# BENNING ROAD & BRIDGES TRANSPORTATION IMPROVEMENTS

## DC-295/Benning Road Interchange Modification Study Categorical Exclusion

FINAL November 2020



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# Benning Road NE and DC-295 Interchange

## *Categorical Exclusion I and II - NEPA*

FINAL | November 2020

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District Department of Transportation

# Project Development & Environmental Review Checklist I (Form I)

## CE-1 and CE-2 NEPA DOCUMENTATION

## PART I: PROJECT MANAGER REVIEW

### 1. PROJECT NAME (incl. FAP and DC Project Number, if available)

Benning Road NE/DC-295 Interchange; FAP# 2017027

### 2. FUNDING TYPE (enter total ($) amount with funding type)

| Federal: | X | Local: | X | Other: | enter text. |
|---|---|---|---|---|---|

### 3. TRANSPORTATION IMPROVEMENT PROGRAM (TIP)‡

| Scope consistent recent STIP? | Yes | TIP ID Number: | 5754 | TIP Year: | 2019-2024 |
|---|---|---|---|---|---|

### 4. PROJECT TYPE/PHASE and COST (est.) (enter cost for applicable phase ONLY)

| Administrative | Planning | PE | NEPA/ Section 106 | Final Design | Construction | Maintenance |
|---|---|---|---|---|---|---|
| enter text. | enter text. | $1.4M | enter text. | enter text. | enter text. | enter text. |

**FOR CHANGES TO FUNDING AMOUNT, SUBMIT A REVISED ENVIRONMENTAL FORM ONLY IF ANY OF THE FOLLOWING APPLIES:**
1) Changes in the project scope of work/project description; 2) Changes project purpose and need; 3) A new project or new project phase is being proposed.

### 5. PROJECT DESCRIPTION (attach a detailed project Scope of Work and Project Area Map)

The project includes the following interchange improvements that modify existing access:
(1) Construct a new one-lane off-ramp from DC-295 northbound that widens to a two-lane intersection approach to provide new access to Benning Road NE in both directions. This is a left-side off-ramp that connects to the Benning Road NE bridge at a signalized intersection;
(2) Construct a new one-lane on-ramp from Benning Road NE westbound to DC-295 southbound. This ramp structure starts on the Benning Road NE bridge before merging with the Benning Road NE eastbound to DC-295 southbound on-ramp on the right side of DC-295;
(3) Reconstruct/realign a one-lane on-ramp from Benning Road NE eastbound to DC-295 southbound. This ramp merges with the new ramp from Benning Road NE westbound to DC-295 southbound before merging with the mainline of DC-295 southbound;
(4) Construct a new one-lane on-ramp from Benning Road NE westbound to DC-295 northbound. This ramp starts on the Benning Road NE bridge before sloping down under the existing Metrorail bridge structure, where it merges with the reconstructed ramp from Benning Road NE eastbound to DC-295 northbound;
(5) Reconstruct/realign a one-lane on-ramp from Benning Road NE eastbound to DC-295 northbound. The reconstructed ramp lane is added as a third through lane on northbound DC-295 after merging with the new ramp from Benning Road NE westbound;
(6) Remove an existing bridge structure carrying an off-ramp from DC-295 northbound to Benning Road NE westbound and an on-ramp from Kenilworth Avenue NE southbound to DC-295 northbound;
(7) Restripe DC-295 northbound between the proposed off- and on-ramps with Benning Road NE, reducing the number of through lanes along this segment of DC-295 from three to two to accommodate new ramps and structures;
(8) Eliminate the off-ramp from DC-295 southbound to Baker Street NE (River Terrace exit) and reconstruct the off-ramp approximately 800 feet south at Alden Place NE. DC-295 widens to maintain four lanes from the old off-ramp to the new off-ramp location. An additional through lane is dropped at the off-ramp to East Capitol Street to maintain the existing two-lane cross section south of this interchange. The off-ramp relocation is required in order to accommodate the southbound ramp from westbound Benning Road NE and facilitate the safe exit and entrance of weaving traffic to and from DC-295.

### 6. PURPOSE OF PROJECT

The purpose of the Benning Road NE and DC-295 Interchange Project is to modify existing access along DC-295 to address deficiencies in transportation infrastructure conditions, improve safety conditions and operations for both motorized and non-motorized access, and provide increased mobility and accessibility at the Benning Road NE and DC-295 interchange.

## 7. NEED OF THE PROJECT (click all applicable)

| Safety | Capacity | Operational Improvements | Roadway/ Bridge Deficiency | ADA | Congestion Relief | Environmental | Utility Relocation |
|---|---|---|---|---|---|---|---|
| X | ☐ | X | X | X | ☐ | ☐ | ☐ |
| **Legislation** | **Bicycle/ Pedestrian** | **Social Demands/ Community Needs** | **Modal Interrelationships** | **System Linkage** | **Planning/ Research** | **Transportation Demand** | **Other** |
| ☐ | X | ☐ | ☐ | X | ☐ | ☐ | ☐ |

## 8. PREVIOUS RELATED WORK (if any)

| | | | |
|---|---|---|---|
| Title of Previous Work (e.g., study, research, design plans) | DC-295 Short Term/Long Term Improvements Feasibility Study | | |
| Previous Phase/Project Type | enter text. | Completion Month/Year | enter text. |
| Previous Funding (Federal or Local) | enter text. | Responsible Agency/Entity | enter text. |

**IF AN ADMINISTRATIVE PROJECT/ACTION, PLEASE SKIP TO SECTION 14**

(Administrative actions are activities that do not lead directly to construction, including training, staff changes, research, IT, office supplies, etc.)

## 9. PROJECT LOCATION (Please attached a map of the project area.)

(a) Roadway/Street Name: Benning Road NE/DC-295 Interchange

(b) Location Detail (click "X" where applicable)

| Ward* | 7 | Historic District | ☐ | Historic Resources | ☐ | ROW Concerns | ☐ |
|---|---|---|---|---|---|---|---|

***For Citywide projects, please provide a list of individual project locations as an attachment.**

(c) Limits of Propose Work (Street and/or Block number)

| North | DC-295 SB | South | DC-295 NB | East | Benning Rd, NE | West | Benning Rd, NE |
|---|---|---|---|---|---|---|---|

## 10. ROADWAY CONDITIONS

| | Total | General Purpose | Parking | Bike Only | Bus/Transit Only |
|---|---|---|---|---|---|
| Existing Number of Lanes | Choose | Choose | Choose | Choose | Choose |
| Proposed Number of Lanes | Choose | Choose | Choose | Choose | Choose |

## 11. TRAFFIC DATA (not required for resurfacing or maintenance projects)

| Traffic | Year | ADT | LOS & Delay | Operating Speed | Crashes |
|---|---|---|---|---|---|
| Existing | enter text. | enter text. | enter text. | enter text. | See Appendix G and P for roadway analysis and traffic data |

## 12. PUBLIC AND AGENCY COORDINATION

| (Place "X" to answer. Provide relevant comments; add pages if needed.) | Yes | No | Comments |
|---|---|---|---|
| A. Was general public involved (please describe how)? | X | ☐ | Public Meetings and Workshops |
| B. Were other agencies (FHWA, DC SHPO, NPS, etc.) involved? | ☐ | X | enter text. |
| C. Are Consulting Parties and stakeholders informed of historic resources and invited to participate in the Section 106 process? | ☐ | X | enter text. |

## 13. PROJECT INFORMATION

| General Project Questions (Click "X" to answer. Provide relevant comments; add pages if needed.) | Yes | No | Comments |
|---|---|---|---|
| A. Connects logical termini and has independent utility? | X | ☐ | enter text. |
| B. Is there are known controversy about the project? | ☐ | X | enter text. |
| C. Facility is on a new location or re-alignment? | ☐ | X | enter text. |
| D. Adding or removing curb-cuts, medians, pedestrian refuge island, bulb-outs, traffic circles, roundabouts, vertical traffic control devices, sidewalk stencils? | X | ☐ | Adds medians |
| E. Bridge construction, reconstruction, or rehabilitation? | X | ☐ | enter text. |
| F. Roadway construction, reconstruction, or resurfacing? | X | ☐ | enter text. |
| G. Removing parking? | ☐ | X | enter text. |
| H. Permanently affect the travel pattern? | X | ☐ | enter text. |
| I. Removing vegetation and/or trees? | ☐ | X | enter text. |
| J. Does the project address intermodal transportation needs (bike/transit/pedestrians)? | X | ☐ | enter text. |
| K. Affects transit travel time? | ☐ | X | enter text. |
| L. Involves work on, over, or under an Interstate or Freeway? | X | ☐ | enter text. |
| M. Involves Section 106/Section 4(f) resources (i.e., public park, recreation areas, wildlife areas/refuges, or historic/archeological site, property, district, area, or street properties)? | ☐ | X | enter text. |
| N. Involves Section 6(f) areas/lands that were acquired with public-use money and have deed restrictions or covenants on the property? | ☐ | X | enter text. |
| O. Involves work in/around a water body (i.e., river, wetland, stream) and/or navigable waters? | ☐ | X | enter text. |
| P. Does the project have any environmental features (e.g., increased green space, recycled materials, etc.) and/or involves Green Infrastructures | ☐ | X | |

| Questions Pursuant to Section IV.B.1.b. of DDOT/FHWA CE Programmatic Agreement. (Click "X" to answer. Provide relevant comments; add pages if needed.) | Yes | No | Comments |
|---|---|---|---|
| Q. Any work on the NPS land except when approved by NPS through a Special Use Permit? | ☐ | X | enter text. |
| R. Involves work outside of District/DDOT's ROW (incl. air rights) (e.g., CSX, Amtrak, WMATA, etc.) that requires more than the closure of driveways (curb cuts)? | ☐ | X | enter text. |
| S. Involves work outside of District/DDOT's ROW (incl. air rights) (e.g., CSX, Amtrak, WMATA, etc.) that requires an acquisition of more than 10,000 square feet of property? | ☐ | X | enter text. |
| T. Involves work outside of District/DDOT's ROW (incl. air rights) (e.g., CSX, Amtrak, WMATA, etc.) that requires more than an agreement for temporary rights for construction access? | ☐ | X | enter text. |
| U. Involves work outside of District/DDOT's ROW (incl. air rights) (e.g., CSX, Amtrak, WMATA, etc.) that requires more than a right-of-entry agreement? | ☐ | X | enter text. |
| V. Involves acquisitions that result in any residential or non-residential displacements? | ☐ | X | enter text. |
| W. Results in capacity expansion of a roadway by addition of through lanes? | ☐ | X | enter text. |
| X. Involves the construction of temporary access that would result in major traffic disruptions during construction? ***Describe context and project location in project description.*** | ☐ | X | enter text. |
| Y. Involves the closure of existing road, bridge, or ramps that would result in major traffic disruptions during construction? ***Describe context and project location in project description.*** | ☐ | X | enter text. |
| Z. Change in access control to Interstate/Freeway? | ☐ | X | enter text. |
| AA. Results in a determination of adverse effect on resources pursuant to Section 106? | ☐ | X | enter text. |
| BB. Requires the use of properties protected by Section 4(f) that must be documented with a programmatic Section 4(f) evaluation other than that for the use of historic bridges? | ☐ | X | enter text. |
| CC. Requires the acquisition of lands under the protection of Section 6(f) of the Land and Water Conservation Act, the Federal Aid in Sport Fish Restoration Act, the Federal Aid in Wildlife Restoration Act? | ☐ | X | enter text. |
| DD. Requires a U.S. ACOE Section 404 permit other than a Nationwide Permit or a General Permit? | ☐ | X | enter text. |
| EE. Requires a U.S. Coast Guard bridge permit? | ☐ | X | enter text. |

| | | | |
|---|---|---|---|
| FF. Requires floodplain encroachment other than functionally dependent uses (e.g., bridges,) or actions that facilitates open space use (e.g., bicycle and pedestrian trails and paths)? | ☐ | X | enter text. |
| GG. Requires construction in, across, or adjacent to a river designated as a component of, or proposed for inclusion in, the National System of Wild and Scenic Rivers? | ☐ | X | enter text. |
| HH. Involves work encroaching on a regulatory floodway or work affecting the 100-year flood floodplain elevations of a water course or lake, pursuant to EO 11988 and 23CFR650(A)? | ☐ | X | enter text. |
| II. Requires construction in, across, or adjacent to a river designated as a component of, or proposed for inclusion in the U.S. DOI/U.S. DOA National System of Wild and Scenic Rivers? | ☐ | X | enter text. |
| JJ. Is defined as a "Type I project" per 23 CFR 772.5 and any DDOT noise manual? | ☐ | X | enter text. |
| KK. May affect federally listed or candidate species, or proposed or designated critical habitat or projects with impacts subject to the conditions of the Bald and Golden Eagle Protection Act? | ☐ | X | enter text. |
| LL. Includes acquisition of land for hardship or protective purposes, or early acquisition pursuant to Federal acquisition project (23 U.S.C. § 108(d))? | ☐ | X | enter text. |
| MM. Any adverse impacts to minority, low-income, limited-English populations or any other population protected by Title VI of the Civil Rights Act of 1964 and Executive Order 12898? | ☐ | X | enter text. |
| NN. Involves discharge of water or materials directly into a water body and requires Clean Water Act Section 402 (NPDES) Individual Permits? | ☐ | X | enter text. |
| OO. Any known hazardous materials sites or previous land uses with potential for hazardous materials remains within the right-of-way? | ☐ | X | enter text. |

## 14. ADDITIONAL PROJECT INFORMATION

Provide additional comments/information not already covered; add pages if needed.)

Project involves Benning Road NE/DC-295 interchange improvements within DDOT ROW.

## 15. PREPARED BY (PROJECT MANAGER CONTACT INFORMATION

| | | | |
|---|---|---|---|
| **NAME:** | Robyn Jackson | **PHONE:** | 202-671-5110 |
| **ADMINSTRATION/DIVISION:** | Project Delivery | **DATE:** | 10/16/2020 |

**STOP – Submit Form for Environmental Program Branch Review– STOP**

## PART II: DDOT ENVIRONMENTAL PROGRAM BRANCH REVIEW

### 1. SECTION 106 EVALUATION/HISTORIC RESOURCES REVIEW/APPROVAL

| | | | |
|---|---|---|---|
| **Type of Section 106 Review Required?** | Streamlined Review | **Reason for Individual Review** | Choose an item. |

### 2. SECTION 4(f) EVALUATION/APPROVAL

| | | | |
|---|---|---|---|
| **Section 4(f) Property Present** | None Present | **Type of Use:** | Not Applicable |
| **Section 4(f) Approval Option** | No Required | | |

### 3. DC ENVIRONMENTAL POLICY ACT (DCEPA) APPROVAL

| | |
|---|---|
| Exempt: | A Federal action where a NEPA Class of Action (i.e., Cat Ex, EA, or EIS) has been taken. [Ref: DCMR 720201(b)] |

### 4. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) APPROVAL/DOCUMENTATION

**A. Level of Categorical Exclusion Determination**

| (Click "X" to answer. Provide relevant comments; add pages if needed.) | Yes | No | Comments |
|---|---|---|---|
| A. Action meets the criteria for qualification as a CE, per 23 CFR §771.117(a)? | X | ☐ | enter text. |
| B. Action involves unusual circumstances as defined in 23 CFR §771.117(b)? | ☐ | X | enter text. |
| C. Action complies with all the stipulations in Section IV.B.1.b. of the PCE? | X | ☐ | enter text. |
| D. Action complies with FHWA CE requirements of 23 CFR §771.117(c) (if yes, specify)? | X | ☐ | 23 CFR 771.117 (c)(8,15,22,26,27) |
| E. 23 CFR §771.117(c)(26), (c)(27), (c)(28) and involves exceptions in 23 CFR §771.117(e)? | ☐ | X | enter text. |
| F. Action complies with FHWA CE requirements of 23 CFR §771.117(d) (if yes, specify)? | ☐ | X | enter text. |
| G. Action is a Citywide, Full Design, Construction, and/or Maintenance project with no documentation of prior environmental review? | ☐ | X | enter text. |

**B. Level of Categorical Exclusion in accordance with PCE** (check only if applicable. Bold text of applicable CE Level.)

| | |
|---|---|
| ☐ | Level 1 CE: The proposed action meets the criteria for CE-1 level per FHWA-DDOT PCE. No further environmental documentation or NEPA action required. |
| ☐ | Level 1 CE: The proposed action meets the criteria for CE-1 level per FHWA-DDOT PCE but requires additional detail. DDOT Environmental Checklist II (Form II) must be prepared. See DDOT Environmental Program Team. |
| **X** | **Level 2 CE: The proposed action meets the criteria for CE-2 level per FHWA-DDOT PCE. DDOT Environmental Checklist II (Form II) must be prepared. Detailed analyses required and should be included as attachments. See DDOT Environmental Program Team.** |
| ☐ | Level 3 CE: The proposed action meets the criteria for CE-3 level per FHWA-DDOT PCE. DDOT CE-3 Outline must be to prepare required documentation. Requires FHWA CE review and approval. See DDOT Environmental Program Team. |
| ☐ | Action/Project does not meet the criteria to qualify as a CE per 40 CFR 1508.4, 23 CFR 771.117(a), and the DDOT/FHWA PCE. See DDOT Environmental Program Team. |

**Conditions and/or Stipulations of Approval under NEPA, Section 106, and Section 4(f).**

Please see Form II for conditions and stipulations of this approval.

**C. DDOT Certification to FHWA**

DDOT certifies, on behalf of FHWA, that the action meets the criteria to qualify as a CE in accordance with 40 CFR 1508.4 and 23 CFR 771.117.

**Recommended by:** Kirti Purohit Environmental Policy Analyst — 10/30/2020

**NAME & TITLE** — **DATE**

**Approved by:** **Austina Casey** — 10/31/2020

**DDOT Environmental Program Manager (NAME & SIGNATURE)** — **DATE**

District Department of Transportation

# Project Development & Environmental Review Checklist II (Form II)

## CE-1 and CE-2 NEPA DOCUMENTATION

## PART I – PROJECT DESCRIPTION & DESIGN INFORMATION
(Project Manager to Complete)

**23 CFR 771.105(a): All environmental investigations, reviews, and consultations must be coordinated as a single process and compliance with all applicable environmental requirements be reflected in the NEPA document.**

| **Project Manager:** | Robyn Jackson | **Admin/Group** | DDOT | **Phone Number:** | (202)671-5110 |
|---|---|---|---|---|---|

## A. PROJECT INFORMATION

**23 CFR 771.111(f): Project must connect logical termini; have independent utility; and not restrict future transportation improvements.**

| | | | | | |
|---|---|---|---|---|---|
| **PROJECT NAME (include FAP#):** | Benning Road NE/DC-295 Interchange; FAP# 2017027 | | | | |
| **Ward** | Ward 7 | **TIP ID #:** | 5754 | **TIP Year** | 2019-2024 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Funding Source:** | X | **Federal** | X | **Local** | ☐ | **Other** |

**Limits of Proposed Work (Street and/or Block number)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| North | Attachment A: Figure | South | enter text. | East | enter text. | West | enter text. |

## B. PURPOSE AND NEED FOR THE PROJECT

**1. Purpose:**

The purpose of the Benning Road NE and DC-295 Interchange Project is to modify existing access along DC-295 to address deficiencies in transportation infrastructure conditions, improve safety conditions and operations for both motorized and non-motorized access, and provide increased mobility and accessibility at the Benning Road NE and DC-295 interchange.

**2. Need:**

The following six transportation needs within the vicinity of the Benning Road NE and DC-295 interchange have been identified:

(1) correct turning radius deficiencies on existing ramps;
(2) lengthen merge and weave areas;
(3) increase deceleration/acceleration distance for on-/off-ramps;
(4) provide safe pedestrian/bicycle crossing(s);
(5) maintain structural integrity and safety of Bridges 104, 104-1, and 503; and
(6) increase number of movements at the interchange to provide connectivity to the east.

Further details can be found in Attachment B: Purpose and Need.

## C. ALTERNATIVES

**23 CFR 771.105(c): Alternative courses of action must be evaluated, and decisions be made in the best overall public interest based upon a balanced consideration of the need for safe and efficient transportation and potential social, economic, and environmental impacts.**

### 1. Describe Alternatives that were Considered:

Nineteen concepts were developed to generate solutions for the Benning Road NE and DC-295 interchange and evaluated through a two-tiered screening process. The initial 19 concepts were presented, evaluated, and reviewed by a range of stakeholders at a workshop that was held on July 10, 2019. Screen 1 was a qualitative screening and 11 concepts were eliminated from further consideration because they did not meet the project's purpose and need, and/or were not feasible to construct, and/or had unacceptable levels of impact to the human and natural environments. Eight concepts were carried forward and were further refined to a conceptual level of design and subjected to Screen 2, a quantitative screening.

The two concepts with the highest scores from this quantitative screen were Concept 7C and Concept 8D. Both of these concepts provide three new movements to the study interchange; remove sub-standard ramps; relocate one movement to a signalized ramp; provide a new signalized intersection to control new ramp movements; provide new and enhanced pedestrian/bicycle facilities; and remain within the existing DDOT right-of-way. These two concepts were discussed and agreed upon at a stakeholder workshop held on October 17, 2019 and were further refined and presented at subsequent stakeholder meetings and public outreach. Based on feedback from the public meeting and discussion with DDOT, Concept 8D was identified as the Preferred Alternative.

Further details can be found in Attachment C: Alternatives Considered.

### 2. Reasons the No Build/No Action Alternative was not selected (choose all that apply):

| | |
|---|---|
| Did not correct existing capacity deficiencies. | X |
| Did not correct existing safety hazards | X |
| Did not correct existing roadway geometric deficiencies | X |
| Did not correct existing deteriorated conditions and maintenance problems | ☐ |
| Results in serious impacts to the public and general welfare of the economy | ☐ |
| Did not meet the Purpose and Need of the Project | X |

**Explain how No Build/No Action Alternative did not meet the Purpose and Need and/or provide additional reasons for not selecting it:**

The No-Build Alternative does not fully meet the purpose and need of the project. The No-Build Alternative contains no capacity improvements or additional connections for the Benning Road NE and DC-295 interchange. The interchange under this alternative does not improve local access to and from Benning Road NE or add missing freeway connections. In addition, there is no freeway connection for the community to the east of DC-295 to/from downtown Washington, DC. The existing interchange continues to have geometric deficiencies that include substandard merge/weaving areas, turning radii at ramps, and acceleration and deceleration lengths. These deficiencies are expected to result in increased cut-through traffic in the surrounding neighborhoods and an increase in number of crashes.

Further details can be found in Attachment C: Alternatives Considered.

## D. PREFERRED ALTERNATIVES

### 1. Description and Rationale

**Describe the Preferred Alternative that was selected:**

The Preferred Alternative includes the following interchange improvements that modify existing access:

(1) Construct a new one-lane off-ramp from DC-295 northbound that widens to a two-lane intersection approach to provide new access to Benning Road NE in both directions. This is a left-side off-ramp that connects to the Benning Road NE bridge at a signalized intersection;

(2) Construct a new one-lane on-ramp from Benning Road NE westbound to DC-295 southbound. This ramp structure starts on the Benning Road NE bridge before merging with the Benning Road NE eastbound to DC-295 southbound on-ramp on the right side of DC-295;

(3) Reconstruct/realign a one-lane on-ramp from Benning Road NE eastbound to DC-295 southbound. This ramp merges with the new ramp from Benning Road NE westbound to DC-295 southbound before merging with the mainline of DC-295 southbound;

(4) Construct a new one-lane on-ramp from Benning Road NE westbound to DC-295 northbound. This ramp starts on the Benning Road NE bridge before sloping down under the existing Metrorail bridge structure, where it merges with the reconstructed ramp from Benning Road NE eastbound to DC-295 northbound;

(5) Reconstruct/realign a one-lane on-ramp from Benning Road NE eastbound to DC-295 northbound. The reconstructed ramp lane is added as a third through lane on northbound DC-295 after merging with the new ramp from Benning Road NE westbound;

(6) Remove an existing bridge structure carrying an off-ramp from DC-295 northbound to Benning Road NE westbound and an on-ramp from Kenilworth Avenue NE southbound to DC-295 northbound;

(7) Restripe DC-295 northbound between the proposed off- and on-ramps with Benning Road NE, reducing the number of through lanes along this segment of DC-295 from three to two to accommodate new ramps and structures;

(8) Eliminate the off-ramp from DC-295 southbound to Baker Street NE (River Terrace exit) and reconstruct the off-ramp approximately 800 feet south at Alden Place NE. DC-295 widens to maintain four lanes from the old off-ramp to the new off-ramp location. An additional through lane is dropped at the off-ramp to East Capitol Street to maintain the existing two-lane cross section south of this interchange. The off-ramp relocation is required in order to accommodate the southbound ramp from westbound Benning Road NE and facilitate the safe exit and entrance of weaving traffic to and from DC-295.

