10 and finalize the site identification, selection, and requirements definition process. Begin the facility design process as part of the FY 2020 work program leading to an approved CIP project for construction during the FY 2021 project cycle



2018 METROBUS FACILITIES PLAN

7 Conclusion

The 2018 Metrobus Facilities Plan provided a summary of the detailed facility inventory and assessment, identified needs and proposed recommendations for keeping Metrobus facilities in a State of Good Repair and making additional investment to meet future demand. It is critical to provide sustained investment to ensure a safe and modern system that will allow Metro to continue to support the region's economic competitiveness. This requires ongoing capital maintenance as well as investment for rehabilitation, replacement and expansion to keep up with changes in technology and meet safety and other regulatory requirements. Combining the replacement of old facilities, State of Good Repair and the major capital investments will:

1. Provide a safe, reliable and efficient service,
2. Provide adequate storage capacity and efficient maintenance to meet current needs of Metrobus services, and accommodate future fleet expansion, and
3. Minimize operating and maintenance costs.
4. Improve the customer experience needed to attract and retain ridership.

The plan identified major capital improvements that are categorized as:

1. Replacement of Obsolete Facilities,
2. State of Good Repairs, and
3. Major Capital Improvement.

Funding for improvements will be requested as part of the WMATA Capital Improvement Program (CIP). WMATA has approved a \$1.3 billion CIP for Metrobus over the next six years. Of this \$238 million is allocated for the construction of Andrews Federal Center, Cinder Bed and CNG facility at Shepherd Parkway and the capital investment needed for the planned demolition and reconstruction of Bladensburg Division. **Table 20 – 22** present investment plans over the coming years.

In preparing the 2018 Metrobus Facilities Plan, a study was conducted in coordination with internal and external stakeholders to prepare for the evolving needs of the Metrobus system regarding maintenance and operating facilities. The 2015 Metrobus Facilities Plan Study engaged WMATA internal staff to solicit input on current issues and future needs for the bus operating divisions. Staff from 11 offices participated in the study process, meetings and interviews were conducted with Plant Maintenance, Bus Maintenance, Bus Planning and Major Capital Projects. An external stakeholders briefing was also conducted to inform affected jurisdictions. Presentations were made to the Jurisdictional Coordinating Committee (JCC) during the study process to seek their inputs.



2018 METROBUS FACILITIES PLAN

This document is prepared for submission for FTA's approval. In the process of submitting this document to FTA, the following reviews have been completed:

1. **Internal Review:** All WMATA stakeholders have been involved in the internal review process.
2. **External Stakeholder Comment:** WMATA presented the Final Draft Plan to JCC for comment. The JCC presentation referenced both the Draft Plan and the implementation aspects of the current Capital Improvement Program, Development and Evaluation (D&E) projects as well as the various BPLN studies in the pipeline.
3. **External Review:** September 2018 – The Draft Plan will be submitted to FTA for review, comment and revision. The submission will incorporate available information on Transit Asset Management System requirements (TAMS) and support inclusion of Bus Facility projects in the approved FY2019-2023 CIP.
4. **Internal Approval:** Fall 2018 – The Final Plan will be presented to the WMATA Board for adoption.
5. **External Submission:** End of 2018 – Submit Final 2018 Metrobus Facilities Plan to FTA.



2018 METROBUS FACILITIES PLAN

Table 20: Six Year Capital Investment Plan Summary (2018 – 2023)

	Item	Description	Project (million)		
			Cost Estimate	FY2018 Budget	Future Need
GARAGE FACILITY	Replacement	Cinder Bed Road	\$89.5	\$8.4	\$0.0
		Andrews Federal Center	\$184.2	\$44.5	\$42.0
	Rebuilding	Bladensburg / Northern	\$330.0	\$2.0	\$330.0
		Shepherd Parkway - CNG Install	\$13.9	\$5.3	\$5.8
	Rehabilitation	Four Mile Run	\$6.8	\$0.0	\$6.8
		Montgomery	\$6.2	\$0.0	\$6.2
	Future Plan	Western - Replace	\$150.0	\$0.0	\$150.0
		Southern - Renovate	\$2.0	\$0.0	\$2.0
		New Facility - Silver Spring	\$189.2	\$0.0	\$189.2
		Design and Engineering (D&E)	\$31.0	\$2.1	\$28.9
	Sub - Total			\$1,002.9	\$62.4
CUSTOMER FACILITIES	Bus Customer Facility Improvements		\$4.9	\$1.6	\$3.4
	Traffic Signal Prioritization (TSP)		\$2.9	\$2.9	\$0.0
	Transit Station Area Bus Safety Program		\$52.6	\$0.0	\$52.6
	Customer Information and Electronic Displays Signs (CEIDS)		\$18.0	\$0.0	\$18.0
	Bus Loop Safety Enhancement Program		\$8.0	\$0.0	\$8.0
	Bus Station Canopy		\$35.0	\$0.0	\$35.0
	CCTV Security Monitors		\$6.5	\$0.0	\$6.5
	Rest Room and Break Room		\$2.0	\$0.0	\$2.0
	King Street Bus Loop (Alexandria)		\$1.2	\$1.2	\$0.0
	Design & Engineering - Bus Facilities./Systems		\$0.5	\$0.0	\$0.5
	Future Bus Passenger Facility/Systems.		\$0.3	\$0.0	\$0.3
	Sub - Total			\$131.7	\$5.7
Total			\$1,134.6	\$68.1	\$887.1