Further details can be found in Attachment D: Preferred Alternative.

**Describe the reasoning for selecting the Preferred Alternative:**

The Preferred Alternative best meets the Purpose and Need for the Project while minimizing associated impacts. The proposed changes in access improve system attributes, including the incorporation of missing movements, and address issues such as system continuity, problematic weaving areas, conflicts between local and regional traffic, and other policy concerns associated with 23 USC 111 and 23 CFR 625.

Further details can be found in Attachment D: Preferred Alternative.

### 2. Internal Coordination

**Describe all coordination that was done with other DDOT Administrations regarding the Preferred Alternative:**

Coordination occurred with Traffic Engineering, Traffic Operations and Safety, Asset Management, Infrastructure Project Management Division, and Planning and Sustainability Division.

Workshop meeting attendees, meeting materials, and minutes appear in Attachment E: DDOT Coordination.

| 3. Does the Preferred Alternative: | Yes | No |
|---|---|---|
| Add General Purpose lanes? | ☐ | X |
| Remove General Purpose lanes? | X | ☐ |
| Add Transit Only lanes? | ☐ | X |
| Remove Transit Only lanes? | ☐ | X |
| Add Streetcar or any fixed guard rail system to existing lanes as shared lanes? | ☐ | X |
| Add Parking (Rush Hour Only) lanes? | ☐ | X |
| Remove Parking (Rush Hour Only) lanes? | ☐ | X |
| Convert One-way Operation to Two-way Operation? | ☐ | X |
| Convert Two-way Operation to One-way Operation? | ☐ | X |
| Create a Circle or Oval or Roundabout? | ☐ | X |
| Create a grade separation on an intersection or street? | X | ☐ |
| Remove a grade separation on an intersection or street? | X | ☐ |
| Create a new intersection? | X | ☐ |
| Remove an existing intersection | X | ☐ |
| **NOTE: If the answer to any question in Section D3 is "Yes", then complete Section D4 (Analysis); otherwise, skip to Section D5 (Result)** | | |

| 4. Analysis: | Yes | No |
|---|---|---|
| Was an existing conditions corridor traffic analysis performed? | X | ☐ |
| Was Opening Year traffic analysis performed for the Preferred Alternative? | X | ☐ |
| Was Design Year traffic analysis performed for the Preferred Alternative? | X | ☐ |
| Was Opening Year traffic analysis performed for the No Build/No Action Alternative? | X | ☐ |
| Was Design Year traffic analysis performed for the No Build/No Action Alternative? | X | ☐ |
| Was Design Year used greater than 20 of current year or MWCOG Horizon Year? | X | ☐ |
| Was Synchro and/or VISSIM and or CORSIM/HCS traffic analysis performed for the above conditions? | X | ☐ |
| Was MWCOG or DDOT Travel Demand Model Used to forecast the traffic for opening and Design year? | X | ☐ |
| Was an intersection LOS analysis performed? | X | ☐ |
| Was a Corridor LOS analysis performed? | X | ☐ |
| Did the Analysis include at least one parallel street on each side? | X | ☐ |
| Were the lane changes (or streetcar tracks) submitted to TPB (MWCOG) part of CLRP/STIP/TIP submittal? | X | ☐ |
| Is the project and the proposed changes in the Approved/Conforming CLRP? | X | ☐ |
| Are the proposed lane changes (and/or streetcar) coded in the MWCOG model? | X | ☐ |
| **NOTE: The answers to all questions in Section D.4. must be "Yes" before a project can be approved for Final Design, Construction, or Implementation. Submit supporting analyses reports as attachments to this document. See the Environmental Program Branch Staff if any answer is "No".** | | |

| 5. Results: Preferred Alternative results in: | Yes | No |
|---|---|---|
| Improved Transit operations/reliability? | X | ☐ |
| Improved Bicycle operations/facilities? | X | ☐ |
| Improved Pedestrian operations/facilities? | X | ☐ |
| Improved Vehicular operations (on majority of the intersections or the corridor)? | X | ☐ |
| Improve Freight operations? | ☐ | X |
| Meeting the Purpose and Need as described in Section B of the Part? | X | ☐ |

## E. ESTIMATED COST AND PROJECT SCHEDULE

| Phase | Planning | PE | NEPA/ Section 106 | Final Design | Construction |
|---|---|---|---|---|---|
| Cost | $0.3M | $1.4M | $1.2M | $3.0M | $25.6M (Further details are in Attachment F: Estimated Cost and Project Schedule) |
| Date | 2016 | October 2020 | October 2020 | 1st quarter 2022 | 2022-2025 |

## F. ROADWAY CHARACTER

**NOTE: Skip to Section G, if the project does not require lane changes.**

| 1. ROAD CONFIGURATION | Total | General Purpose | Parking | Bike Only | Bus/Transit Only |
|---|---|---|---|---|---|
| Existing Number of Lanes | Choose | Choose | Choose | Choose | Choose |
| Proposed Number of Lanes | Choose | Choose | Choose | Choose | Choose |

| 2. TRAFFIC | Year | ADT | LOS & Delay | Operating Speed | Crashes |
|---|---|---|---|---|---|
| Existing | enter text. | enter text. | Due to multiple roadways within the project, details appear in Attachment G: Roadway Character. | enter text. | enter text. |
| Build Year (opening year) | enter text. | enter text. | enter text. | enter text. | enter text. |
| Design Year (20 to 25 years) | enter text. | enter text. | enter text. | enter text. | enter text. |

| 3. ROADWAY CONDITION | Existing (ft) | Proposed (ft) |
|---|---|---|
| Existing | Due to multiple roadways within the project, details appear in Attachment G: Roadway Character. | enter text. |
| Build Year (opening year) | enter text. | enter text. |
| Design Year (20 to 25 years) | enter text. | enter text. |

## G. DESIGN CRITERIA FOR BRIDGES/CULVERTS

**NOTE: Skip to Section H, if there is no bridge or culvert in the project.**

| | | | |
|---|---|---|---|
| Structure Number(s) | Due to multiple structures within the project, details appear in Attachment H: Design Criteria for Bridges. | Sufficiency Rating | Refer to Attachment H. |

| | Yes | No |
|---|---|---|
| Will the structure be rehabilitated or replaced as part of the project? | X | ☐ |

| BRIDGE/CULVERT | Existing | Proposed |
|---|---|---|
| Bridge Type | Refer to Attachment H. | Refer to Attachment H. |
| Number of Spans | Refer to Attachment H. | Refer to Attachment H. |
| Weight Restrictions | Refer to Attachment H. | Refer to Attachment H. |
| Curb to Curb Width | Refer to Attachment H. | Refer to Attachment H. |
| Shoulder Width | Refer to Attachment H. | Refer to Attachment H. |
| Under Clearance | Refer to Attachment H. | Refer to Attachment H. |

## H. MAINTENANCE OF TRAFFIC DURING CONSTRUCTION

| | Yes | No |
|---|---|---|
| Is a temporary bridge proposed? | ☐ | X |
| Is a temporary roadway proposed? | ☐ | X |
| Will the project involve the use of a detour or require a ramp closure? | X | ☐ |
| Will provisions be made for access by local traffic and so posted? | X | ☐ |
| Will provisions be made for through-traffic dependent businesses? | X | ☐ |
| Will provisions be made to accommodate any local special events or festivals? | X | ☐ |
| Is a MOT plan prepared? | X | ☐ |
| Will the proposed MOT substantially change the environmental consequences of the action? | ☐ | X |
| Is there **substantial controversy** associated with the proposed method for MOT? | ☐ | X |

**REMARKS: Provide details to support/further explain the answers:**

The construction impact to traffic operations is primarily attributable to the reduction of capacity on both directions of Benning Road NE corridor and along northbound DC-295 and the ramp closure at the Benning Road NE and DC-295 interchange. As result, it is projected that alternative routes would be used by traffic to avoid the congested sections of Benning Road NE and DC-295 corridors. Traffic impacted by the ramp closure will have to use detour routes to arrive at their destinations.

Further details appear in Attachment P: Maintenance of Traffic.

## I. RIGHT OF WAY AND UTILITIES

**NOTE: See DDOT ROW and Utilities Program Team for assistance in completing this section.**

| | Yes | No |
|---|---|---|
| Are there any ROW concerns (e.g., easements, acquisitions, ownership, displacement, relocation, air-rights, construction staging areas, utilities, etc.) for this project? ***(provide details in the Remarks section below.)*** | X | ☐ |
| Has survey or property search been done for this project? ***(attached survey and search results.)*** | X | ☐ |
| Is there work that will be performed outside of District/DDOT ROW (public, private, federal, etc.)? | ☐ | X |
| Is there work on property that is not owned by District/DDOT for highway purposes? | ☐ | X |
| Is a ROW (including air-rights) and utilities permit/agreement needed to conduct work on this project? (***provide information on permitting agency/entity and type of permit/agreement needed.***) | X | ☐ |
| Does project include curb cut closures)? ***(locate and provide permits for the existing curb cuts.)*** | ☐ | X |
| Is there an acquisition that could lead to a total acquisition? | ☐ | X |
| If a temporary easement (TE) cannot be obtained, can project proceed or adjust, accordingly? | ☐ | X |
| Has Utility Coordination been completed? | X | ☐ |
| Are large scale transmission facilities located within the project area? | X | ☐ |

| | |
|---|---|
| Number of parcels/properties affected by temporary ROW (including air-rights) concerns: | 2 |
| Number of parcels/properties affected by permanent ROW (including air-rights) concerns: | 0 |
| Approximate area of temporary ROW needed (including air-rights): | 0.30 acre(s) |
| Approximate area of permanent ROW needed (including air-rights): | 0 acre(s) |

**REMARKS: Provide details to support/further explain the answers:**

The project will not require the acquisition of any additional right-of-way; however temporary construction easements will be necessary where Benning Road crosses over two sets of CSXT tracks.

A list of parcels adjacent to the existing DDOT ROW are shown in Attachment I: Property Survey.

## PART II – IDENTIFICATION & EVALUATION OF IMPACTS OF THE PROPOSED ACTION (Project Manager to Complete)

### A. ECOLOGICAL RESOURCES

#### 1. Rivers, Streams, and Wetlands

| a) Resource | Presence | | Impacts | |
|---|---|---|---|---|
| | Yes | No | Yes | No |
| River | ☐ | X | ☐ | X |
| Stream | ☐ | X | ☐ | X |
| Creek | ☐ | X | ☐ | X |
| Pond | ☐ | X | ☐ | X |
| Wetland | ☐ | X | ☐ | X |
| Other | ☐ | X | ☐ | X |
| **Total Area Impacted (square ft):** | No Impacts | | | |

**NOTE: Skip the rest of Section A, if no resource is present.**

| b) Agency Coordination | Coordination | | Approval | |
|---|---|---|---|---|
| | Yes | No | Yes | No |
| National Marine Fisheries (NMF) | ☐ | ☐ | ☐ | ☐ |
| United States Fish and Wildlife Service (USFWS) | ☐ | ☐ | ☐ | ☐ |
| DC Department of Energy and Environment (DOEE) | ☐ | ☐ | ☐ | ☐ |
| United States Army Corps of Engineers (USACE) | ☐ | ☐ | ☐ | ☐ |
| National Park Service (NPS) | ☐ | ☐ | ☐ | ☐ |

| c) Wetlands Impacts | Documentation | |
|---|---|---|
| | Yes | No |
| Wetland Determination | ☐ | ☐ |
| Wetland Delineation Report | ☐ | ☐ |
| Individual Wetland Finding | ☐ | ☐ |
| Section 402 (NPDES) Permit needed? | ☐ | ☐ |
| Does the project qualify for a Section 402 General Permit? | ☐ | ☐ |
| Section 404 Permit needed? | ☐ | ☐ |
| Does the project qualify for a Section 404 Nationwide Permit (NWP)? | ☐ | ☐ |
| If "Yes", provide a NWP number(e.g., NWP 3: Maintenance; or NWP 14: Linear Transportation, etc.) | enter text. | |

| Avoiding the wetland resource in this action would result in (check all that apply and explain): | |
|---|---|
| Substantial adverse impacts to adjacent homes, business, or other improved properties. | ☐ |
| Substantial increase in the project costs. | ☐ |
| Unique engineering, traffic, maintenance, or safety problems. | ☐ |
| Substantial adverse social, economic, or environmental impacts. | ☐ |
| The project will not meet the identified purpose and needs | ☐ |

| 2. Habitat (Fish, Wildlife-Endangered Species Act) | | | | |
|---|---|---|---|---|
| **a) Identify Habitat** | **Presence** | | **Impacts** | |
| | **Yes** | **No** | **Yes** | **No** |
| Threatened or endangered species present? | ☐ | X | ☐ | X |
| Federal species found in the project area? | ☐ | X | ☐ | X |
| State species found in the project area? | ☐ | X | ☐ | X |
| **Provide name if species is present:** | Click or tap here to enter text. | | | |
| **b) Agency Coordination** | **Coordination** | | **Approval** | |
| | **Yes** | **No** | **Yes** | **No** |
| National Marine Fisheries (NMF) | ☐ | ☐ | ☐ | ☐ |
| United States Fish and Wildlife Service (USFWS) | ☐ | ☐ | ☐ | ☐ |
| DC Department of Energy and Environment (DOEE) | ☐ | ☐ | ☐ | ☐ |
| United States Army Corps of Engineers (USACE) | ☐ | ☐ | ☐ | ☐ |
| National Park Service (NPS) | ☐ | ☐ | ☐ | ☐ |

**REMARKS: Provide details to support/further explain the answers in Section A:**

The limits of disturbance for the project were examined for the presence of rivers, streams, and wetlands as well as terrestrial and aquatic species habitat. None of these resources are present within the project area.

Further details appear in Attachment J: Ecological Resources.

## B. CULTURAL RESOURCES

| 1. Historic and Archaeological Resources (Section 106/Section 9b) | Presence | | Impacts | |
|---|---|---|---|---|
| | **Yes** | **No** | **Yes** | **No** |
| Historic Area | ☐ | X | ☐ | ☐ |
| Historic District | ☐ | X | ☐ | ☐ |
| Historic Streets | ☐ | X | ☐ | ☐ |
| Historic Parks | ☐ | X | ☐ | ☐ |
| Historic Properties | ☐ | X | ☐ | ☐ |
| Historic Bridge | ☐ | X | ☐ | ☐ |
| Archaeological Site | ☐ | X | ☐ | ☐ |

| | | | |
|---|---|---|---|
| **Does the project quality for streamlined review per Section 106 PA?** | Yes | **PA Stipulation:** | Click or tap here to enter text. |

**NOTE: Skip the rest of Section B, if project qualifies for streamlined review or no resource is present.**

| 2. Documentation | Yes | No | Date of Approvals |
|---|---|---|---|
| NO EFFECT Concurrence Letter | ☐ | ☐ | Click or tap here to enter text. |
| NO ADVERSE EFFECT Concurrence Letter | ☐ | ☐ | Click or tap here to enter text. |
| Memorandum of Agreement (MOA)/Programmatic Agreement (PA) | ☐ | ☐ | Click or tap here to enter text. |
| Documentation of Consultation | ☐ | ☐ | Click or tap here to enter text. |
| Phase I Cultural Resources Survey Report | ☐ | ☐ | Click or tap here to enter text. |
| Phase I History/Architecture Survey Report | ☐ | ☐ | Click or tap here to enter text. |
| Phase I Archaeology Survey Report | ☐ | ☐ | Click or tap here to enter text. |
| Phase II Cultural Resources Survey Report | ☐ | ☐ | Click or tap here to enter text. |
| Phase II History/Architecture Survey Report | ☐ | ☐ | Click or tap here to enter text. |
| Phase II Archaeology Survey Report | ☐ | ☐ | Click or tap here to enter text. |

**REMARKS: Provide details to support/further explain the answers in Section B:**

There are no historic and archaeological resources present in the Area of Potential Effects (APE) [see Attachment K: Cultural Resources]. The project area was included in the APE for Benning Road Infrastructure Improvements DCSHPO consultation. In December 5, 2019, DC SHPO provided concurrence towards the FHWA's determination that the undertaking will have "no adverse effect" on the historic properties, providing the avoidance measures are implemented, and the following two conditions are met: 1)DDOT consults with DC SHPO to determine the appropriate sites to relocate the historic fire and police call boxes to ensure their integrity of location and setting is diminished as little as possible (i.e. the relocation sites should be as close as possible to their historic locations); and 2)DDOT consults further with DC SHPO to determine the need for phased archaeological investigations in areas not previously surveyed where ground disturbing activities are proposed.

## C. SECTION 4(f) RESOURCES

| 1. Applicability | Yes | No |
|---|---|---|
| Requires FHWA funds/approval? | X | ☐ |
| Primary purpose is transportation? | X | ☐ |
| Requires land from a Section 4(f) property? | ☐ | X |

| 2. Section 4(f) Resources | Presence | | Impacts | |
|---|---|---|---|---|
| | Yes | No | Yes | No |
| Publicly owned park (including NPS or DPR)? | ☐ | X | ☐ | ☐ |
| Publicly owned recreation area? | ☐ | X | ☐ | ☐ |
| Historic sites/resources? | ☐ | X | ☐ | ☐ |
| Sites listed or eligible for listing in the National Register of Historic Places? | ☐ | X | ☐ | ☐ |
| Wildlife refuge? | ☐ | X | ☐ | ☐ |

**NOTE: Skip the rest of Section C, if any answer to C.1. is "No" and/or no Section 4(f) resource is present.**

| 3. Temporary Use | Yes | No |
|---|---|---|
| Is temporary occupation of Section 4(f) Resource needed (incl. construction staging, etc.)? | ☐ | X |

| 4. Type of Approval Needed | Yes | No | Date of Approvals |
|---|---|---|---|
| De Minimus Impact Determination | ☐ | ☐ | Click or tap here to enter text. |
| Programmatic Section 4(f) | ☐ | ☐ | Click or tap here to enter text. |
| Individual Section 4(f) | ☐ | ☐ | Click or tap here to enter text. |
| Section 6(f) | ☐ | ☐ | Click or tap here to enter text. |

**REMARKS: Provide details to support/further explain the answers in Section C:**

There are no Section 4(f) or Section 6(f) resources in the project area.

## D. AIR QUALITY

| 1. Project Description Regarding Air Quality | Yes | No |
|---|---|---|
| Will the project move the travel lanes closer to sensitive land uses? | ☐ | X |
| Will the project add lanes? | ☐ | X |
| Will the project remove lanes? | ☐ | X |
| Does the project result in (or maintain) a LOS "D" or worse in the design year and beyond? | X | ☐ |

| 2. Attainment Status | Yes | No |
|---|---|---|
| Project area is in a non-attainment of the National Ambient Air Quality Standards of any of the criteria pollutants? | X | ☐ |
| List of Pollutant(s) of Concern: | Marginal Non-Attainment for 2015 8-hour Ozone | |

| 3. Regional Conformity Analysis Status | Yes | No |
|---|---|---|
| Is the project exempt from regional conformity analysis? | ☐ | X |
| Is this project in the current TIP, which has gone through air quality analysis and has been approved by MWCOG TPB as conforming to regional transportation conformity rule? | X | ☐ |
| Is this project in the current CLRP, which has gone through air quality analysis and has been approved by MWCOG TPB as conforming to regional transportation conformity rule? | X | ☐ |
| Has the project scope changed substantially since the conformity analysis? | ☐ | X |
| If "Yes", will this scope change require a re-evaluation of the regional conformity? | ☐ | ☐ |

| 4. Project-Level Conformity Analysis and Impacts | Yes | No |
|---|---|---|
| Is the project exempt from project-level conformity analysis? | ☐ | X |
| Is a Hot Spot analysis required for this project? | ☐ | X |
| --which pollutant(s)? | enter text. | |
| Is an air toxics (MSAT) analysis required for this project? | ☐ | X |
| --type of analysis (Qualitative or Quantitative)? | enter text. | |

**REMARKS: Provide details to support/further explain the answers in Section D:**

The proposed project is in the District of Columbia, which has been designated as a marginal nonattainment area for the 2015 8-hour ozone standard. Since ozone has a regional rather than local impact, project-level analysis is never required to assess the impacts of this pollutant. The precursors for ozone are volatile organic compounds (VOC) and nitrogen oxides (NOx). Project level analysis for the precursors are not required because urban areas as a whole are regarded as sources of VOC and NOx, not individual streets and highways, as emissions are generally likely to occur several kilometers downwind of the source. The proposed project is not expected to create any adverse effects on the area's air quality.

Further detail appears in Attachment L: Air Quality Report.

## E. NOISE

| 1. Project Type Description | Yes | No |
|---|---|---|
| Does this project involve construction of a highway on a new alignment? | ☐ | X |
| Does this project result in a significant change in the horizontal alignment of an existing highway? | ☐ | X |
| Does this project result in a significant change in the vertical alignment of an existing highway? | X | ☐ |
| Does this project add new through lanes (GP, HOV, HOT, Transit) to an existing highway (i.e., lane increase)? | X | ☐ |
| Will the project move the travel lanes closer to sensitive land uses? | ☐ | X |
| Will the project result in increase of traffic? | X | ☐ |

**NOTE: Complete Sections 2 & 3 only if the answer to any of the above is "Yes";
otherwise go to Section 4. Construction Noise.**

| 2. Noise Level | Year | NAC Activity Category | NAC Activity Criteria (dbA) | | Existing Noise Level (dbA) | | Future Noise Level (dbA) | | Receptor Type |
|---|---|---|---|---|---|---|---|---|---|
| | | | Leq (h) | L10 (h) | Leq (h) | L10 (h) | Leq (h) | L10 (h) | |
| Existing | | | | | | | | | |
| Build Year (Opening Year) | | | | | | | | | |
| Design Year (20-25 Years) | | | | | | | | | |

| 3. Analysis and Abatement | Yes | No |
|---|---|---|
| Will the project result in increase in noise levels? | ☐ | X |
| Will the project result in increase in noise levels higher than NAC Criteria? | ☐ | X |
| Does the project "approach" the NAC Criteria (i.e., 1 dbA less than NAC)? | ☐ | X |
| Will the project result in increase in "substantial noise increase" (i.e., over 10 dbA)? | ☐ | X |
| If "Yes", have noise abatement measures, consistent with FHWA policy, been considered? | ☐ | ☐ |
| Is noise abatement found to be reasonable and feasible? | ☐ | ☐ |

| 4. Construction Noise | Yes | No |
|---|---|---|
| Are construction noise abatement measures considered? | X | ☐ |

**REMARKS: Provide details to support/further explain the answers in Section E:**

See Table 4.1 in Attachment M (Noise Analysis Technical Memorandum) for Existing Year 2019 and Predicted Design Year 2045 Traffic Noise Levels. The difference in traffic noise levels from existing conditions to Build conditions was determined to be 1 dBA. Therefore, traffic noise levels under the Build Alternative are predicted to range between 42 and 66 dBA in Design Year 2045. For most receptors, traffic noise levels in the Design Year would stay the same or decrease from existing levels by 1-3 dBA. There would be no substantial noise increase within the study area. Further detail appears in Attachment M: Noise Analysis Technical Memorandum.

## F. COMMUNITY RESOURCES (Title VI of the Civil Rights Act & Environmental Justice)

| 1. Regional, Community, and Neighborhood Factors | Yes | No |
|---|---|---|
| Does the project area contain concentrations of minority, low-income, limited English populations, or any other population protected by Title VI of the Civil Rights Act? | X | ☐ |
| Will the proposed action result in substantial impacts to community cohesion? | ☐ | X |
| Will the proposed action result in substantial impacts to local tax base or property values? | ☐ | X |
| Does the project negatively impact accessibility for people with disabilities? | ☐ | X |
| Does the project negatively impact minority-owned or small business? | ☐ | X |
| Will the proposed action result in reasonably foreseeable secondary or cumulative impacts to the community? | ☐ | X |

| 2. Public Facilities and Services | Yes | No |
|---|---|---|
| Will the proposed action result in substantial impacts on health and educational facilities, public utilities, the police, emergency services, religious institutions, public transportation, or pedestrian and bicycle facilities? | ☐ | X |

| 3. Environmental Justice (Executive Order 12898) | Yes | No |
|---|---|---|
| During public involvement activities were Environmental Justice (EJ) issues raised? | ☐ | X |
| Are any EJ populations located within the project area? | X | ☐ |
| Will the project result in adversely high or disproportionate impacts to the population? | ☐ | X |

| 4. Displacement of People or Businesses | | | | Yes | No |
|---|---|---|---|---|---|
| During public involvement activities were Environmental Justice (EJ) issues raised? | | | | ☐ | X |
| **Number of Displacements** | **Residences:** | 0 | **Businesses** | 0 | |
| | **Institutions** | 0 | **Other** | 0 | |

**REMARKS: Provide details to support/further explain the answers in Section F:**

The project area contains concentrations of minority and low-income populations. The project will not adversely affect community cohesion. The project will not adversely affect public facilities and services. The project has no permanent right-of-way acquisition nor relocations. There are Environmental Justice populations within the study area, however, the project will not result in adversely high nor disproportionate impacts to these populations. Further detail, including US Census Data, appears in Attachment N: Community Resources.

The Public Involvement Plan (PIP) responds to public expectations, builds on work completed in the previous study, and incorporates procedural and regulatory requirements of the NEPA process. An EJ evaluation was conducted to identify target audiences for engagement to include low-income and minority populations. In addition to the general public, specific stakeholders and stakeholder groups were identified to include Advisory Neighborhood Commissions (ANCs), property owners along Benning Road NE, corridor businesses, community facilities, faith-based organizations, medical and health facilities, schools, other public facilities, neighborhood, and special interest/advocacy groups. Specific to EJ populations, the project team contacted and sent information about the public meetings to each ANC and civic association in the study area. The team distributed 2,600 rack cards and 185 posters throughout the project area and directly to stakeholders. Distribution included ANC meetings, eight schools and libraries, six community centers, six multi-family housing developments, and six churches. The project website and electronic surveys are designed to be compatible with mobile devices and follow web accessibility guidelines for persons with visual impairments.

## G. PUBLIC INVOLVEMENT

**23 CFR 771.111: Early and continuing public involvement activities are required throughout project development and for the entire NEPA process. Early coordination with appropriate agencies and the public contributes to reducing or eliminating delays, duplicative processes, and conflicts, and result in outcomes that have been reviewed by stakeholders.**

| | Yes | No |
|---|---|---|
| Was general public involved in the development of the project? | X | ☐ |
| Were public meetings held for the project? | X | ☐ |
| Are public meetings and public involvement activities inclusive of minority and low-income people? | X | ☐ |
| Will the project involve substantial controversy concerning community and/or natural resource impact? | ☐ | X |

**REMARKS: Provide details to support/further explain the answers in Section G:**

An extensive public involvement program was conducted as a part of the NEPA and IMR process for the project. Two public involvement events were held that allowed stakeholders and the public to define priorities and express community concerns through written and verbal comments. The Benning Road NE and DC-295 IMR was given a prominent focus at all these meetings, in addition to the other elements of the project. The first public meeting, held on September 20, 2019, provided an overview of the IMR process, the project's purpose and need, existing conditions, key interchange issues, and the environmental resources in the study area. These topics were presented and discussed with stakeholders and the public, and the issues and concerns expressed by the community were documented by the project team. The second public meeting, held on February 20, 2020, provided an overview of the two-tiered interchange concept screening process that resulted in the two Build Alternatives from an initial collection of 19 interchange concepts. Additional details on the two Build Alternatives and their respective similarities, differences, benefits and drawbacks were presented and discussed with stakeholders and the public. The third round of engagement occurred online in September 2020. DDOT provided project updates via the project website in conjunction with the conclusion of the preliminary design phase. The purpose of this update was to inform the public on the status of the proposed corridor design (including the proposed streetcar extension, streetscape improvements, traffic analyses, and bridge designs). New materials included a video rendering of the proposed corridor design, an interactive summary of the IMR (process, findings, and Preferred Alternative), and general updates to the project website (schedule, next steps, and Frequently Asked Questions).

## H. HAZARDOUS MATERIALS AND REGULATED SUBSTANCES

| | Yes | No |
|---|---|---|
| Are there any hazardous waste or hazardous sites present in the project area? | X | ☐ |

| Documentation | Yes | No | Date of Approvals |
|---|---|---|---|
| Phase I Environmental Site Assessment | ☐ | X | Click or tap here to enter text. |
| Phase II Environmental Site Assessment | ☐ | X | Click or tap here to enter text. |
| Design for Remediation | ☐ | X | Click or tap here to enter text. |

**REMARKS: Provide details to support/further explain the answers in Section H:**

The project does not require the acquisition of additional new right-of-way and a Phase I Environmental Site Assessment (ESA) was not performed as part of the CE-II Assessment. If any need arises during the later phases of the project, an ESA would be completed at that time.

Further detail appears in Attachment O: Hazardous Materials and Regulated Substances Technical Memorandum.

## I. TIMING OF ACTIVITIES (23 CFR 771.113)

**NOTE: Final design activities, property acquisition, purchase of construction materials or rolling stock, or project construction MUST NOT PROCEED until final decision has been issued regarding the NEPA Class of Action. The decision will be based on the work necessary to complete the environmental review process; including completing and documenting environmental studies, related engineering studies, agency coordination, public involvement, and mitigation measures.**

| Project Manager Name: | ROBYN JACKSON | Date | 09/01/2020 |
|---|---|---|---|

**STOP -- PLEASE DO NOT COMPLETE THE NEXT SECTION --STOP**

**DDOT ENVIRONMENTAL PROGRAM BRANCH WILL COMPLETE THE NEXT SECTON**

# PART III – NEPA DECISION AND CE CERTIFICATION FOR THE PROPOSED ACTION

**(DDOT Environmental Program Branch to Complete)**

## A. PERMITS AND APPROVALS CHECKLIST

| Item | Required | Not Required | Complete |
|---|---|---|---|
| **Wetland and/or Stream Mitigation** | ☐ | X | ☐ |
| **National Park Service Permit or Approval** | ☐ | X | ☐ |
| **Value Engineering** | X | ☐ | ☐ |
| **Interchange Justification/Management Report (IJR/IMR)** | ☐ | ☐ | X |
| **Major Project Plan** | X | ☐ | ☐ |
| **Section 4(f)** | ☐ | X | ☐ |
| **Traffic Analysis** | ☐ | ☐ | X |
| **Noise Analysis** | ☐ | ☐ | X |
| **Section 7 Consultation (Endangered Species Act)** | ☐ | X | ☐ |
| **Hazmat Assessment** | ☐ | X | ☐ |
| **Title VI/EJ Assessment** | ☐ | ☐ | X |
| **NCPC Approval** | ☐ | X | ☐ |
| **ROW Acquisition Document (including Air Rights)** | ☐ | X | ☐ |
| **Section 9 Bridge Permit (US Coast Guard)** | ☐ | X | ☐ |
| **Section 401 Water Quality Certification (EPA)** | ☐ | X | ☐ |

| | | | |
|---|---|---|---|
| **Section 404/Section 10 Permit (Corps of Engineers)** | | | |
| Nationwide Permit (NWP) | ☐ | X | ☐ |
| Pre-Construction Notification (PCN) | ☐ | X | ☐ |
| Individual Permit | ☐ | X | ☐ |
| **Section 402 NPDES Permit (EPA)** | | | |
| Construction General Permit (CGP) | ☐ | X | ☐ |
| Individual Permit | ☐ | X | ☐ |
| **Section 106 (DCSHPO)** | | | |
| Citywide Programmatic Agreement | ☐ | X | ☐ |
| No Adverse Effect Letter | ☐ | X | ☐ |
| Memorandum of Agreement | ☐ | X | ☐ |
| Individual Programmatic Agreement | ☐ | X | ☐ |
| **Air Quality Analysis** | | | |
| Regional Conformity | ☐ | X | ☐ |
| Project-Level Conformity | ☐ | X | ☐ |
| **Other** | | | |
| Click or tap here to enter text. | ☐ | X | ☐ |

## B. ENVIRONMENTAL COMMITMENTS MADE AND RESOURCES TO AVOID

### Conditions and/or Stipulations of Approval

This project is in the PE phase. This CE-2 has been prepared to satisfy POLICY POINT 8: STATUS OF PLANNING AND NEPA of the Interchange Modification Report (IMR) as well as DDOT/FHWA PCE.

DDOT, in coordination with FHWA, determined that this proposed action qualified as a CE-2, as identified in 23 CFR 771.117(c) & (d), by meeting the requirements of 40 CFR 1508.4, 23 CFR 771.117(a) & (b). This CE-2 analysis includes required environmental evaluations and review of the Preferred Alternative of the Benning Road NE/DC-295 Interchange Project, selected following the screening of several alternatives in the IMR. Based on the environmental evaluation, there are no significant natural, cultural, or socio-economic impacts associated with implementing the proposed interchange improvements. The CE-2 for the proposed action is separate from the Benning Road and Bridges Transportation Improvements Environmental Assessment (EA). However, the proposed actions from both the CE-2 and the EA will be implemented together in the subsequent design and construction phases. The cumulative impacts of the construction project are addressed in both documents. All necessary environmental permits (USACE, DOEE), associated with the proposed action will be applied concurrently with the overall Benning Road reconstruction projects.

Final design may require new forms/approval. A re-evaluation of the CE2 may be necessary if there are discoveries following any archeological review, discoveries with regards to ESA of the hazardous materials sites within the project area, or if the 0.3 acres of CSX ROW is acquired rather than just used for temporary construction easement.

## C. DDOT CERTIFICATION

Recommended and Approved by DDOT Environmental Program Branch

It is hereby determined that the subject project meets the criteria for CE in accordance with the Programmatic Categorical Exclusion Agreement between DDOT and FHWA. This action does not: induce significant impacts to planned growth or land use for the area; require relocation of significant numbers of people; have significant impact on any natural, cultural, recreational, historic, or other resource; involve significant air, noise, or water quality impacts; have significant impacts on travel patterns; or otherwise, either individually or cumulatively, have any significant impacts and does not require the preparation of an Environmental Assessment or an Environmental Impact Statement.

Therefore, as supported by information contained in this Categorical Exclusion, DDOT, on behalf of FHWA, certifies that this project qualifies for a **CE Level 2, CE-2**, NEPA Class of Action in accordance with the PCE between DDOT and FHWA.

**Recommended by:** Kirti Rajpurohit Environmental Policy Analyst 10/23/2020

**NAME & TITLE** **DATE**

**Approved by:** **Austina Casey** 10/31/2020

**DDOT Environmental Program Manager (NAME & SIGNATURE)** **DATE**

# A PROJECT MAP

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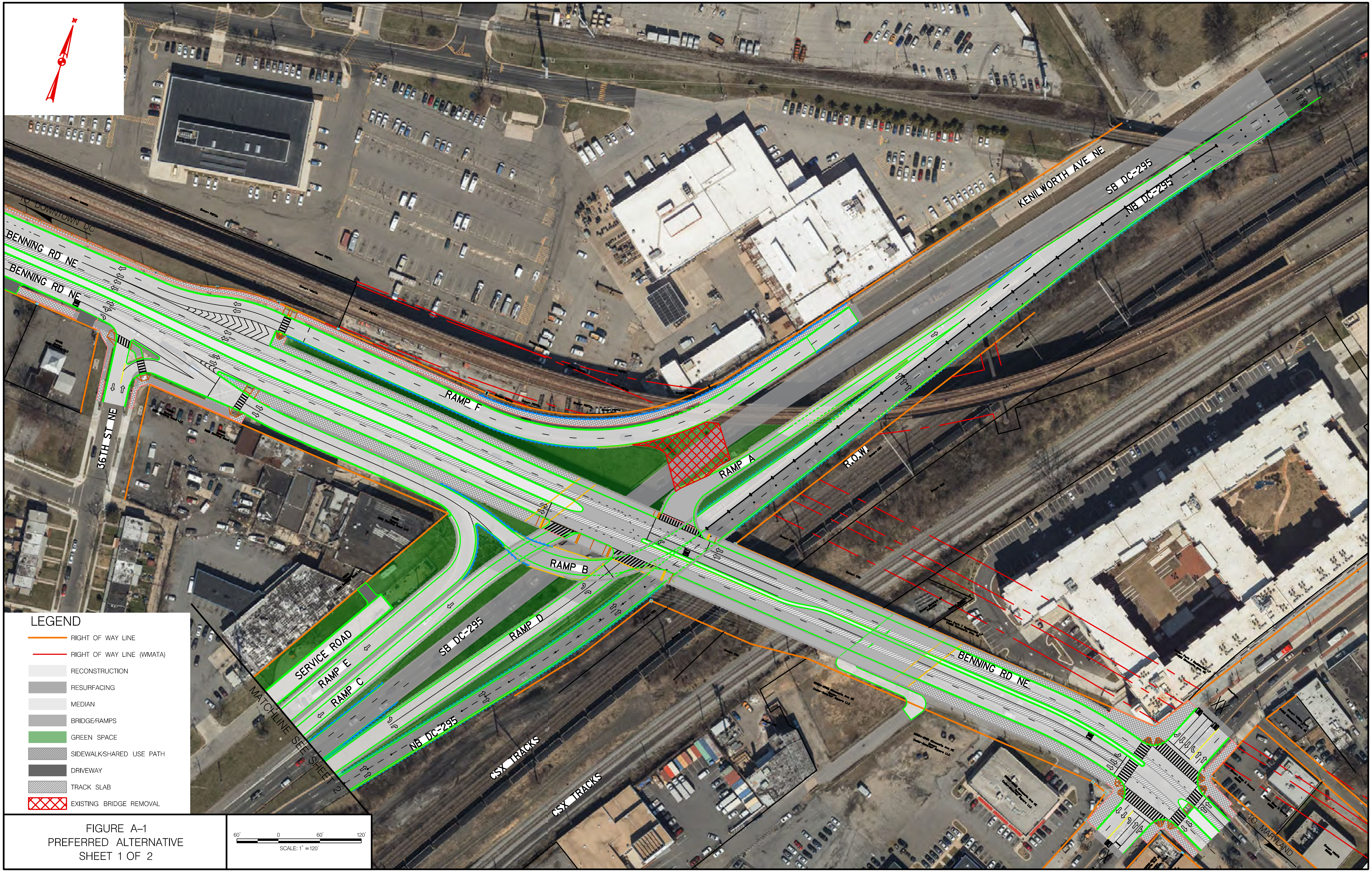


FIGURE A-1
PREFERRED ALTERNATIVE
SHEET 1 OF 2


FIGURE A-1
PREFERRED ALTERNATIVE
SHEET 2 OF 2

# B PURPOSE AND NEED

The following purpose and need is a direct excerpt from the *Interchange Modification Report*.

The purpose and need for the project were defined to establish why improvements are needed and to shape the range of alternatives that would be considered to address the identified needs as well as drive the screening process. Previous studies along the Benning Road NE corridor provided background for developing the purpose and need of this project, as did input received during agency and public scoping and outreach activities.

The purpose of the proposed modifications to the Benning Road NE and DC-295 interchange is to improve existing access along DC-295 to address deficiencies in transportation infrastructure conditions, to address safety conditions and enhance operations for both motorized and nonmotorized access, and to provide increased mobility and accessibility at the interchange.

## 1. PROJECT GOALS AND OBJECTIVES

The access modification request is needed to satisfy the following objectives:

- Eliminate unsafe freeway connections
- Provide improved local access between Benning Road NE and DC-295
- Provide missing freeway connections to improve traffic flow to and from downtown Washington, DC
- Provide continuous, safe multimodal connections (motorized and nonmotorized) along Benning Road NE
- Replace obsolete infrastructure
- Address current levels of congestion and manage future traffic demands

## 2. DESCRIPTION OF PROBLEMS AND DEFICIENCIES

Existing geometric, operations, access, and safety deficiencies within the study area are summarized below and provide the context for defining the needs requiring interchange modification, which are presented in more detail in Section 1.3. These existing problems and deficiencies indicate that improvements to the study interchange are warranted to improve connectivity, eliminate unsafe conditions, and manage traffic demand.

**Geometric Constraints.** The Benning Road NE and DC-295 interchange is in a physically constrained area. Multiple CSXT railroad tracks run parallel to DC-295 immediately east of the freeway. A rail viaduct structure carries the Metrorail Orange/Silver/Blue Lines over Benning Road NE near Kingman Island, running parallel to Benning Road NE along the north side until just west of DC-295, where the rail viaduct splits. East of this point, the Blue and Silver Line tracks transition to a tunnel under DC-295 and the CSXT right-of-way and head toward the Benning Road Metrorail station, while the Orange Line tracks continue on an aerial structure over DC-295 and the CSXT tracks, and turn toward the Minnesota Avenue Metrorail station. At the Benning

Road NE and DC-295 interchange, three levels of structures are present in the following order (high to low): Whitlock Memorial Bridge (Benning Road NE), northbound DC-295 and associated ramps, and southbound DC-295. The Metrorail Viaduct Bridge crosses over the DC-295 mainline north of the Whitlock Bridge. The clearance between the Metrorail Viaduct Bridge and the DC-295 mainline poses a challenge to potential new ramp connections to the Whitlock Bridge and contributes to the lack of existing access at the Benning Road NE and DC-295 interchange.

**Operational Issues.** Within the study area, DC-295 is configured with a six-lane cross section, with three lanes in each direction and a 50-mph posted speed limit. Overall, DC-295 experiences heavy peak period congestion, as evidenced by extensive queuing in the southbound direction during the morning peak period and similar queuing in both directions of the freeway during the evening peak period. Numerous bottlenecks, internal and external to the study area, contribute to this congestion, including capacity constraints at the Benning Road NE interchange. In the morning peak period, the predominant movement is the southbound DC-295/Kenilworth Avenue NE to westbound Benning Road NE. In the evening peak period, the predominant movement is the reverse movement, eastbound Benning Road NE to northbound DC-295. Due to the heavy traffic flow for these two movements, free flow conditions (i.e., no traffic control) are necessary for operations and the existing configuration of these two movements operate as such.

The Minnesota Avenue and Benning Road Metrorail stations generate high volumes of vehicular, transit, pedestrian, and bicycle activity. Numerous business/commercial parcels have direct access to Benning Road NE (particularly near Minnesota Avenue NE and between 44th Street NE and East Capitol Street) and generate numerous pass-by vehicle trips throughout the day that use Benning Road NE as well as the major cross-streets in the study area. Residents who live east of the Anacostia River and work in or closer to downtown Washington, DC, use the Benning Road NE and DC-295 corridors and/or pass through the study interchange during work commutes. Accordingly, Benning Road NE serves both travelers on more localized trips traveling to/from commercial developments and residential communities to the DC-295 corridor, as well as through traffic from origins/destinations entirely outside of the study area. DDOT anticipates that this congestion will increase in future years.

**Access and Safety Concerns.** The existing Benning Road NE and DC-295 interchange does not allow for traffic east of the interchange to enter or exit the freeway. As such, there is no direct connection between DC-295 and origins or destinations east of the interchange on Benning Road NE. Due to this restricted freeway access, traffic must use adjacent arterials or local roads to access other nearby interchanges with DC-295, exacerbating operational issues on local roadways such as Minnesota Avenue NE. Alternatively, many drivers traveling westbound on Benning Road NE choose to make an illegal U-turn at 34th Street NE to access DC-295 in either direction. Traffic counts collected in April 2019 suggest that 75 U-turns occur during the AM peak period, which could be a contributing factor for the 13 angle crashes observed at this intersection from 2016–2018.

In addition to lack of connectivity within the interchange, Benning Road NE, west of the study interchange with DC-295, also serves as one of only a few roadway crossings of the Anacostia River to connect Washington, DC and other major activity and employment centers in the metropolitan area with points east of the river. However, the closest upstream and downstream crossings do not directly serve or connect the same routes as Benning Road NE on the west side of the river. The limited number of river crossings, as well as the limited connections at the crossings, results in substantial travel demands on the Benning Road NE interchange, creating significant congestion. The limited connectivity and travel choices in this area also present challenges when crashes or other emergency situations require partial or full roadway closures.

Additionally, though Benning Road NE is functionally classified as a principal arterial roadway, the corridor primarily comprises residential areas with heavy retail and business activity around the intersection of Benning Road NE and Minnesota Avenue NE and the nearby Minnesota Avenue Metrorail station. The conflicting functions and needs of the corridor as an arterial serving through traffic, versus a local roadway providing residential and commercial access, present a transportation challenge that impacts safety. Pedestrian and vehicular crashes and corresponding long delays are commonly observed at this intersection. From 2016–2018, five pedestrian crashes and 91 total crashes were observed at the intersection of Benning Road NE with Minnesota Avenue NE.

# 3. TRANSPORTATION NEEDS REQUIRING MODIFICATION TO INTERCHANGE ACCESS

Based on the existing problems and deficiencies described in the previous section, transportation needs within the study area have been identified and are presented below.