2018 METROBUS FACILITIES PLAN

Table 21: Facilities Plan Recommendations - Plan of Action

	Facility Name	2018	2019	2020	2021	2022	2023	2024	2025
STATE OF GOOD REPAIR (SGR) NEEDS	Northern								
	Western								
	Bladensburg								
	Shepherd Parkway								
	Southern								
	Landover								
	Montgomery								
	Four Mile Run								
	West Ox								
	REPLACEMENT OF OBSOLETE FACILITIES	Cinder Bed		OPEN					
Andrews Federal Center			OPEN						
Bladensburg			PARTIAL CLOSE & REBUILD					OPEN	
Northern			CLOSE & REBUILD					OPEN	
MAJOR CAPITAL IMPROVEMENT NEEDS	Southern							CLOSE	
	Western								REBUILD
	New Garage at Silver Spring (Vicinity of Northern Prince Georges and Eastern Montgomery Service)					BUILD	OPEN		



2018 METROBUS FACILITIES PLAN

Table 22: Customer Facilities Investment Plan

Investment Type	Facility Type	Investment Period and Type							
		2018	2019	2020	2021	2022	2023	2024	2025
STATE OF GOOD REPAIR (SGR) NEEDS	Customer Information & Maps	Update 1,000 Schedule Panels & 45 Bus Maps	Update 1,000 Schedule Panels & 45 Bus Maps	Update 1,000 Schedule Panels & 45 Bus Maps	Update 1,000 Schedule Panels & 45 Bus Maps	Update 1,000 Schedule Panels & 45 Bus Maps	Update 1,000 Schedule Panels & 45 Bus Maps	Update 1,000 Schedule Panels & 45 Bus Maps	Update 1,000 Schedule Panels & 45 Bus Maps
	Bus Stop Improvements	Design 151 stops	Construct 151 stops and conduct survey of remaining ADA in compliant stops	Begin large scale design and construction program to address remaining stops in region (200+ stops)	Continue design and construction program (200+ stops)	Continue design and construction program (200+ stops)	Continue design and construction program (200+ stops)	Continue design and construction program (200+ stops)	Continue design and construction program (200+ stops)
	Bus Shelter Replacement		Replace 72 shelters Using (FTA Bus/Bus Facilities Grant	Replace 45 shelters	Replace 45 shelters	Replace 45 shelters	Replace 45 shelters	Replace 45 shelters	Replace 45 shelters
RENOVATE non-SGR BUS LOOPS	Chevy Chase	Final design or design build	Construction						
	14th Street & Colorado Avenue		Design	Construction					
	Duke Ellington Bridge		Design	Construction					
	Mount Rainier		Study/Project Dev't.	Design	Construction				
MAJOR CAPITAL IMPROVEMENT NEEDS	Customer Information Electronic Display Signs (CIEDS)	Installed 54	Complete 100 installs	Complete 80 installs	Complete 65 installs	Complete 65 installs	Complete 65 installs	Complete 65 installs	Complete 60 installs

GOVERNMENT OF THE DISTRICT OF COLUMBIA
STATE HISTORIC PRESERVATION OFFICER



May 16, 2019

Mr. Daniel Koenig, Community Planner
U.S. Department of Transportation
Federal Transit Administration, Region III
1760 Market Street, Suite 500
Philadelphia, PA 19103-4124

RE: Initiation of Section 106 Consultation for the WMATA Northern Bus Garage (aka Capital City Traction Company Car barn / Decatur Street Car barn) Replacement Project; 4615 14th Street, NW

Dear Mr. Koenig:

Thank you for initiating consultation with the District of Columbia State Historic Preservation Officer (SHPO) regarding the above-referenced undertaking. We have reviewed the project submission and are writing to provide our initial comments regarding effects on historic properties in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800.

We understand that the Federal Transit Administration (FTA) proposes to provide funding to WMATA so that it can carry out work at the Capital City Traction Company Car barn which the submission alternately describes as a replacement, a major renovation, and a major reconstruction.

The plans included in the submission were schematic but, when considered along with the supporting narrative, sufficient for us to concur with FTA's determination that the currently proposed undertaking will have an adverse effect on historic properties since every part of the historic building would be demolished except for the 14th Street, NW façade.

As indicated in the submission, the Capital City Traction Company Car barn is listed in the National Register of Historic Places. It is also a landmark listed in the DC Inventory of Historic Sites. Even though the car barn has been altered and augmented over time, we do not agree that the entirety of its significance is embodied solely within its 14th Street façade. The National Register nomination establishes that the building's Period of Significance (POS) extends from its construction date in 1906 through 1959, the year it was converted to a bus garage. The designated boundaries extend well beyond the façade to include the portions of the building that fall within the POS.

At this early point in consultation, the proposed Area of Potential Effects appears reasonable but we may recommend that it be revised once we learn more about the project, especially in terms of the proposed new construction and any indirect effects that may occur as a result.

Pursuant to 36 CFR 800.6, FTA should continue consultation "...to develop and evaluate alternatives or modifications to the undertaking that could avoid, minimize or mitigate adverse effects on historic properties." We also stress the importance of identifying consulting parties and inviting their views given the nature and magnitude of the potential adverse effects.

Mr. Daniel Koenig
Northern Bus Garage (aka Capital City Traction Company Car barn / Decatur Street Car barn) Replacement Project; 4615 14th Street, NW
May 16, 2019
Page 2

On a related note, this letter also serves to document that the level of demolition currently proposed for the landmark Capital City Traction Company Car barn would require review by the DC Historic Preservation Review Board (HPRB) and would be inconsistent with the DC Historic Landmark and Historic District Protection Act of 1978.

If you should have any questions or comments regarding any of these matters, please contact me at andrew.lewis@dc.gov or 202-442-8841. Otherwise, we look forward to consulting further with FTA and the other consulting parties regarding alternatives and/or modifications that can avoid the adverse effect.

Sincerely,



C. Andrew Lewis
Senior Historic Preservation Officer
DC State Historic Preservation Office

19-0382