## 3.1 System Linkage and Connectivity

***Increase Number of Movements at the Interchange for Connectivity.*** Figure 3-1 illustrates the existing movements at the Benning Road NE and DC-295 interchange. The interchange currently only serves the following movements:

1. Eastbound Benning Road NE to northbound DC-295
2. Eastbound Benning Road NE to southbound DC-295
3. Northbound DC-295 to westbound Benning Road NE
4. Southbound DC-295/Kenilworth Avenue NE to westbound Benning Road NE
5. Southbound Kenilworth Avenue NE to northbound DC-295

As a result of the limited number of ramp connections at the interchange, there are prominent gaps in connectivity that limit or constrain the use of DC-295 to points west of Kenilworth Avenue NE. Movements that do not currently exist at the interchange include:

6. Northbound DC-295 to eastbound Benning Road NE
7. Southbound DC-295 to eastbound Benning Road NE
8. Westbound Benning Road NE to southbound DC-295
9. Westbound Benning Road NE to northbound DC-295

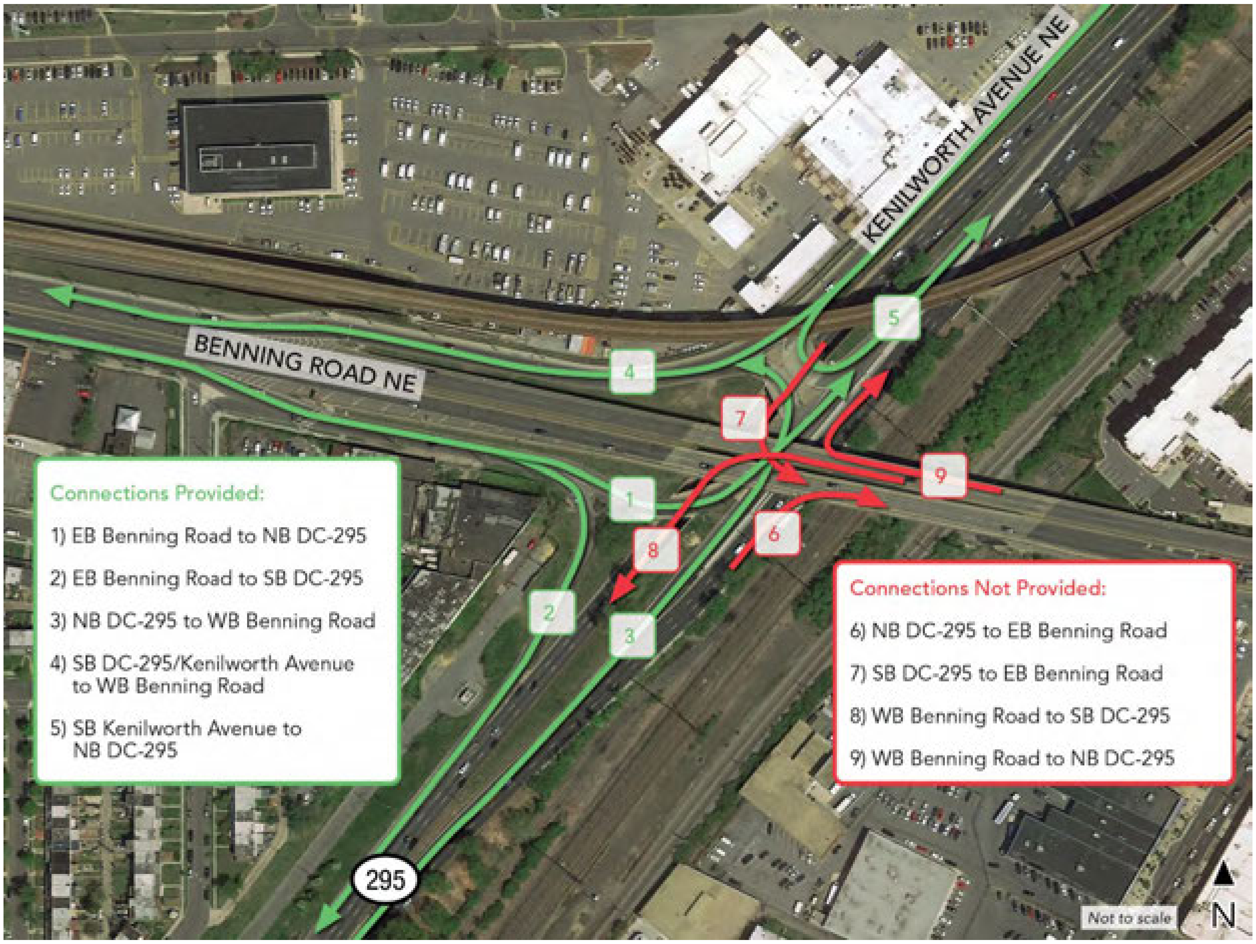


**Figure 3-1 | Existing Interchange Movements**

## 3.2 Road User Benefits (Nonmotorized)

***Provide Safe Pedestrian and Bicycle Facilities.*** The study area currently lacks adequate facilities for nonmotorized access. Improvements are needed that would increase pedestrian and bicycle accessibility and connectivity across and along Benning Road NE.

**Bicycle Facilities**. There are no existing bicycle facilities or shared-use paths that provide safe bicycle access along the arterials within the Benning Road NE corridor and across DC-295. Benning Road NE is identified as in "poor" condition in the District's *Bicycle Master Plan*.[1] The *Bicycle Master Plan* and the bicycle element of the *moveDC* Plan[2] also identify the section of Benning Road NE that crosses the Anacostia River as an off-street trail as part of Anacostia River recreational facilities. With the increase in businesses, facilities, and population along the corridor

[1] https://ddot.dc.gov/page/bicycle-master-plan

[2] http://wemovedc.org/resources/Final/Part%202_Plan_Elements/Bicycle.pdf

—particularly near the intersection of Benning Road NE and Minnesota Avenue NE—the need to accommodate alternative modes of transportation is increasing and should be addressed.

**Pedestrian Facilities.** The only off-street pedestrian facility across the Whitlock Bridge (at the interchange of Benning Road NE with DC-295) is on the south side of Benning Road NE, as shown in Figure 3-2. The original bridge included sidewalk with curb and gutter on the south side of the bridge and was later retrofitted with a Jersey barrier at the edge of the outside travel lane and safety fence on the outside of sidewalk. The sidewalk's location between the barrier and metal fence results in a narrow, confined facility for use by pedestrians and bicyclists.

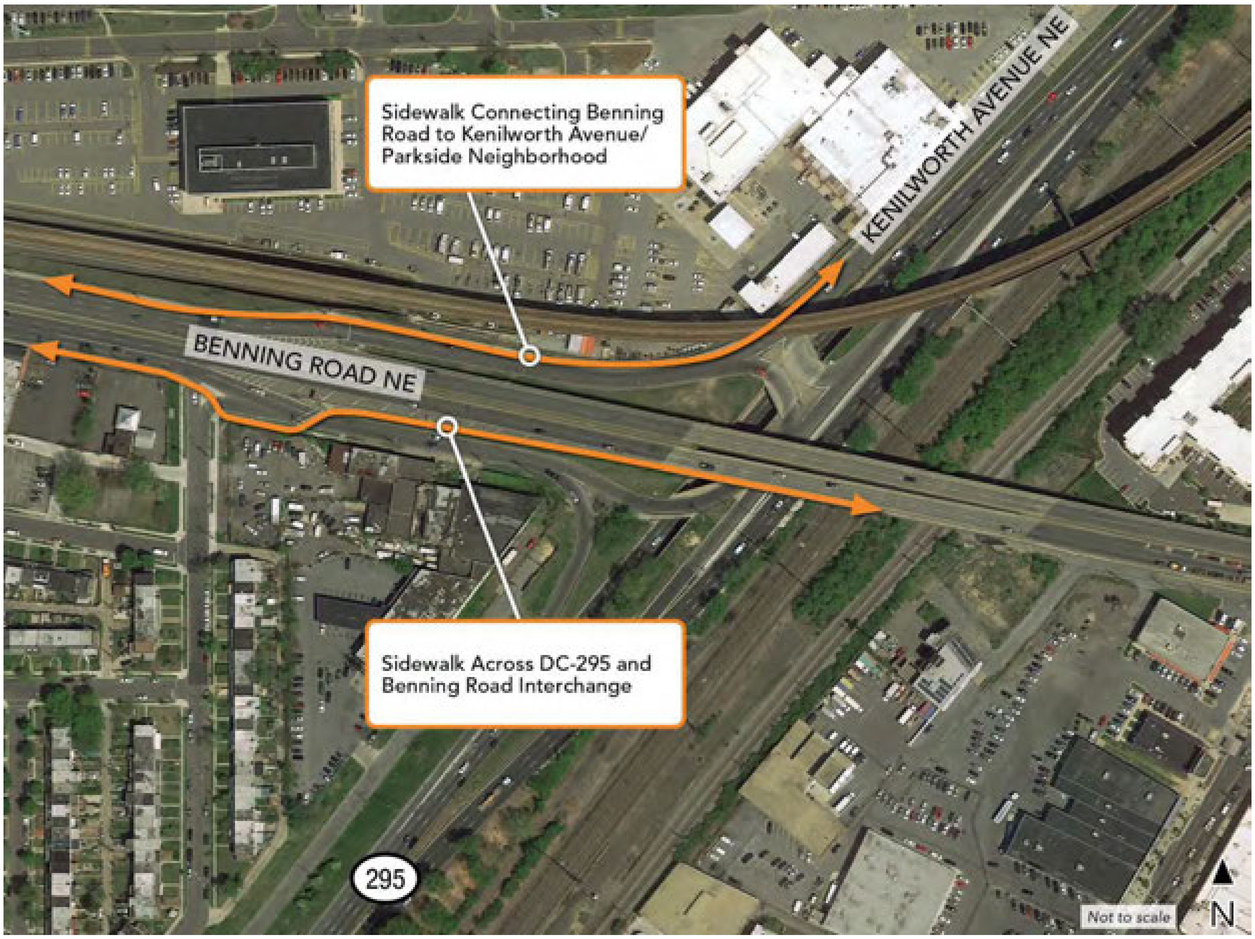


Figure 3-2 | **Existing Pedestrian Facilities on Benning Road NE**

Further west, at the intersection of Benning Road NE with 36th Street NE, the existing pedestrian crosswalk width along the south curb of Benning Road NE is substandard; the pedestrian curb ramp is not aligned to the crossing and the curb ramp to access the bridges is not compliant with the Americans with Disabilities Act of 1990 (ADA). While there is sidewalk located on the north side of Benning Road NE, it does not provide connection across the study interchange. Instead, this sidewalk passes under the elevated Metrorail viaduct and only connects the west side of Kenilworth Avenue NE to the Parkside neighborhood, which is located just north of the northwest quadrant of the interchange. The Parkside community currently does not have a safe route to cross Benning Road NE at the interchange in order to access the existing pedestrian crossing on the south curb. For access between the sidewalk on the north and south side of Benning Road NE, pedestrians must cross at 34th Street NE, approximately 1,000 feet west of 36th Street NE. Sidewalks improvements are needed on both sides of the Whitlock Bridge and additional or improved crosswalks at the intersection with 36th Street NE.

## 3.3 Access to Areas Not Currently Served

***Provide Connectivity to the East (Currently Not Served).*** Section 3.1 describes how the study interchange currently only serves certain movements to and from the west. This lack of access impacts communities to the east of DC-295 by cutting off direct access to the freeway and increasing demand on the surrounding roadway network. Additionally, based on traffic counts and recent crash history, vehicles may compensate for the lack of connectivity by making illegal U-turns at the intersection of Benning Road NE with 34th Street NE, as described in Section 2, which could contribute to existing safety issues. Improving connectivity, particularly through access between DC-295 and the east via Benning Road NE, is warranted to improve overall connectivity, localized accessibility, operations, and safety within the study area.

## 3.4 Address Existing Congestion and Safety Problems

***Correct Turning Radius Deficiencies on Existing Ramps.*** At the study interchange, there are three ramps that do not meet minimum radius standards outlined by the American Association of State Highway and Transportation Officials (AASHTO) in the 2018 *Green Book*. The locations of these substandard ramps are shown in Figure 3-3 and are:

- Northbound DC-295 off-ramp to westbound Benning Road NE
- Southbound Kenilworth Avenue NE on-ramp to northbound DC-295
- Eastbound Benning Road NE on-ramp to northbound DC-295

According to the *Highway Safety Manual* (HSM), freeway ramps with radii less than 650 feet exhibit higher crash frequencies than those with larger radii. Driver expectancy may be violated for drivers exiting DC-295 in the northbound direction, as they must sharply decelerate to navigate the substandard turn radius and avoid collisions with slower downstream traffic. Likewise, the substandard radius at the southbound Kenilworth Avenue NE and eastbound Benning Road NE on-ramps to northbound DC-295 do not allow vehicles enough time to accelerate to the speed of mainline freeway traffic. Resulting freeway merge area speed differentials, between slower traffic entering from the left side and high-speed through traffic in the remaining three right through lanes, have been demonstrated in District of Columbia-wide safety studies and the HSM to result in "hot-spot" congestion and increase the probability of rear-end or side-swipe crashes. Improvements are warranted that would eliminate these substandard conditions and improve operations and safety at the interchange and on mainline DC-295.

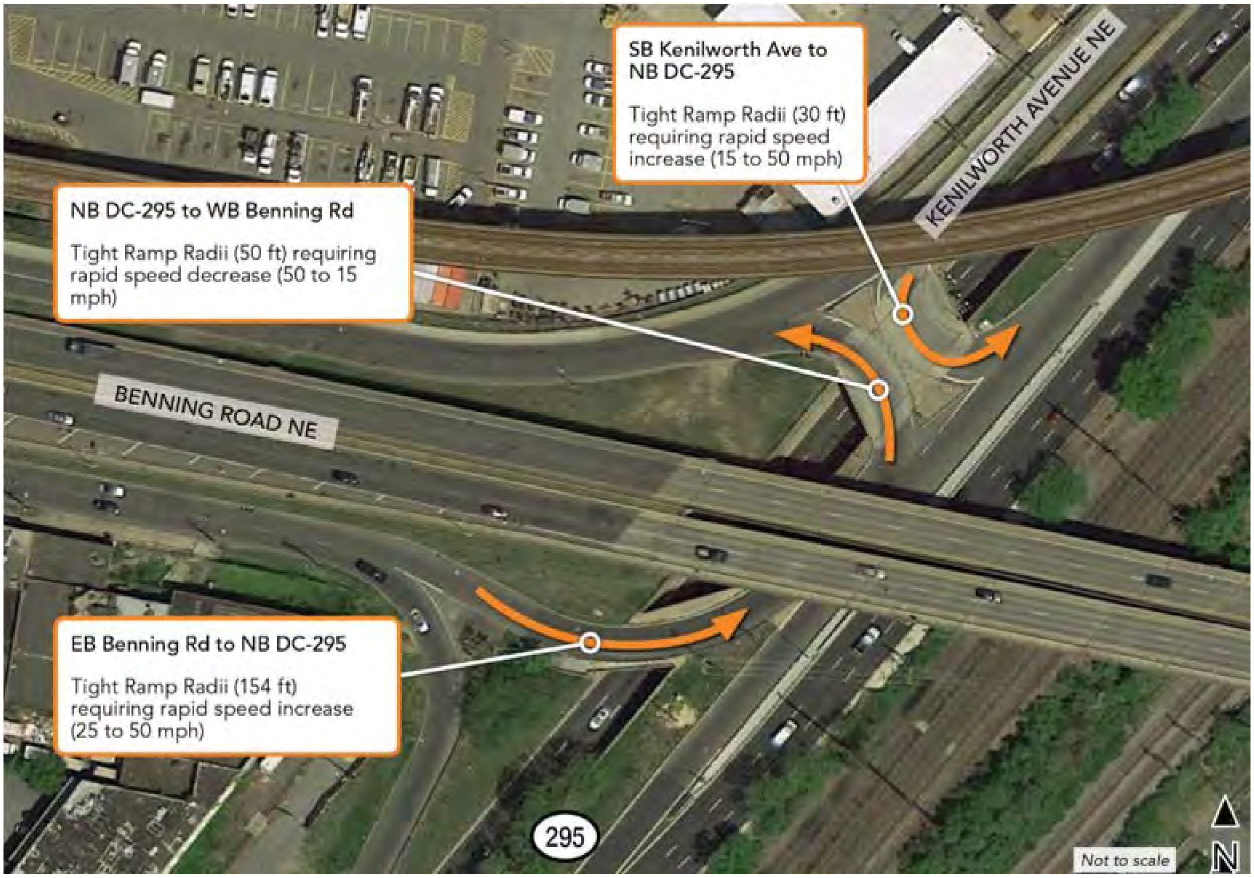


**Figure 3-3 | Locations with Turning Radius Deficiencies**

***Lengthen or Eliminate Short Merge/Weave Area.*** At the study interchange, there are two short merge and/or weave areas —between the DC-295 northbound off-ramp to westbound Benning Road NE and the eastbound Benning Road NE to northbound DC-295 on-ramp—that are substandard, as shown in Figure 3-4.

According to the HSM, short weaving areas between adjacent entrance and exit ramps have been associated with increased crash frequencies, as drivers do not have adequate time to detect slow-moving vehicles or those changing lanes, leading to sideswipe and rear-end crashes within the weave section. Specifically, the HSM suggests that crashes of all types may be reduced by up to 45 percent when a cloverleaf configuration with back-to-back entrance-exit ramps is replaced with a straight ramp. As such, improvements are warranted that would simplify and/or separate existing movements and improve operations and safety at the interchange and on mainline DC-295.


**Figure 3-4 | Existing Short Merge/Weave Areas**

***Increase Deceleration/Acceleration Distance for On-/Off-Ramps.*** At the study interchange, there are two deceleration/acceleration lanes—the northbound DC-295 off-ramp deceleration lane and the northbound DC-295 on-ramp acceleration lane—that are both substandard, as shown in Figure 3-5.

Acceleration lane length is critical to allowing vehicles adequate distance to accelerate to freeway speeds and to find an acceptable gap for merging with through traffic. The HSM suggests that crashes of all types may be reduced by up to 11 percent if the acceleration lane length of a substandard access point is increased by just 100 feet. Likewise, deceleration lane length is important to allowing vehicles enough time to slow down before approaching traffic control devices, such as a traffic signal, or constrained geometry, such as the short weave area that exists at the interchange today. Improvements are warranted that would improve operations and safety at the interchange and on mainline DC-295.

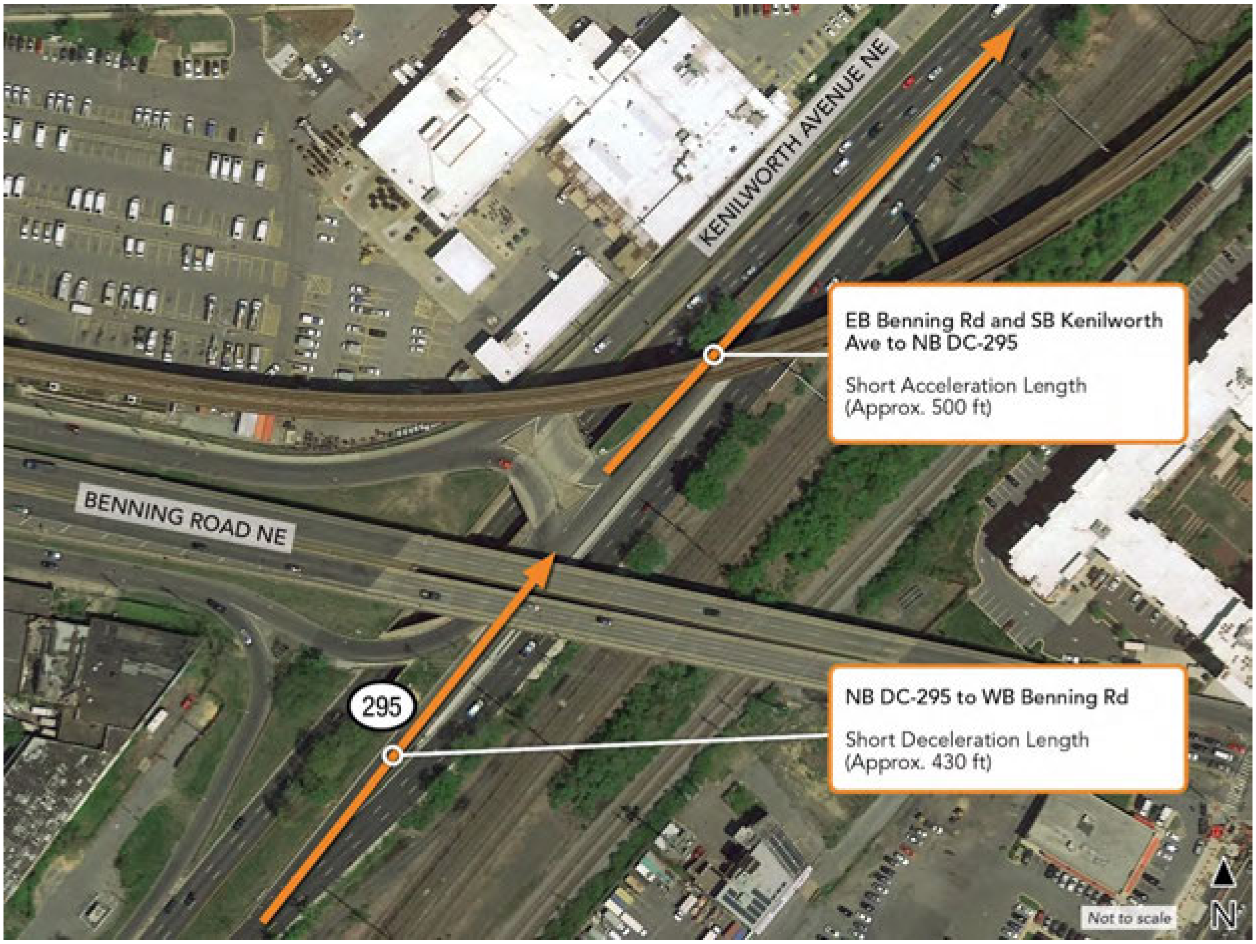


**Figure 3-5 | Existing Deceleration/Acceleration Distances**

## 3.5 Prevent Safety Problems

***Maintain Structural Integrity and Safety of Bridges 104, 104-1, and 503*****.** There are three existing bridges in the study area, as shown on Figure 3-6. Bridges 104 and 104-1, which are both elevated over DC-295 southbound as pictured in Figure 3-6, are approaching the end of their fatigue life. In addition, Bridge 503 is in need of replacement of both substructure and superstructure and lacks adequate sidewalks that meet ADA compliance. Improvements are warranted that would replace the existing bridges in order to meet a 75-year life expectancy. These improvements would address future safety issues with the potential increase in pedestrian trips on the bridges as well as the general safety of the superstructure by addressing future structural integrity.


**Figure 3-6 | Existing Bridges in IMR Study Area**

# C ALTERNATIVES CONSIDERED

This memorandum is a direct excerpt from the *Interchange Modification Report*.

## 1. ALTERNATIVES DEVELOPMENT PROCESS

**Summary.** The development of concepts for the Benning Road NE and DC-295 interchange was an iterative process involving extensive review by stakeholders, refinement and revision, and multiple levels of screening. All interchange concepts, options, and variations have been thoroughly vetted through multiple screening workshops and public meetings.

**Methodology.** The purpose of the multitiered screening process, depicted in Figure 1-1, was to progressively narrow the list of possible alternatives to two reasonable Build Alternatives based on the performance criteria. The preliminary screening (as shown as "Step 2" in the figure below) consisted of two levels of screenings:

- Screen 1 was used to evaluate preliminary concepts against a set of fatal flaw and qualitative screening criteria. The focus of Screen 1 was ensuring that all concepts that advanced met the project's purpose and need; were feasible to construct; and did not have unacceptable levels of impact to the human and natural environments.
- Screen 2 was a quantitative screening process to fully evaluate how concepts which passed Screen 1 performed relative to each other. Screen 2 included a scoring process that ranked each concept based on its relative importance using weighting factors and relevance to the alternative selection process.

Transportation system management (TSM) strategies improve the flow of traffic without roadway capacity improvements. Early during the alternatives development process, it was determined that TSM strategies such as ramp metering, improved striping and signing, and intelligent transportation systems/active traffic management (ITS/ATM) would not address the safety and connectivity issues that are described in the purpose and need; however, the proposed concepts and, ultimately, the proposed action, do incorporate some TSM components where feasible and appropriate. These components include bicycle and pedestrian facility improvements and traffic signal timing improvements at the signalized intersections associated with the interchange.

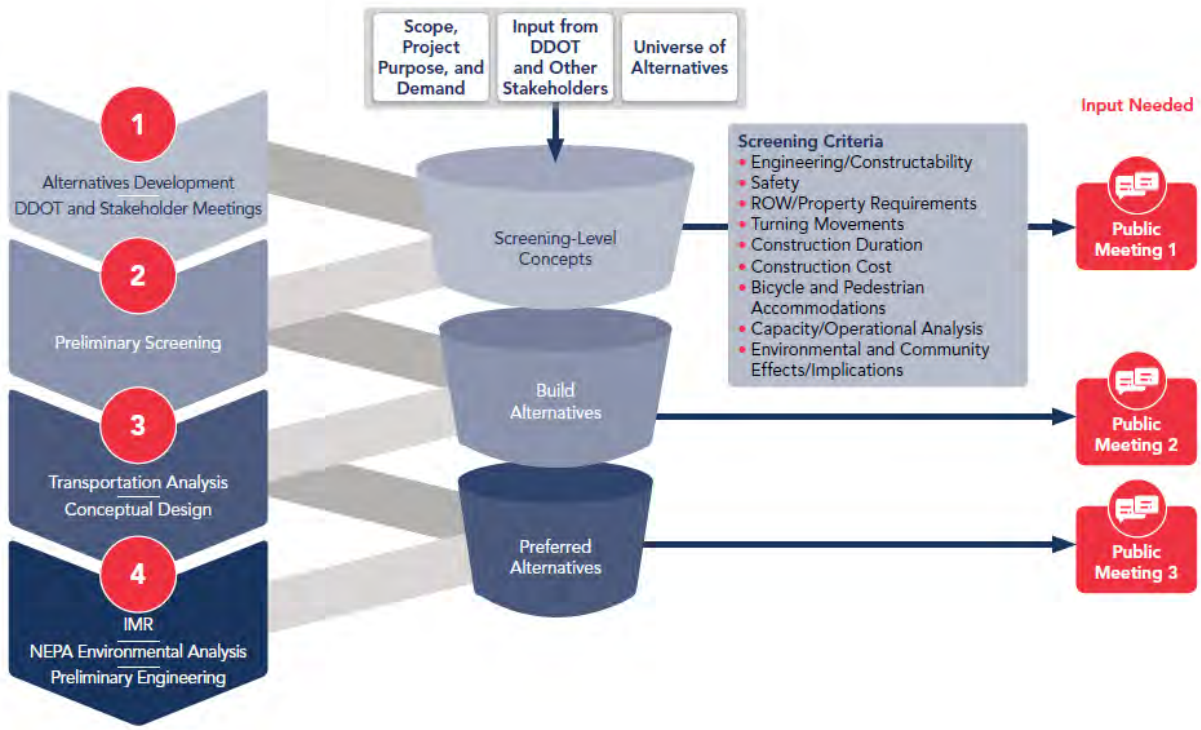


**Figure 1-1** | **Multitiered Screening Process**

**Process Results.** The first step in the alternatives development and screening process involved identifying the preliminary concepts. The interchange was first evaluated in May 2015 as part of the *Safety and Geometric Improvements of DC-295/I-295 Study*; that study identified four mid-term alternatives for the interchange along with one long-term improvement that provided the basis of the concept development process.

The preliminary concepts developed represented the full universe of possibilities to improve the study interchange, and sufficient design detail was developed for all preliminary concepts to establish an understanding of the physical footprint, cost, traffic operations, and other aspects of the plans.

Nineteen concepts were developed to generate solutions for the study interchange and evaluated through the two-tiered screening process. The initial 19 concepts were presented to, evaluated, and reviewed by a range of stakeholders at a workshop that was held on July 10, 2019. As a result of Screen 1, 11 concepts were eliminated from further consideration and 8 concepts were carried forward. Based on input from DDOT and stakeholders, the 8 concepts advancing through Screen 1 were further refined to a conceptual level of design and subjected to Screen 2. The two concepts with the highest scores from the quantitative Screen 2 were Concept 7C and Concept 8D. These two concepts were discussed and agreed upon at a stakeholder workshop held on October 17, 2019 and were further refined and presented at subsequent stakeholder and public outreach.

These two concepts—Concept 7C and Concept 8D—were identified as the two Build Alternatives to be developed through preliminary design.

## 2. NO-BUILD ALTERNATIVE

The No-Build Alternative contains no capacity improvements or additional connections for the study interchange. Under the No-Build scenario, the Benning Road Reconstruction and Streetcar Project and the DC-295/I-295 Safety Improvement Project were included, which are summarized below.

- The Benning Road Reconstruction and Streetcar Project will improve safety, improve pedestrian connectivity, and provide an increase in transit capacity in Wards 5 and 7 for approximately two miles of Benning Road NE from Oklahoma Avenue NE to East Capitol Street. Based on the improvements shown in the *Benning Road and Bridges Transportation Improvements Draft EA*, dated May 2016, Bridges 104 and 104-1, which are both elevated over DC-295, will need to be replaced. In addition, Bridge 503 needs a full replacement of both the substructure and superstructure. A detailed description and location of the bridges can be found in Section 1.7.1. Improvements implemented under this alternative are limited to structural improvements of the Lorraine H. Whitlock Memorial Bridge (Bridge 503).
- The short-term improvements identified in the 2015 *Safety and Geometric Improvements of I-295/DC-295 Study* are planned to be implemented. The project will include restriping, lighting improvements, and increases to the length of acceleration and deceleration lanes at the Benning Road NE and DC-295 interchange. It was assumed no mainline capacity improvements or additional ramps would be constructed as part of this project for the No-Build Alternative.

The No-Build Alternative does not fully meet the purpose and need of the project. The interchange under this alternative does not improve local access to and from Benning Road NE or add missing freeway connections. In addition, there is no freeway connection for the community to the east of DC-295 to/from downtown Washington, DC. The existing interchange continues to have many geometric deficiencies that include substandard merge/weaving areas, turning radii at ramps, and acceleration and deceleration lengths. These deficiencies are expected to result in increased cut-through traffic in the surrounding neighborhoods and an increase in number of crashes.

## 3. BUILD ALTERNATIVES

The multitiered screening process identified Concepts 7C and 8D as the two Build Alternatives that were moved forward for more detailed design and refinement. Build Alternatives 7C and 8D are depicted in Figure 3-1.


**Figure 3-1 | Build Alternatives 7C and 8D**

**Description and Comparison.** The connectivity and movements provided are consistent for both Build Alternatives 7C and 8D as shown in Figure 3-1. Both alternatives propose the following:

- Provide three new movements to/from the east on Benning Road NE for better connectivity, including: westbound Benning Road NE to northbound and southbound DC-295, and northbound DC-295 to eastbound Benning Road NE (indicated by the three orange arrows in Figure 3-1). Note that the new directional ramp to serve the movement from westbound Benning Road NE to northbound DC-295 is expected to reduce existing congestion at the Nannie Helen Burroughs Avenue NE interchange
- Remove the existing substandard ramps with turning radius deficiencies and eliminate the existing short weave segment (indicated by the red cross-hatching in Figure 3-1)
- Relocate the northbound DC-295 to westbound Benning Road NE movement to signalized ramps (indicated by the yellow arrow in Figure 3-1)
- Provide a new signalized intersection to control new ramp movements (the location of which is indicated by the signal icon in Figure 3-1)
- Provide new and enhanced pedestrian/bicycle facilities on the bridge and visibility improvements to existing crossings
- Retain four existing ramp movements (indicated by the blue arrows in Figure 3-1)
- Remain within the existing DDOT right-of-way

The Build Alternatives have two primary differences, as shown in the bottom inserts in Figure 3-1:

(1) The merging configuration of the northbound DC-295 on-ramps
  - Build Alternative 7C has two separate, back-to-back merges of new on-ramps onto northbound DC-295
  - Build Alternative 8D merges the two northbound directional on-ramps first before adding the third lane to northbound DC-295 mainline onto which the on-ramps merge at a single location

(2) The number of northbound DC-295 lanes carried through the interchange (three under existing conditions)
  - Build Alternative 7C provides three northbound through lanes
  - Build Alternative 8D provides two northbound through lanes

**Identification of Preferred Alternative.** Based on feedback from the public meeting and discussion with DDOT, Build Alternative 8D was identified as the Preferred Alternative. Concept 8D was identified due to the expected improved travel time along DC-295 northbound with the added lane option for the northbound on-ramps from Benning Road NE. Due to the large amount of traffic entering onto DC-295 northbound from Benning Road NE, the added lane provides enough capacity for satisfactory operations and improves safety by eliminating the need for merging maneuvers.

Upon further refinement, the westbound Benning Road NE to southbound DC-295 ramp was modified from a left facing on-ramp to a right facing on-ramp. This change was deemed necessary due to safety concerns and to improve operations for vehicles entering onto DC-295 southbound from westbound Benning Road NE and destined to East Capitol Street. Plans for Concept 8D can be found in the *Interchange Modification Report: Appendix F: Functional Plans for Preferred Alternative*.

# D PREFERRED ALTERNATIVE

This memorandum is a direct excerpt from the *Interchange Modification Report*.

## 1. INTRODUCTION

As part of efforts to address existing issues and deficiencies at the interchange, DDOT collaborated with other key stakeholders—including FHWA, the Washington Metropolitan Area Transit Authority (WMATA), CSXT, and Ward 7 (Area Neighborhood Commissions [ANCs] 7D, 7E, and 7F; the Ward 7 Leadership Council; and the Office of Councilmember Vincent C. Gray)—to complete a comprehensive alternative development and selection process that included several public meetings. As a result, the Preferred Alternative was developed and identified and is summarized in the following subsections. The proposed changes in access improve system attributes, including the incorporation of missing movements, and address issues such as system continuity, problematic weaving areas, conflicts between local and regional traffic, and other policy concerns associated with 23 USC 111 and 23 CFR 625. The project parameters along with the design criteria used for the preferred alternative can be found in the *Interchange Modification Report* (IMR).

Two renderings of the Preferred Alternative are depicted in Figure 1-1 and Figure 1-2 that show, respectively, an overhead view of the interchange (looking northeast) and the new Benning Road NE Bridge over DC-295 (looking west).

**Figure 1-1 | Preferred Alternative: Rendering 1 (Looking Northeast)**

**Figure 1-2 | Preferred Alternative: Rendering 2 (Looking West on Benning Road NE Bridge)**

The proposed modifications to access to DC-295 at the study interchange are depicted in Figure 1-3 which shows the proposed number of lanes in each direction along DC-295, Benning Road NE, the interchange ramps, and connecting local roadway network.


**Figure 1-3 | Preferred Alternative: Modifications to Access to DC-295**

## 2. PROPOSED MODIFICATIONS TO INTERSTATE ACCESS

The main focus of the Preferred Alternative is a reconfiguration of the Benning Road NE and DC-295 interchange through modification of three existing ramps in order to improve existing connections and accommodate the construction of three new ramps. The existing DC-295 northbound to Benning Road NE westbound and Kenilworth Avenue NE southbound to DC-295 northbound ramps do not meet the turning radius standards prescribed by the 2018 *Green Book*. The existing DC-295 northbound to Benning Road NE westbound and Benning Road NE eastbound to DC-295 northbound ramps converge in a short weave area that is an existing safety concern. To address these issues, the Preferred Alternative modifies the existing ramp from DC-295 northbound to Benning Road NE westbound to meet design criteria and ties this ramp into the bridge as a signalized intersection. The Kenilworth Avenue NE southbound to DC-295 northbound ramp – which is a low-volume movement that does not meet the turning radius standards in the *2018 Green Book* - is removed entirely. The substandard turning radius at this location has the potential to impact safety for vehicles accessing this movement. The existing traffic volumes for this movement are 45 vehicles per hour in the AM peak hour and 35 vehicles per hour in the PM peak hour. With the removal of this movement, vehicles will be able to access DC-295 northbound by utilizing Kenilworth Terrace NE to Deane Avenue NE/Nannie Helen Burroughs Avenue NE interchange.

As part of the Preferred Alternative, movements from DC-295 northbound to Benning Road NE eastbound and movements from Benning Road NE westbound to DC-295 northbound and southbound are accommodated via three new ramps. Due to heavy demand on the Benning Road NE eastbound to DC-295 northbound ramp, the existing merge area is proposed to function as an add-lane.

The Preferred Alternative includes the following interchange improvements that modify existing access:

- Construct a new one-lane off-ramp from DC-295 northbound that widens to a two-lane intersection approach to provide new access to Benning Road NE in both directions. This is a left-side off-ramp that connects to the Benning Road NE bridge at a signalized intersection.
- Construct a new one-lane on-ramp from Benning Road NE westbound to DC-295 southbound. This ramp structure starts on the Benning Road NE bridge before merging with the Benning Road NE eastbound to DC-295 southbound on-ramp on the right side of DC-295.
- Reconstruct/realign a one-lane on-ramp from Benning Road NE eastbound to DC-295 southbound. This ramp merges with the new ramp from Benning Road NE westbound to DC-295 southbound before merging with the mainline of DC-295 southbound.
- Construct a new one-lane on-ramp from Benning Road NE westbound to DC-295 northbound. This ramp starts on the Benning Road NE bridge before sloping down under the existing Metrorail bridge structure, where it merges with the reconstructed ramp from Benning Road NE eastbound to DC-295 northbound.
- Reconstruct/realign a one-lane on-ramp from Benning Road NE eastbound to DC-295 northbound. The reconstructed ramp lane is added as a third through lane on northbound DC-295 after merging with the new ramp from Benning Road NE westbound.

- Remove an existing bridge structure carrying an off-ramp from DC-295 northbound to Benning Road NE westbound and an on-ramp from Kenilworth Avenue NE southbound to DC-295 northbound.
- Restripe DC-295 northbound between the proposed off- and on-ramps with Benning Road NE, reducing the number of through lanes along this segment of DC-295 from three to two to accommodate new ramps and structures.
- Eliminate the off-ramp from DC-295 southbound to Baker Street NE (River Terrace Exit) and reconstruct the off-ramp approximately 800 feet south at Alden Place NE. DC-295 widens to maintain four lanes from the old off-ramp to the new off-ramp location. An additional through lane is dropped at the off-ramp to East Capitol Street to maintain the existing two-lane cross section south of this interchange. The off-ramp relocation is required in order to accommodate the southbound ramp from westbound Benning Road NE and facilitate the safe exit and entrance of weaving traffic to and from DC-295.

## 2.1 Local Access Improvements – For Vehicles

In addition to interchange improvements, the Preferred Alternative includes improvements to the local street network:

- Reconstruct and widen the Benning Road NE bridge over DC-295.
- Install a traffic signal on the Benning Road NE bridge at the intersection of the new on- and off-ramps.
- Construct a new off-ramp to Alden Place NE from DC-295 southbound. This replaces current access to this community at Baker Street NE (River Terrace Exit).

## 2.2 Other Associated Improvements – For Pedestrians and Bicycles

In addition to providing improved vehicular access, the Preferred Alternative also proposes enhancements to pedestrian and bicycle facilities. The new typical roadway section of the Benning Road NE bridge over DC-295 includes pedestrian and bicycle facilities on both sides of the roadway to improve nonvehicular safety and increase visibility on the bridge.

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# E DDOT COORDINATION

Additional information and resources regarding DDOT Coordination as requested in the CE form appear in this attachment, including presentations, meeting minutes, and meeting attendees.

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# Benning Road Reconstruction and Streetcar Project

NEPA & IMR WORKSHOP 7/10/2019

# Agenda

- Introductions and Roles
- Safety Moment
- Workshop Goals and Objectives
- IMR Overview
- Benning Road/DC-295 Purpose and Need
- IMR Concepts
- Next steps

# Introductions and Roles

- Sign-In Sheet

Benning Road Reconstruction and Streetcar Project

# Sign-in Sheet

| BENNING ROAD RECONSTRUCTION AND STREETCAR PROJECT MEETING SIGN-IN SHEET | | | | |
|---|---|---|---|---|
| **Name** | **Firm or agency** | **Title** | **Email** | **Phone** |
| Robyn Jackson, PE | DDOT | Project Manager | robyn.jackson@dc.gov | 202.671.5110 |
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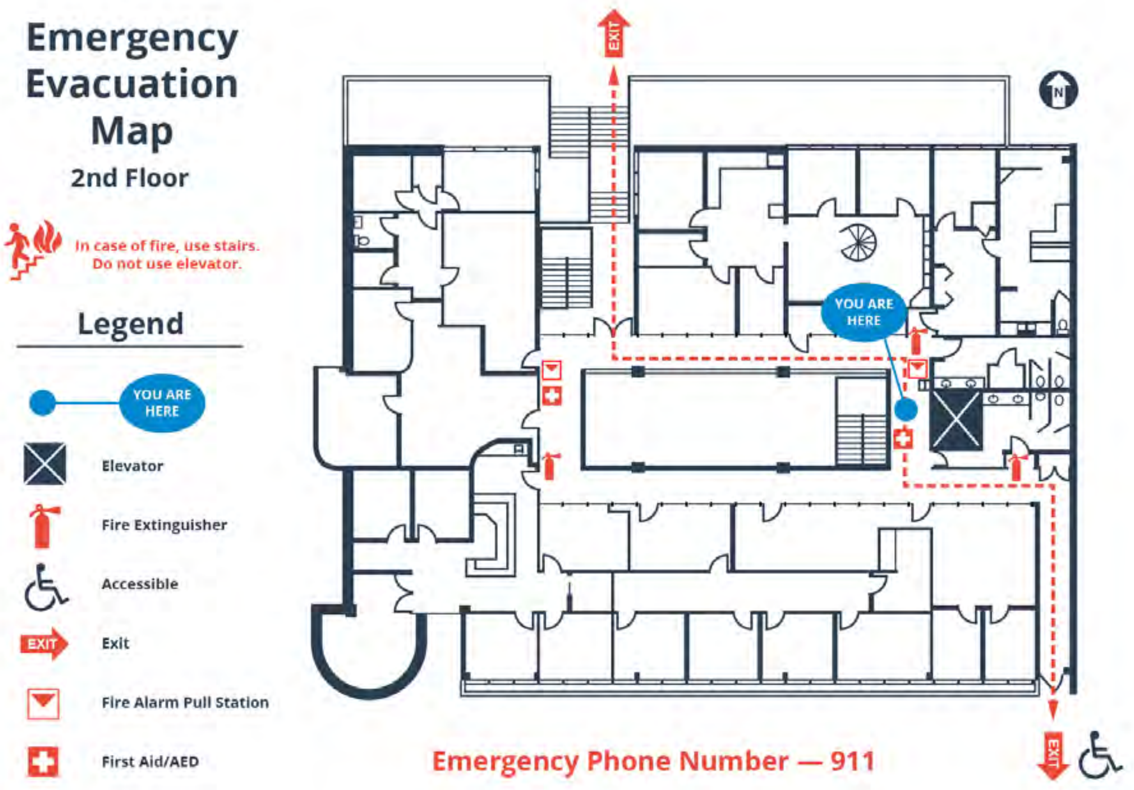
# Safety Moment

- Building Egress during an Emergency

**Benning Road Reconstruction and Streetcar Project**

# Building Egress



# Workshop Goals and Objectives

**Benning Road Reconstruction and Streetcar Project**

# Goals and Objectives

1. Present interchange concepts and preliminary screening results
2. Work together to tweak concepts that pass preliminary screening

# IMR Overview

**Benning Road Reconstruction and Streetcar Project**

# Project Overview

# Benning Road/DC-295 Interchange Purpose & Need/Screening Process

Benning Road Reconstruction and Streetcar Project

# Purpose and Need

- Purpose
  - Improve mobility (including pedestrian and bicycle)
  - Improve safety (turning movements and bridge structure)
- Needs
  - Correct turning radius deficiencies on existing ramps
  - Lengthen merge and weave areas
  - Increase deceleration/acceleration distance on-/off-ramps
  - Provide safe pedestrian/bike crossing(s)
  - Maintain structural integrity of bridges 104 and 104-1

***Purpose and Need drives screening criteria***

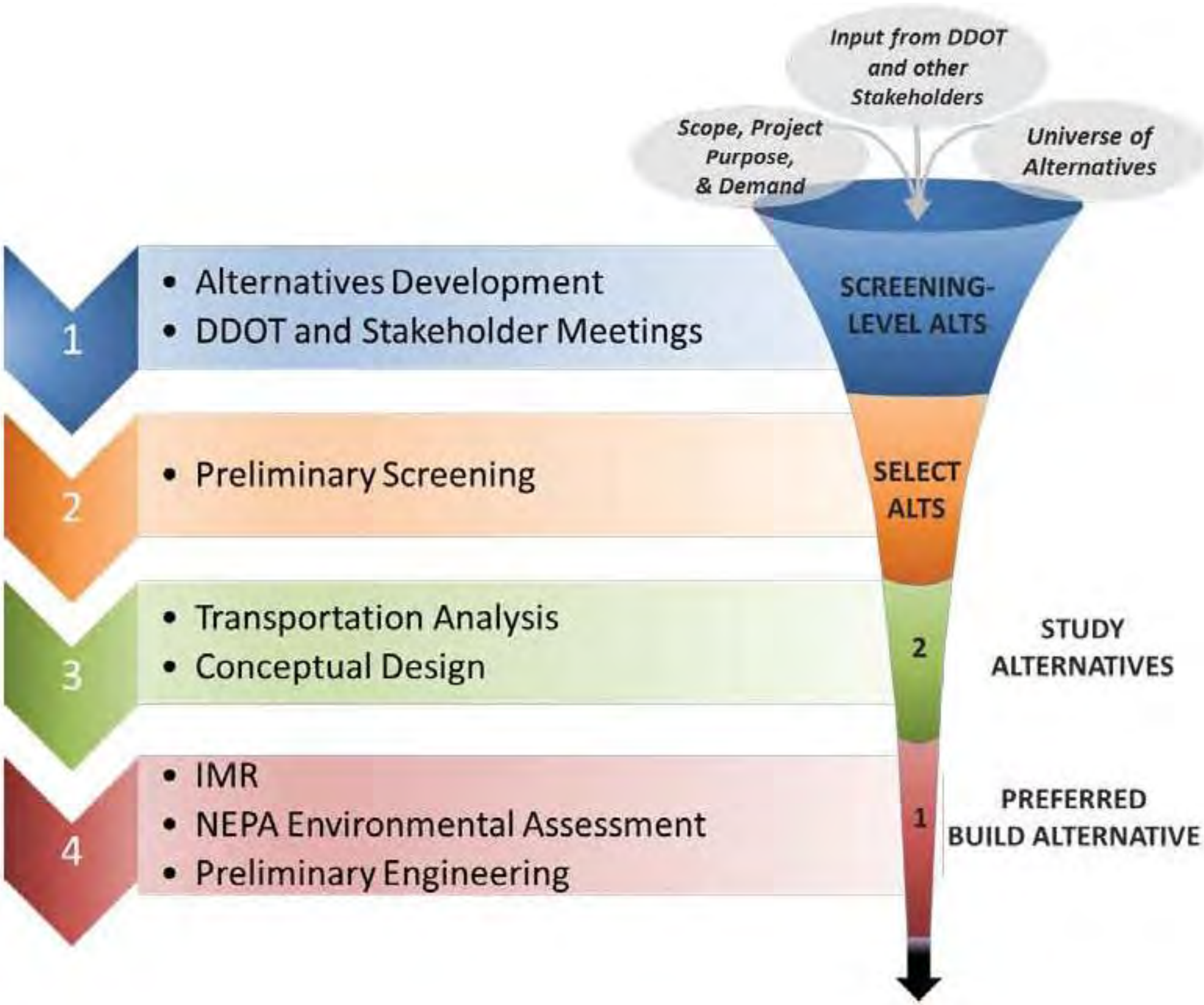
# Preliminary Screening Criteria

- Pass/Fail Criteria:
  - Safety: Does the alternative degrade safety?
  - Turning Movements: Does the alternative reduce the number of movements between Benning Road and DC-295?
  - Bike/Ped: Does the alternative accommodate bicycle and pedestrian movements?
  - Capacity: Does the alternative meet the future 2045 traffic demands?
  - ROW: Does the alternative result in right-of-way impacts to CSX property or facilities? Does it impact the WMATA viaduct?

# Preliminary Screening Criteria

- Other Criteria:
  - Engineering/Constructability
  - Construction Duration
  - Construction Cost
  - Environmental and Community Effects

# Screening Process



# IMR Concepts

- Existing Conditions
- Traffic
- Build Concepts

**Benning Road Reconstruction and Streetcar Project**

# Existing Interchange Configuration

# No Build Concept

# Existing (2019) Peak-Hour Traffic Volumes


Kimley»Horn

*Exhibit 1*

*Existing (2019) Peak-Hour Traffic Volumes*

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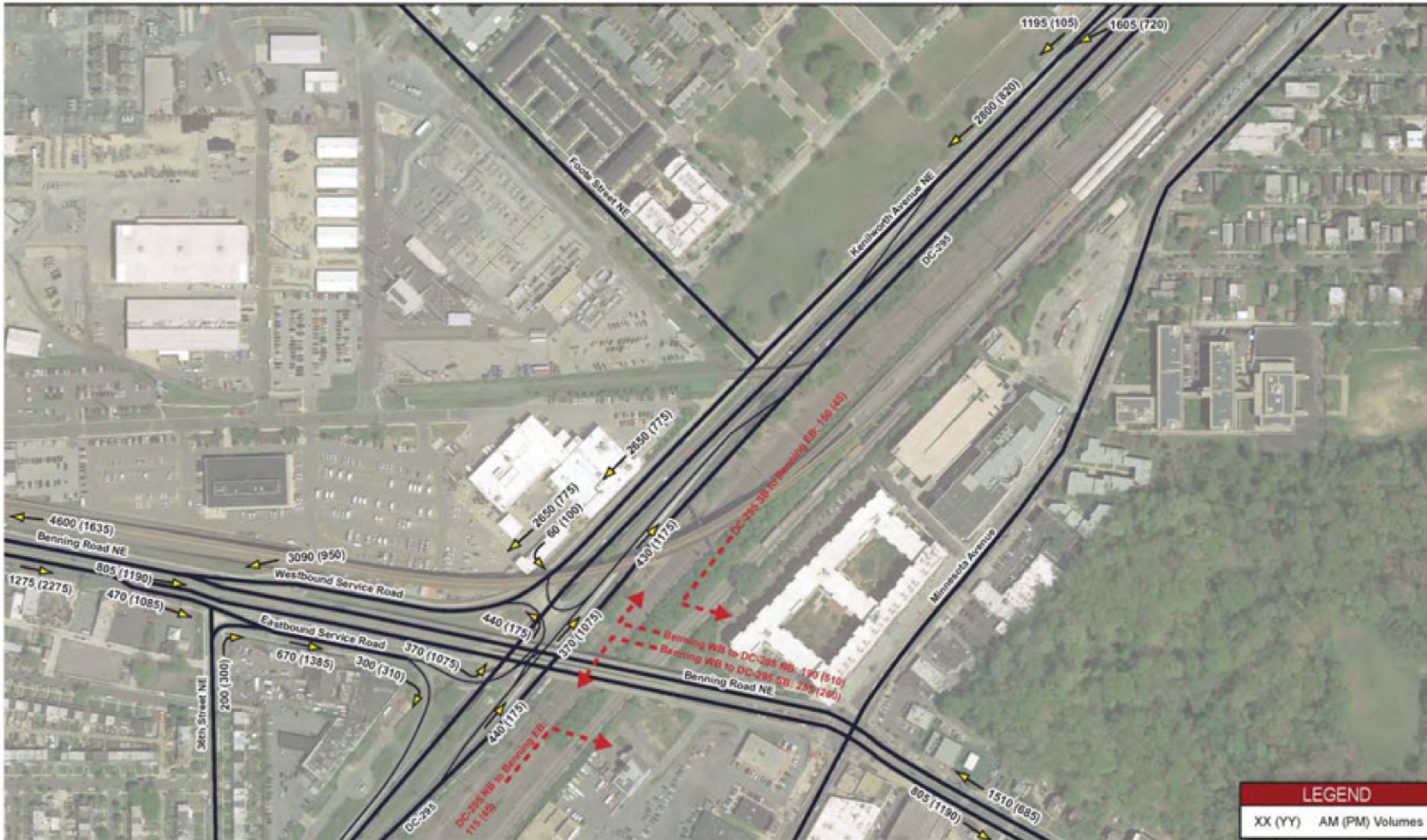
MURIEL BOWSER, MAYOR

# Future (2045) Peak-Hour Traffic Volumes




Kimley»Horn

*Exhibit 2*
*Future (2045) Peak-Hour Traffic Volumes*

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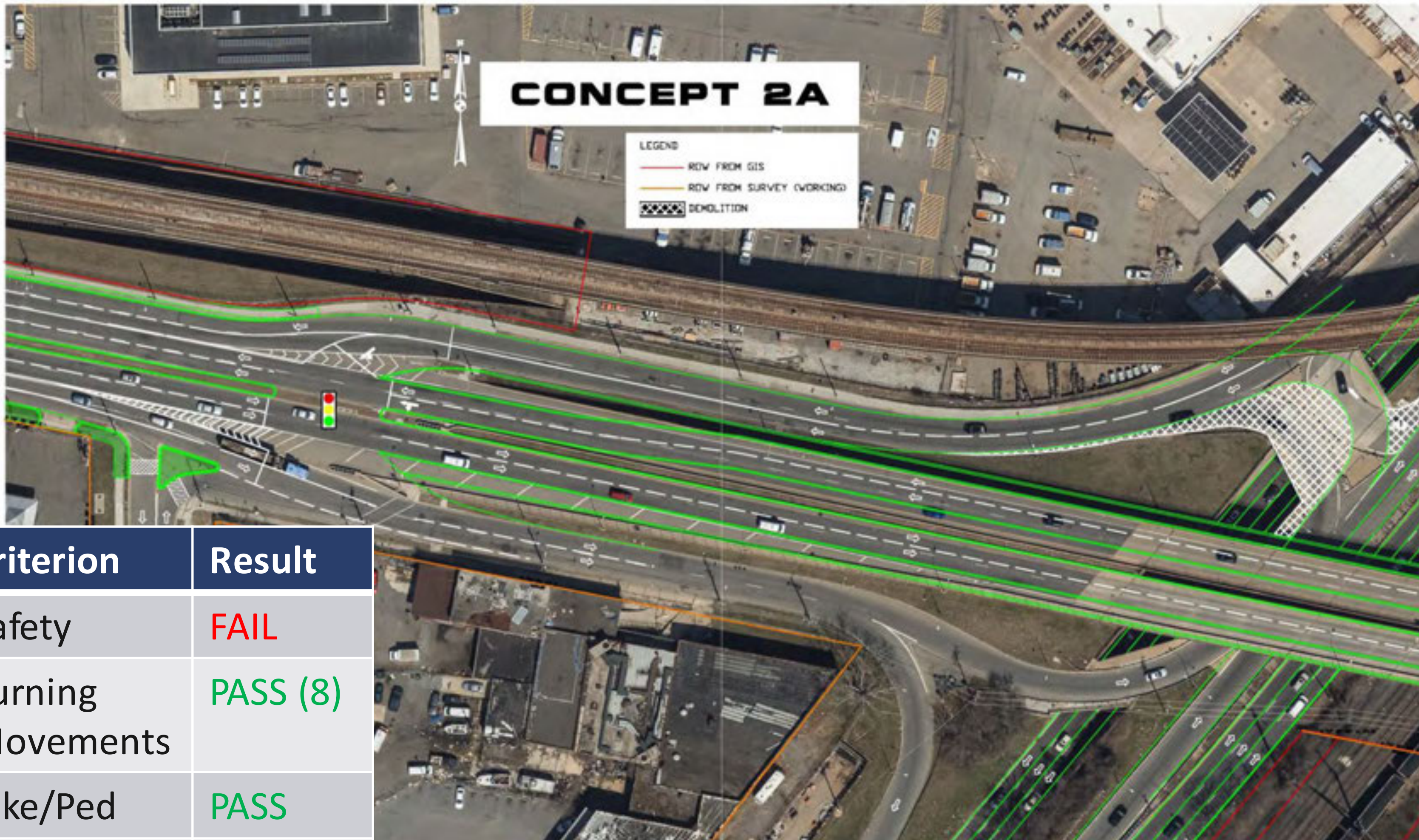
MURIEL BOWSER, MAYOR

# Concept 1: Two Ramps with Signalized Intersection


| Criterion | Result |
|---|---|
| Safety | PASS |
| Turning Movements | PASS (8) |
| Bike/Ped | PASS |
| Capacity | FAIL |
| ROW | PASS |

# Concept 2A: New Intersection West of DC-295




| Criterion | Result |
|---|---|
| Safety | FAIL |
| Turning Movements | PASS (8) |
| Bike/Ped | PASS |
| Capacity | FAIL |
| ROW | PASS |

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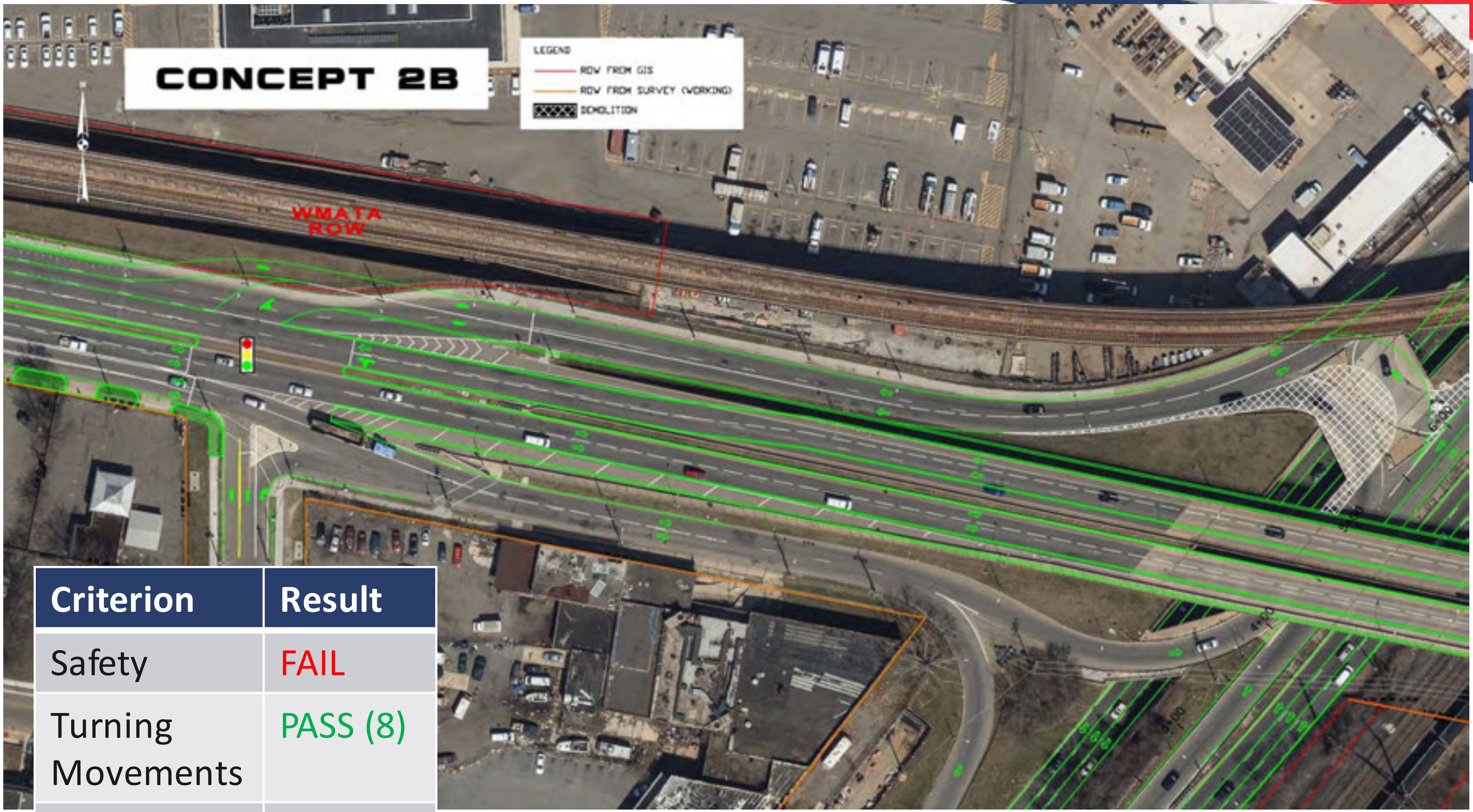
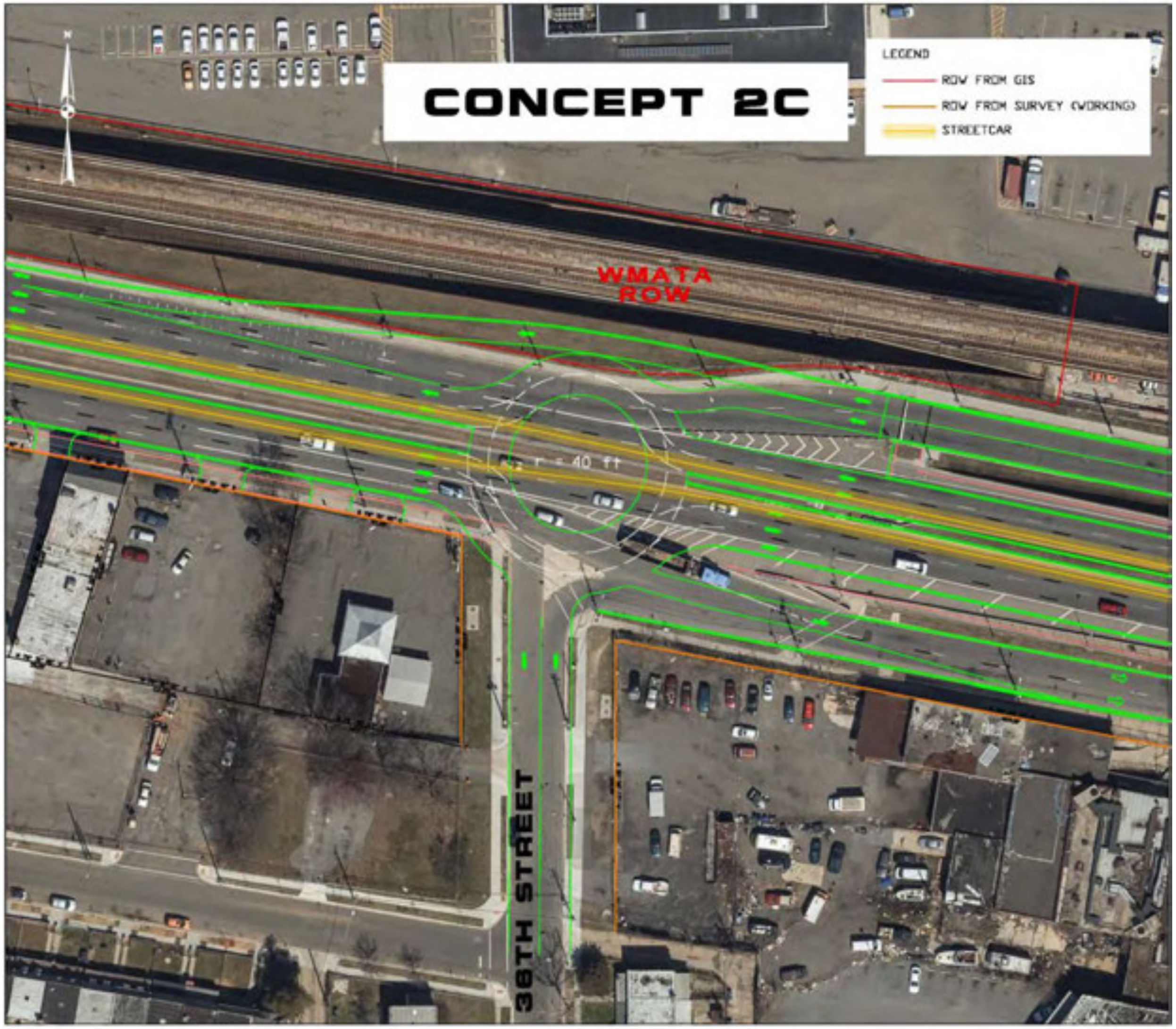
DC MURIEL BOWSER, MAYOR

# Concept 2B: New Intersection, Aligned with 36th St.



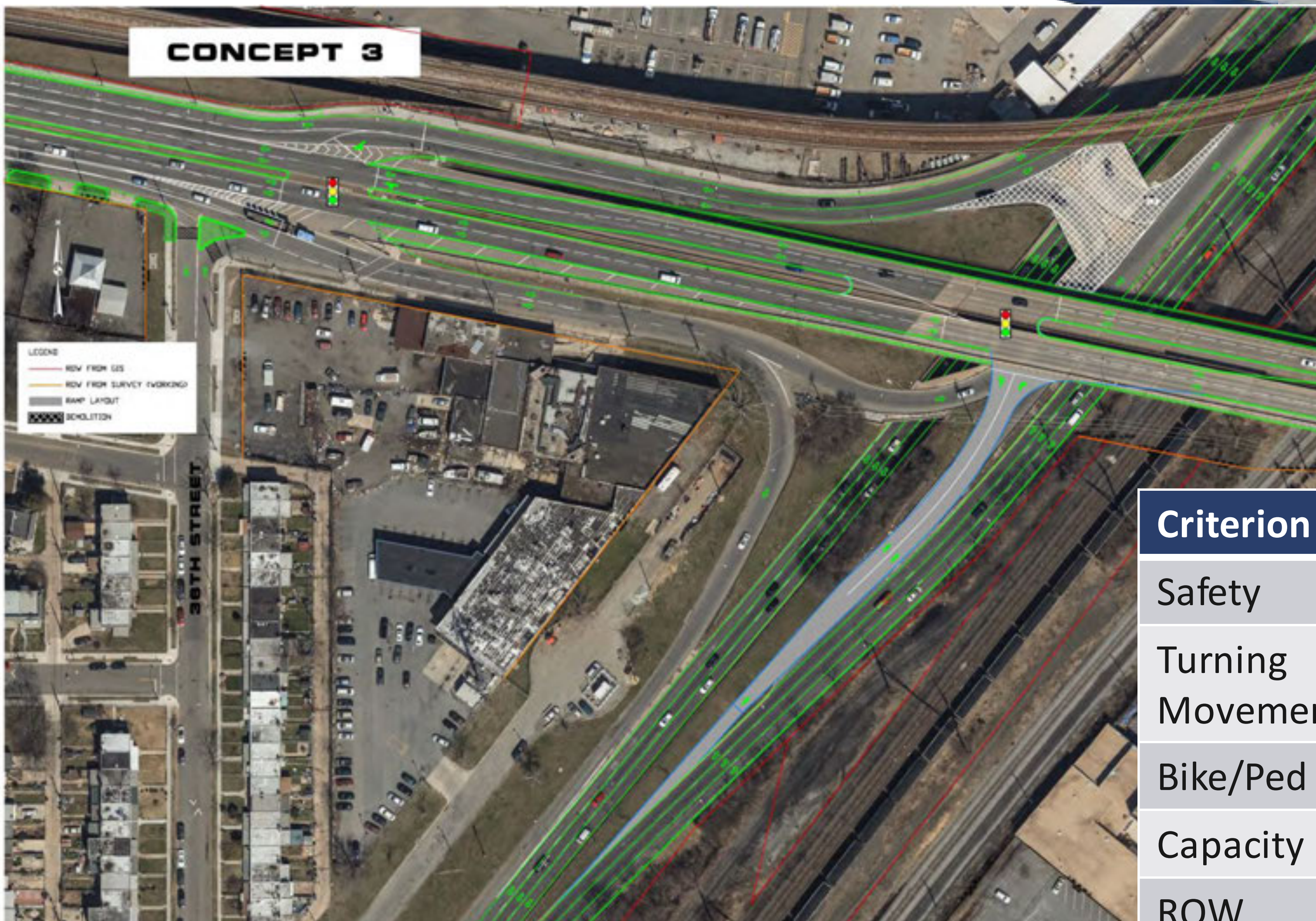

| Criterion | Result |
|---|---|
| Safety | FAIL |
| Turning Movements | PASS (8) |
| Bike/Ped | PASS |
| Capacity | FAIL |
| ROW | PASS |

# Concept 2C: Roundabout



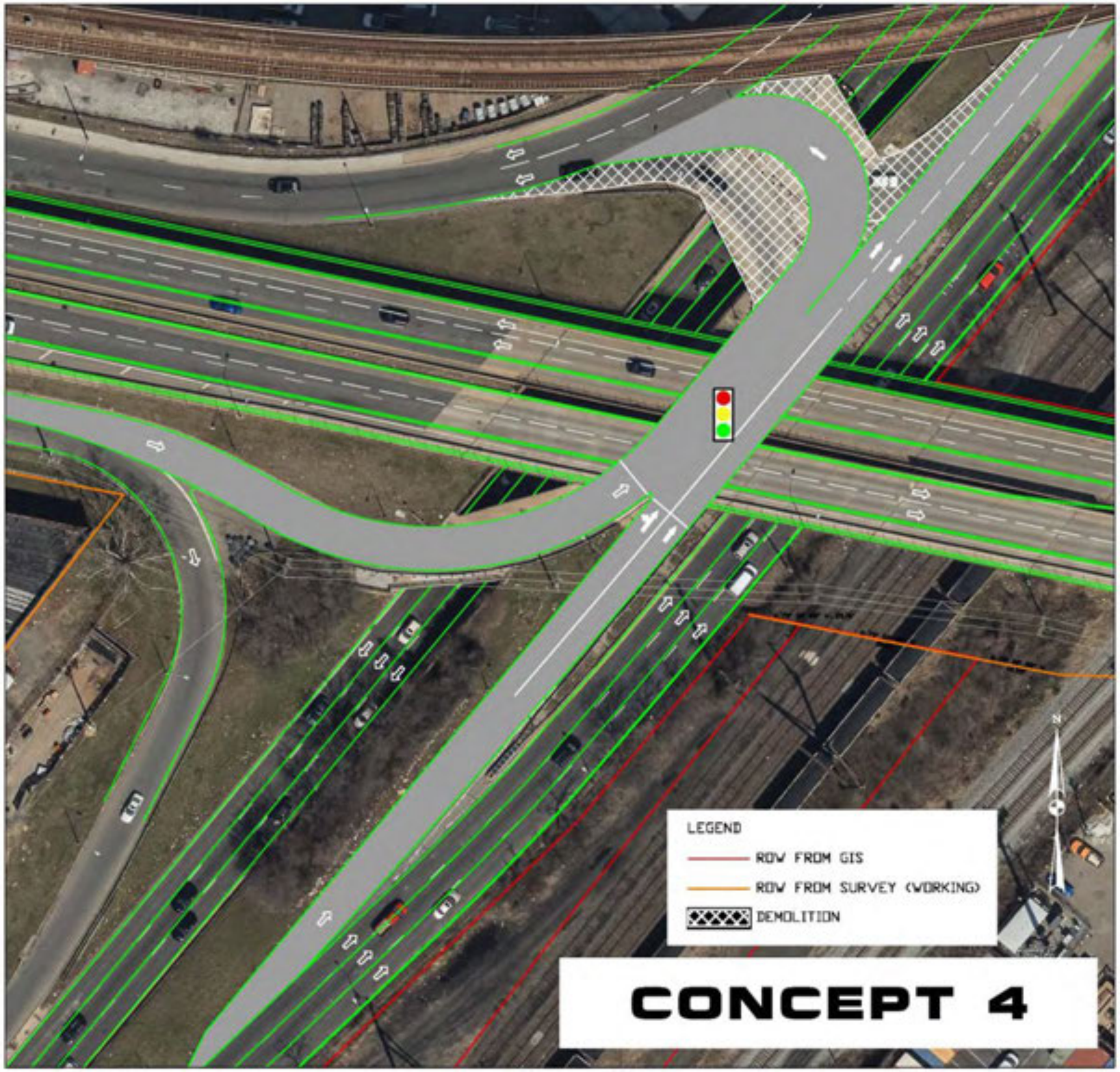

| Criterion | Result |
|---|---|
| Safety | PASS |
| Turning Movements | PASS (8) |
| Bike/Ped | PASS |
| Capacity | FAIL |
| ROW | PASS |

# Concept 3: Three-Legged Intersection



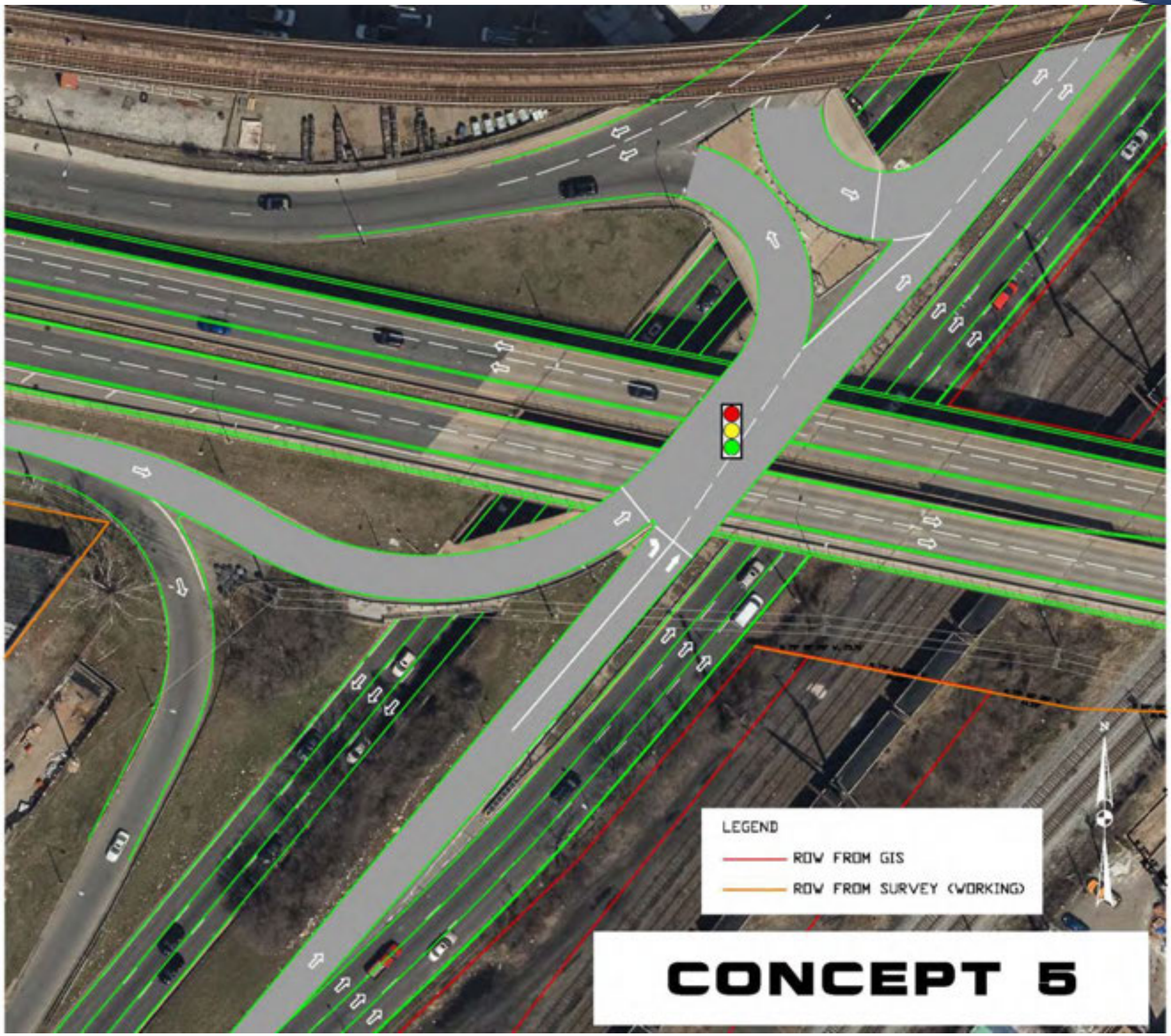

| Criterion | Result |
| --- | --- |
| Safety | PASS |
| Turning Movements | PASS (8) |
| Bike/Ped | PASS |
| Capacity | FAIL |
| ROW | PASS |

# Concept 4: Remove one Existing Ramp




| Criterion | Result |
|---|---|
| Safety | FAIL |
| Turning Movements | FAIL (3) |
| Bike/Ped | PASS |
| Capacity | FAIL |
| ROW | PASS |

# Concept 5: Update Three Ramps

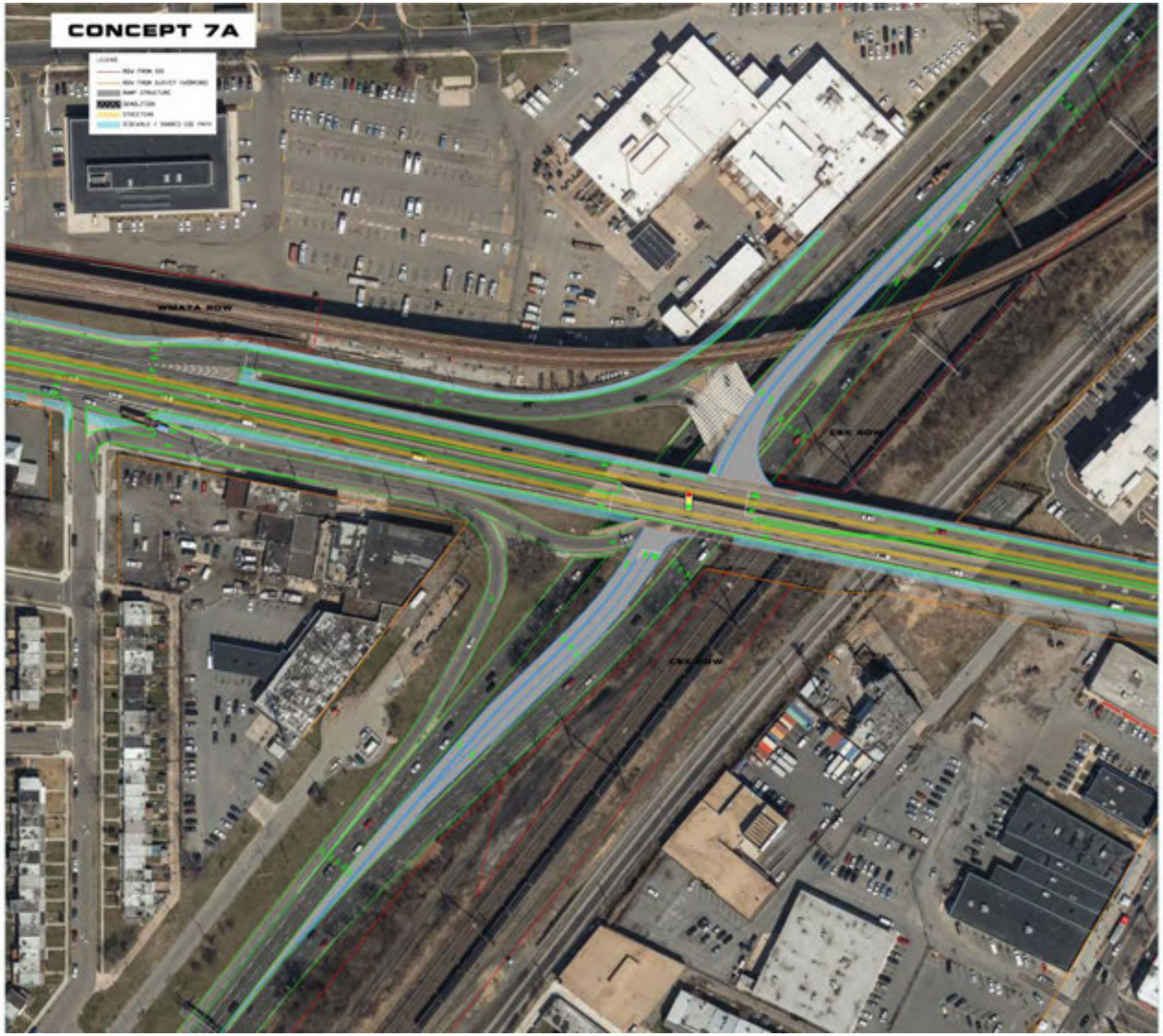



| Criterion | Result |
|---|---|
| Safety | FAIL |
| Turning Movements | PASS (4) |
| Bike/Ped | PASS |
| Capacity | FAIL |
| ROW | PASS |

# Concept 6: Extend Kenilworth Avenue

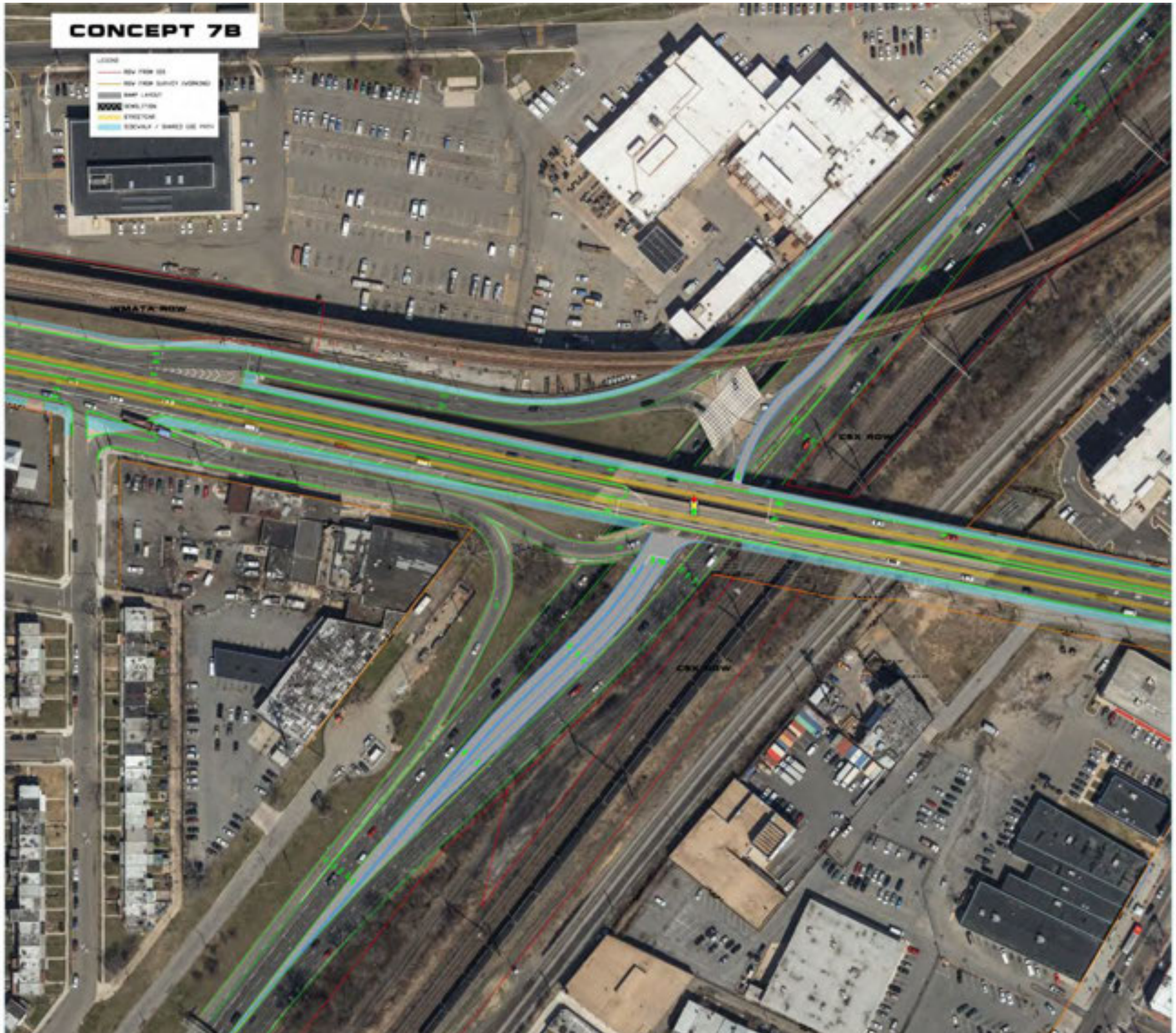

| Criterion | Result |
|---|---|
| Safety | PASS |
| Turning Movements | FAIL (1) |
| Bike/Ped | PASS |
| Capacity | FAIL |
| ROW | PASS |

# Concept 7A:



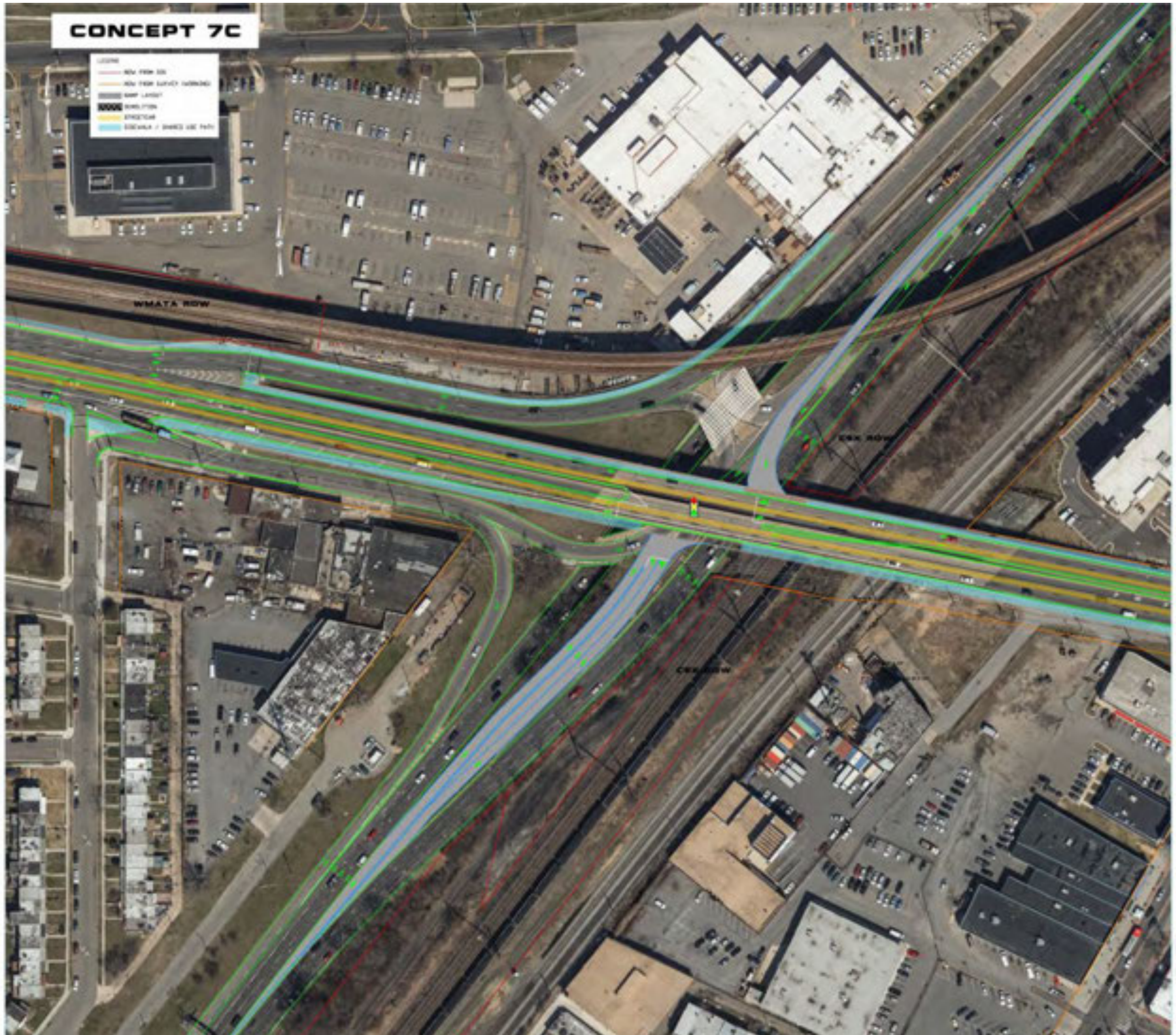

| Criterion | Result |
|---|---|
| Safety | FAIL |
| Turning Mov'ts | PASS (8) |
| Bike/Ped | PASS |
| Capacity | PASS (ramp intersection) FAIL (freeway merge) |
| ROW | PASS |

# Concept 7B:




| Criterion | Result |
|---|---|
| Safety | PASS |
| Turning Movements | PASS (7-8) |
| Bike/Ped | PASS |
| Capacity | FAIL |
| ROW | PASS |

# Concept 7C:




| Criterion | Result |
|---|---|
| Safety | PASS |
| Turning Movements | PASS (7-8) |
| Bike/Ped | PASS |
| Capacity | FAIL |
| ROW | PASS |

# Next Steps

**Benning Road Reconstruction and Streetcar Project**

# Benning Road Reconstruction and Streetcar Project

NEPA and IMR Workshop Meeting Minutes

**Meeting Date: Wednesday, July 10, 2019**
Time: 10:00am – 12:00pm
Place: DDOT HQ, 4th Floor 55 M St. SE, Washington, DC 20003
Call-in 1.888.598.1409; Code - 8651869

| Attendees | |
|---|---|
| ***DDOT*** | ***Parsons Team*** |
| Robyn Jackson (RJ), Project Manager | Thomas Perry (TP), Project Manager |
| Kirti Purohit (KP), Environmental | Elizabeth “Liz” Hynes (EH), NEPA and IMR Lead |
| Julie Wilson (JW), Safety/Traffic Ops | Prakash Patel (PP), Civil/Roadway Lead |
| April Hall (AH1), ROW Policy Analyst | Adrienne Ameel, (AA) Traffic Lead |
| Yi Zhao (YZ), Traffic | Amir Hedayati (AH2), Bridge and Structures Lead |
| Diane Patterson (DP), Transportation Specialist | Jiaxin Tong (JT), Traffic |
| Edward Stollof (ES), Major Projects | Ronaldo “Nick” Nicholson (RN), VP |
| Tina Swain (TS), ROW | Raj Paradkar (RP), IMR Specialist |
| David Tackoor (DT), Team 4 Program Manager IPMD | Paul Elman (PE) |
| Jim Sebastian (JS), PSD | Paul Pattison (PP), Streetcar |
| | Kelly Hyland (KH), Civil/Roadway |
| **Other Attendees** | Sarah Knox (SK), Public Involvement |
| Alicia Rowe (AR), Jacobs | |
| Brett Ripkin (BR), Jacobs | |

1. Introductions and Roles
2. Safety Moment
    a. RJ briefed the group on evacuation procedures and restroom locations
3. Workshop Goals and Objectives
    a. Present interchange concepts and preliminary screening results
    b. Work together to tweak concepts that pass preliminary screening
4. IMR Overview
    a. Project-within-a-project – we are looking at potential modifications to bridges 104 (Benning Road/Kenilworth Ave Interchange – North Bridge) and 104-1 (Benning Road EB Ramp to DC-295 NB – South Bridge). We will complete an IMR and NEPA documentation to evaluate concepts and document the screening process that was used to determine the preferred alternative.
5. Purpose and Need/Screening Process
    a. Purpose
        - Improve mobility (including pedestrian and bicycle)
        - Improve safety (turning movements and bridge structure)
    b. Needs
        - Correct turning radius deficiencies on existing ramps

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- Lengthen merge and weave areas
- Increase deceleration/acceleration distance on-/off-ramps
- Provide safe pedestrian/bike crossing(s)
- Maintain/improve structural integrity of bridges 104 and 104-1
- Increase number of movements at the interchange to provide connectivity to the east

c. Screening process
  i. Two-step process:
    1. Step 1: qualitative and pass/fail screening of preliminary concepts
    2. Step 2: quantitative screening of the alternatives that pass Step 1
  ii. Screening criteria are driven by purpose and need
    - Pass/Fail criteria include:
    - Safety: Does the alternative degrade safety?
    - Turning Movements: Does the alternative reduce the number of movements between Benning Road and DC-295?
    - Bike/Ped: Does the alternative accommodate bicycle and pedestrian movements?
    - Capacity: Does the alternative meet the future 2045 traffic demands?
    - ROW: Does the alternative result in right-of-way impacts to CSX property or facilities? Does it impact the WMATA viaduct?
  iii. Other criteria include:
    - Engineering/Constructability
    - Construction Duration
    - Construction Cost
    - Environmental and Community Effects

6. IMR Concepts and Screening Results (see Attachments C-G)
  a. PP walked through existing interchange conditions and the No Build alternative (with reconstructed Bridge 503 and streetcar tracks)
  b. AA presented existing (2019) and future (2045) traffic volumes (see Attachment B)
    i. Two major movements to pay attention to:
      - Eastbound Benning Road to Northbound DC-295, PM Peak Period
      - Southbound DC-295 to Westbound Benning Road PM Peak Period

      Both movements currently run free-flow due to the high volumes and will need to continue to run free-flow in the future with the growth projected, even though there are existing signals at both ramps/Benning Road merge.
    ii. Relatively few vehicles make the Southbound to Northbound movement.
    iii. 2045 results have not been fully calibrated – these are just preliminary numbers for the purposes of high-level, qualitative screening.
    iv. Preliminary 2045 future traffic projections show Benning Road with a 0.7% increase per year.

v. Traffic counts were taken the first two weeks when school and Congress were both in session. Due to some issues with cameras stolen in the field, additional counts were collected the week of April 29, 2019.

c. PP, AA, KH, and EH walked through each concept, highlighting pros and cons of each and how the concept performed against the pass/fail screening criteria.

d. RJ noted that we should still advance alternatives that fail on the vehicle capacity criterion if they improve bicycle/pedestrian capacity and/or safety.

e. Concept 1: N/S Mainline Ramps – Discussion
   - i. Fatal flaw is the new traffic signal on Bridge 503 – needs to be free-flow movement to handle the existing and future traffic projections.
   - ii. WMATA viaduct clearance is also an issue – NN asked what the minimum vertical clearance requirement is, given that DC-295 is not an interstate at this location.

f. Concept 2A: New Intersection East of 36th Street – Discussion
   - i. Fails safety criterion due to double U-turn, which is not allowed per Vision Zero.
   - ii. With the addition of the traffic signal at the intersection of 36th Street NE and Benning Road, the concept does provide pedestrian connectivity across Benning Road. Currently this connect does not exist.
   - iii. RJ also noted that the Riverside community frequently complains about the illegal U-turn at 34th Street NE.

g. Concept 2B: New Intersection at 36th Street – Discussion
   - i. Similar issues as 2A
   - ii. Almost need a separate traffic signal for pedestrians
   - iii. Close to WMATA ROW/easement

h. Concept 2C: New Roundabout at 36th Street – Discussion
   - i. Would have to be signalized to run streetcar through it, which causes it to fail on the capacity criterion
   - ii. The roundabout will cause traffic to slow down and will accommodate pedestrians
   - iii. The group discussed if grade separating streetcar from vehicles/bikes/pedestrians is possible – the Parsons team will develop and evaluate this concept
   - iv. Encroachment on to WMATA ROW/easement

i. Concept 3: Southside Off Ramp/New Intersection – Discussion
   - i. Fatal flaw is the one-lane Southbound to Westbound movement at the intersection of 36th Street NE

j. Concept 4: Ramp Metering/Signal (Underneath Bridge 503) + Modified Ramps – Discussion
   - i. RP asked if the two lanes can merge
   - ii. The Parsons team will fix striping, so it's not used as a bypass lane

k. Concept 5: Ramp Metering/Signal (Underneath Bridge 503) + Existing Ramps – Discussion
   - i. Same comments as Concept 4

l. Concept 6: Extended CD Road/Southbound Kenilworth Avenue (from Nannie Helen Borough Avenue interchange to East Capitol Street Interchange and provide N/S Mainline Ramps – not shown) – Discussion
    i. Fatal flaw is the decrease in turning movements from existing condition – does not meet purpose and need

m. Concept 7A: N/S Two-Way Ramps + Existing Eastbound-Northbound Ramp – Discussion
    i. Safety issue with merging existing Eastbound to Northbound movements with new Westbound to Northbound movements onto DC-295 Northbound
    ii. Would need to design it so we can prevent the Southbound to Westbound right turn movement

n. Concept 7B: S Two-Way Ramp/N Southbound-Eastbound Ramp + Existing Eastbound-Northbound Ramp – Discussion
    i. Eliminates concept 7A concern about Southbound to Westbound right turn
    ii. But fails on safety due to Southbound merge and weave
    iii. RJ asked the Parsons team to look at ramping to the west of where the northside ramp is currently shown, so that the ramp starts at a lower grade

o. Concept 7C: S Two-Way Ramp/N Westbound-Northbound Ramp + Existing Eastbound-Northbound Ramp – Discussion
    i. Similar to Concept 7B, except for Westbound to Northbound movement
    ii. Fails on safety due to dual merge

p. Concept 7D: S Northbound-Westbound/Eastbound Ramp + Existing Eastbound-Northbound Ramp – Discussion
    i. Will need to confirm that the sliver of land adjacent to CSX tracks is indeed DDOT property
    ii. Correct matrix to show that this passes on safety
    iii. This is a new concept, and the traffic analysis is not yet complete

q. Concept 8: Modified Northbound Mainline (reduced NB DC-295 from 3-lanes to 2-Lanes, north of East Capitol Street)– Discussion
    i. New concept – no traffic analysis completed yet
    ii. Need to test the E. Capitol Street to NB DC-295 weave to make sure it works
    iii. If we make changes to the E. Capitol Street interchange, DDOT would need to revise the IMR scope of the Benning Road Reconstruction and Streetcar project to expand study area down to Pennsylvania Avenue. Since both the E. Capitol Street interchange and the Pennsylvania Avenue interchange are part of a separate DDOT study, there may be a better version of this concept (perhaps by combining it with Concept 7D).

r. Other concepts to develop
    i. Grade-separated roundabout at 36th Street (see 6.h. above).
    ii. 7D/8 combo (see 6.q. above).

7. Next Steps
    a. Parsons team to update/develop concepts as noted above

   b. Parsons team to separate the capacity criterion into two separate criteria: multi-modal capacity on Benning Road, and vehicle capacity on DC-295.
   c. DDOT to review and provide feedback on the concepts presented today.

8. Attachments:
   - Attachment A: Presentation
   - Attachment B: 2019 and 2045 Traffic Volumes
   - Attachment C: Existing Conditions and No Build
   - Attachment D: Combined concepts (1, 2A, 2B, 2C, 3, 4, 5, 6, 7A, 7B, 7C, and 7D) except Concept 8
   - Attachment E: Benning Road NB Aux Lane - Concept 8 with Lane Configuration Markup (incorrectly labeled 7A)
   - Attachment F: Concept Memo - Narrative
   - Attachment G: Screening Matrix
   - Attachment H: Meeting Sign-In Sheet

**Meeting Date: Wednesday, July 10, 2019**
Time: 10:00am – 12:00pm
Place: DDOT HQ, 4th Floor 55 M St. SE, Washington, DC 20003
Call-in 1.888.598.1409; Code - 8651869

## ATTACHMENT A:
## Presentation

**Meeting Date: Wednesday, July 10, 2019**
Time: 10:00am – 12:00pm
Place: DDOT HQ, 4th Floor 55 M St. SE, Washington, DC 20003
Call-in 1.888.598.1409; Code - 8651869

# ATTACHMENT B
# 2019 and 2045 Traffic Volumes

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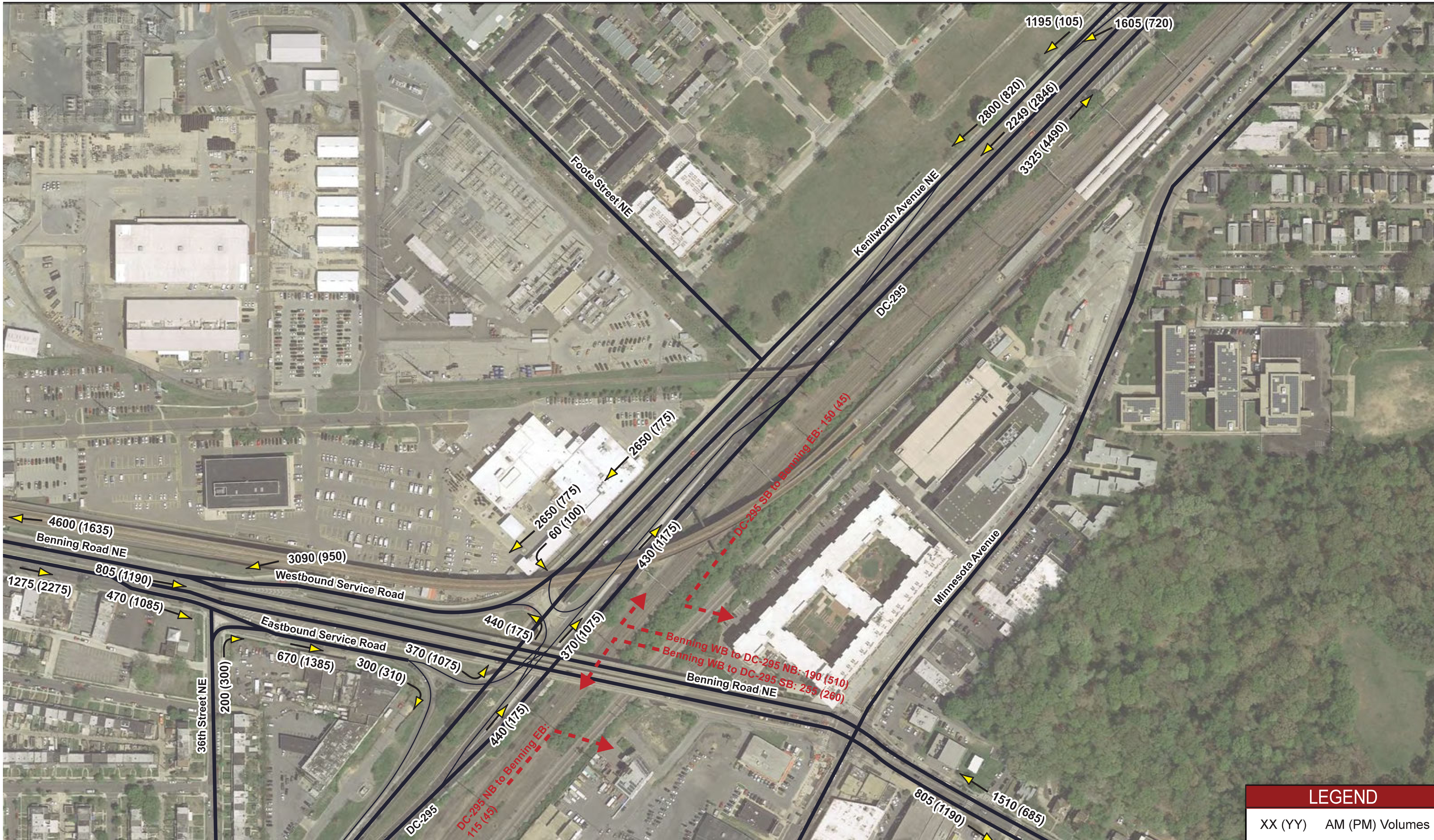
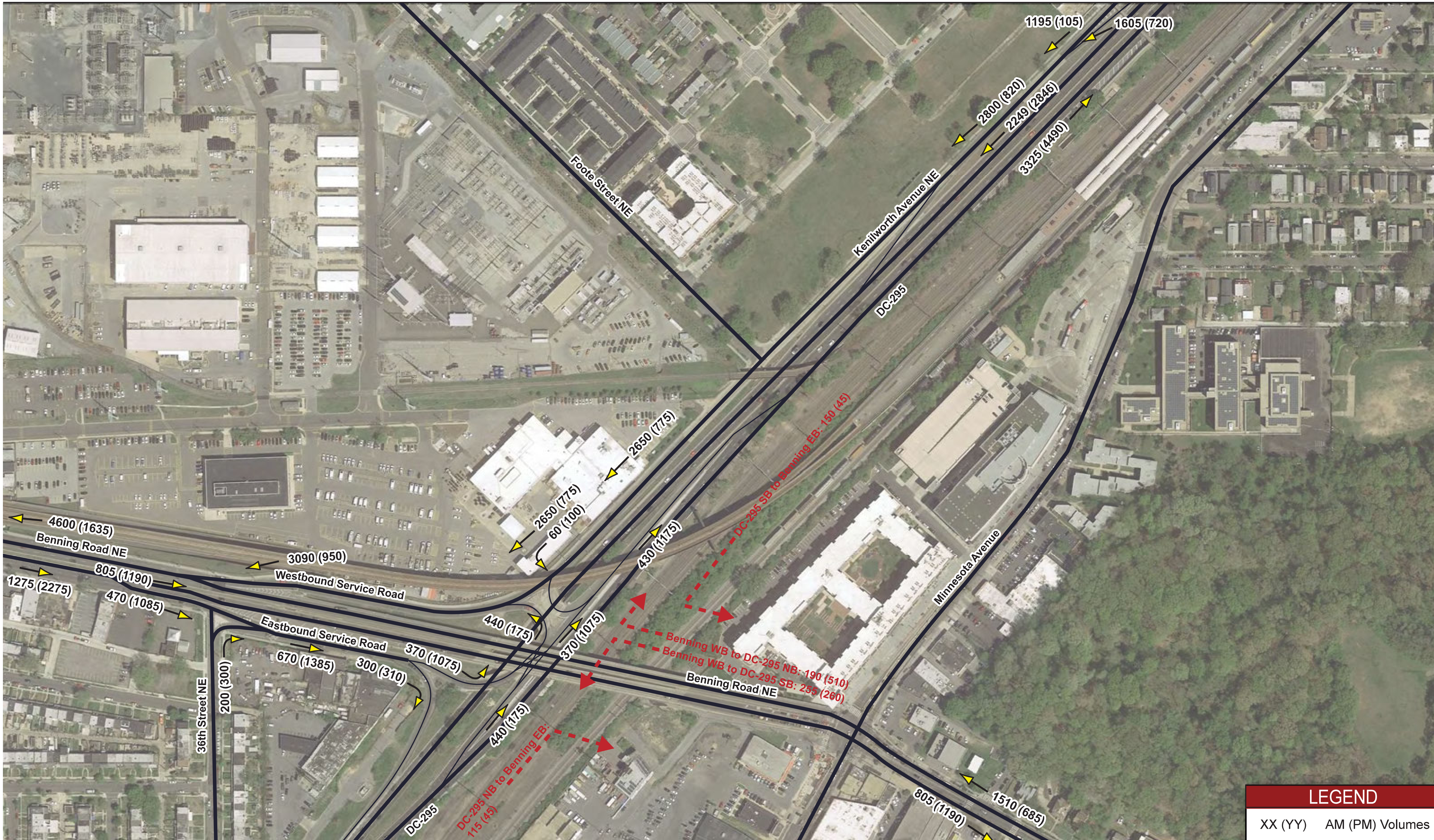



Kimley»Horn

Exhibit 2

*Future (2045) Peak-Hour Traffic Volumes*




Kimley»Horn

Exhibit 2

*Future (2045) Peak-Hour Traffic Volumes*

**Meeting Date: Wednesday, July 10, 2019**
Time: 10:00am – 12:00pm
Place: DDOT HQ, 4th Floor 55 M St. SE, Washington, DC 20003
Call-in 1.888.598.1409; Code - 8651869

# ATTACHMENT C
# Existing Conditions and No Build

**Meeting Date: Wednesday, July 10, 2019**
Time: 10:00am – 12:00pm
Place: DDOT HQ, 4th Floor 55 M St. SE, Washington, DC 20003
Call-in 1.888.598.1409; Code - 8651869

## ATTACHMENT D
## Combined Concepts (except Concept 8)

**Meeting Date: Wednesday, July 10, 2019**
Time: 10:00am – 12:00pm
Place: DDOT HQ, 4th Floor 55 M St. SE, Washington, DC 20003
Call-in 1.888.598.1409; Code - 8651869

# ATTACHMENT E
# Benning Road NB Aux Lane - Concept 8 with Lane Configuration Markup (incorrectly labeled 7A)

**Meeting Date: Wednesday, July 10, 2019**
Time: 10:00am – 12:00pm
Place: DDOT HQ, 4th Floor 55 M St. SE, Washington, DC 20003
Call-in 1.888.598.1409; Code - 8651869

# ATTACHMENT F
# Concept Memo - Narrative

**Meeting Date: Wednesday, July 10, 2019**
Time: 10:00am – 12:00pm
Place: DDOT HQ, 4th Floor 55 M St. SE, Washington, DC 20003
Call-in 1.888.598.1409; Code - 8651869

# ATTACHMENT G
# Screening Matrix

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# Attachment A - Screening Matrix DRAFT

| Alt # | Alternative Description | Comparative Evaluation Criteria | | | | | | | | | | | | Pros/Cons Summary |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Engineering/ Constructability | Safety | ROW/Property Requirements | | Turning Movements | Construction Duration | Construction Cost | Accomodates Bike/Ped? | Capacity/Operational Analysis | Environmental and Community Effects/Implications | | | |
| | **Preliminary Screen 1 (Qualitative) Evaluation:** | ● Easily implemented<br>● Feasible, but complex<br>● Not feasible | Does the alternative degrade safety? (Pass/Fail) | Does the alternative result in right-of-way impacts to CSX property or facilities? (Pass/Fail) | Does the alternative impact the WMATA viaduct? (Pass/Fail) | Does the alternative reduce the number of movements between Benning Road and DC-295? (Pass/Fail) | ● < 1 year<br>● 1-2 years<br>● > 2 years | Qualitative Cost Description (High/Medium/ Low) | Does the alternative accommodate bicycle and pedestrian movements? (Pass/Fail) | Does the alternative meet the future 2045 traffic demands? (Pass/Fail) | ● Benefit or no impact to community/environment<br>● Minor impact to community/environment<br>● Significant impact to community/environment | | | |
| | **Final Screen 2 (Quantitative) Evaluation:** | 3 = Easily implemented<br>2 = Feasible, but complex<br>1 = Not feasible | 3 = Eliminate current safety concerns<br>2 = No change<br>1 = Introduce additional safety concerns | 3 = No property required<br>2 = < x acres or y properties<br>1 = ≥ x acres or y properties (or requires a complex transaction) | | 3 = Alternative provides 7-9 turning movements<br>2 = Alternative provides 5-6 turning movements<br>1 = Alternative provides 4 turning movements | 3 = < 1 year<br>2 = 1-2 years<br>1 = > 2 years | 3 = < \$x<br>2 = \$x-\$y<br>1 = \$>y | 3 = Improves Bike/ped facilities and connections<br>2 = No change to bike/ped facilities and connections<br>1 = Degrades bike/ped facilities and connections | 3 = Alternative provides acceptable operations<br>2 = Alternative provides acceptable operations except for some movements<br>1 = Additional mitigations needed to address fatal flaws in operations | 3 = Benefit or no EJ impact<br>2 = Minor EJ impact<br>1 = Significant negative EJ impact | 3 = Improves access to/from surrounding neighborhoods<br>2 = No change in access to/from surrounding neighborhoods<br>1 = Degrades access to/from surrounding neighborhoods | 3 = Benefit or no impact to environmental resources (including §4(f)/§106)<br>2 = Minor impact to environmental resources<br>1 = Significant negative impact to environmental resources | |
| | **Weighting: (∑a%+b%+…+k% = 100%)** | a% | b% | c% | | d% | e% | f% | g% | h% | i% | j% | k% | |
| Concept 1 | Two bi-directional ramp structures will be constructed to connect Benning Road and DC-295 to create a signalized intersection at the Benning Road level on the Whitlock Bridge. Each ramp will include a single on-ramp lane and a single off-ramp lane diverging into a dedicated left-turn and right-turn lane. Eastbound right turns to southbound DC-295 will not be permitted, while westbound right turns to northbound DC-295 will be permitted using a shared through lane. This concept includes the removal of all existing ramps to and from northbound DC-295 except the on-ramp to southbound DC-295, and it eliminates the weave maneuver to and from DC-295. | Feasible, but complex | Pass | Pass | Pass | Pass (8) | > 2 years | High | Pass | Fail | Minor impact to community/environment | | | Pros:<br>- Provides full access to and from Benning Road and DC-295 by constructing an intersection at the Benning Road level on Whitlock Bridge.<br>- Eliminate existing weave<br><br>Cons:<br>- Result in significant delay and queuing at the ramp intersection by bringing all the movements to a single junction. |
| Concept 2A | A new signalized intersection will be installed on Benning Road west of DC-295, just east of 36th Street. This concept reduces the westbound lanes of the service road entering Benning Road from Kenilworth Avenue to a single lane and allows for U-turns to eastbound Benning Road and eastbound on ramps to both directions of DC-295. The on ramp to northbound DC-295 from Kenilworth Avenue will be eliminated, while the off ramp to Kenilworth Avenue will be realigned to increase weaving distance. | Easily implemented | Fail | Pass | Pass | Pass (9) | < 1 year | Low | Pass | Fail | Minor impact to community/environment | | | Pros:<br>- Provides full access to and from Benning Road and DC-295 by allowing U-turns from the westbound Benning Road and westbound service road to eastbound Benning Road and its service road via a single U-turn lane.<br>- Eliminate existing weave<br><br>Cons:<br>- A one-lane service road to westbound Benning Road and a single U-turn lane to eastbound Benning Road and its service road are not sufficient to carry 2045 traffic volumes. |
| Concept 2B | A new signalized intersection will be installed on Benning Road west of DC-295 at 36th Street, which will require the use of WMATA right-of-way. This concept reduces the westbound lanes of the service road entering Benning Road from Kenilworth Avenue to a single lane, allows for U-turns to eastbound Benning Road and eastbound on ramps to DC-295, and adds northbound left-turn movement from 36th Street. The on ramp to northbound DC-295 from Kenilworth Avenue will be eliminated, while the off ramp to Kenilworth Avenue will be realigned to increase weaving distance. | Easily implemented | Fail | Pass | Pass (property required, but does not impact viaduct) | Pass (9) | < 1 year | Low | Pass | Fail | Minor impact to community/environment | | | Pros:<br>- Provides full access to and from Benning Road and DC-295 by allowing U-turns from the westbound Benning Road and westbound service road to eastbound Benning Road and its service road via a single U-turn lane.<br>- Eliminate existing weave<br>- Northbound traffic from 36th Street will be able to access westbound Benning Road, increasing access to and from the neighboring area.<br><br>Cons:<br>- A one-lane service road to westbound Benning Road and a single U-turn lane to eastbound Benning Road and its service road are not sufficient to carry 2045 traffic volumes.<br>- The additional traffic signal phase necessary to carry northbound 36th Street traffic will likely worsen traffic operations. |

# Attachment A - Screening Matrix DRAFT

| Alt # | Alternative Description | Comparative Evaluation Criteria: Engineering/ Constructability | Safety | ROW/Property Requirements | | Turning Movements | Construction Duration | Construction Cost | Accomodates Bike/Ped? | Capacity/Operational Analysis | Environmental and Community Effects/Implications | | | Pros/Cons Summary |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Preliminary Screen 1 (Qualitative) Evaluation: | ● Easily implemented<br>● Feasible, but complex<br>● Not feasible | Does the alternative degrade safety? (Pass/Fail) | Does the alternative result in right-of-way impacts to CSX property or facilities? (Pass/Fail) | Does the alternative impact the WMATA viaduct? (Pass/Fail) | Does the alternative reduce the number of movements between Benning Road and DC-295? (Pass/Fail) | ● < 1 year<br>● 1-2 years<br>● > 2 years | Qualitative Cost Description (High/Medium/ Low) | Does the alternative accommodate bicycle and pedestrian movements? (Pass/Fail) | Does the alternative meet the future 2045 traffic demands? (Pass/Fail) | ● Benefit or no impact to community/environment<br>● Minor impact to community/environment<br>● Significant impact to community/environment | | | |
| | Final Screen 2 (Quantitative) Evaluation: | 3 = Easily implemented<br>2 = Feasible, but complex<br>1 = Not feasible | 3 = Eliminate current safety concerns<br>2 = No change<br>1 = Introduce additional safety concerns | 3 = No property required<br>2 = < x acres or y properties<br>1 = ≥ x acres or y properties (or requires a complex transaction) | | 3 = Alternative provides 7-9 turning movements<br>2 = Alternative provides 5-6 turning movements<br>1 = Alternative provides 4 turning movements | 3 = < 1 year<br>2 = 1-2 years<br>1 = > 2 years | 3 = < $x<br>2 = $x-$y<br>1 = $>y | 3 = Improves Bike/ped facilities and connections<br>2 = No change to bike/ped facilities and connections<br>1 = Degrades bike/ped facilities and connections | 3 = Alternative provides acceptable operations<br>2 = Alternative provides acceptable operations except for some movements<br>1 = Additional mitigations needed to address fatal flaws in operations | 3 = Benefit or no EJ impact<br>2 = Minor EJ impact<br>1 = Significant negative EJ impact | 3 = Improves access to/from surrounding neighborhoods<br>2 = No change in access to/from surrounding neighborhoods<br>1 = Degrades access to/from surrounding neighborhoods | 3 = Benefit or no impact to environmental resources (including §4(f)/§106)<br>2 = Minor impact to environmental resources<br>1 = Significant negative impact to environmental resources | |
| | Weighting: (∑a%+b%+…+k% = 100%) | a% | b% | c% | | d% | e% | f% | g% | h% | i% | j% | k% | |
| Concept 2C | A multi-lane roundabout will be constructed on Benning Road west of DC-295 at 36th Street, which will require the use of WMATA right-of-way. This concept maintains two westbound lanes entering Benning Road from Kenilworth Avenue, allows access to eastbound Benning Road and eastbound on ramps to DC-295, and adds northbound movements from 36th Street. The on ramp to northbound DC-295 from Kenilworth Avenue will be eliminated, while the off ramp to Kenilworth Avenue will be realigned to increase weaving distance. | Easily implemented | Pass | Pass | Pass (property required, but does not impact viaduct) | Pass (9) | < 1 year | Low | Pass | Fail | Minor impact to community/environment | | | Pros:<br>- Provides full access to and from Benning Road and DC-295 via the multi-lane roundabout.<br>- Eliminate existing weave<br>- Northbound traffic from 36th Street will be able to access westbound Benning Road, increasing access to and from the neighboring area.<br><br>Cons:<br>- The proposed roundabout will not be able to accommodate estimated 2045 demand<br>- A one-lane free-flow service road to westbound Benning Road is not sufficient to carry 2045 traffic volumes. |
| Concept 3 | A new signalized intersection will be installed on Benning Road west of DC-295, just east of 36th Street. This concept reduces the westbound lanes entering Benning Road from Kenilworth Avenue to a single lane and allows for U-turns to eastbound Benning Road and eastbound on ramps to DC-295. Both existing ramps to and from northbound DC-295 and Kenilworth Avenue will be eliminated, while a ramp from northbound DC-295 to the Benning Road level on the Whitlock Bridge will be constructed. | Feasible, but complex | Pass | Pass | Pass | Pass (9) | 1-2 years | Medium | Pass | Fail | Minor impact to community/environment | | | Pros:<br>- Provides full access to and from Benning Road and DC-295 by allowing U-turns from the westbound Benning Road and westbound service road to eastbound Benning Road and its service road via a single U-turn lane.<br>- Eliminate existing weave<br><br>Cons:<br>- A one-lane service road to westbound Benning Road and a single U-turn lane to eastbound Benning Road and its service road are not sufficient to carry 2045 traffic volumes. |
| Concept 4 | The on ramp to northbound DC-295 from Kenilworth Avenue will be eliminated, while the off ramp to Kenilworth Avenue will be realigned. A traffic signal will be installed at the existing weave section between the eastbound Benning Road on ramp and the off ramps from northbound DC-295 to control the conflicting movements. No additional access to or from Benning Road and DC-295 will be provided. | Easily implemented | Fail | Pass | Pass | Fail (3) | < 1 year | Low | Pass | Fail | Significant impact to community/environment (visual, noise, degrades access to/from surrounding neighborhoods) | | | Pros:<br>- Eliminate existing weave<br><br>Cons:<br>- Signalization at the existing weaving junction will result in significant delay and queuing to eastbound Benning Road ramp<br>- No additional access is provided |
| Concept 5 | A traffic signal will be installed at the existing weave section between the eastbound Benning Road on ramp and the off ramps from northbound DC-295. No additional access to or from Benning Road and DC-295 will be provided, and all existing on and off ramps will be maintained. | Easily implemented | Fail | Pass | Pass | Pass (4) | < 1 year | Low | Pass | Fail | Significant impact to community/environment (visual, noise) | | | Pros:<br>- Eliminate existing weave<br><br>Cons:<br>- Signalization at the existing weaving junction will result in significant delay and queuing to eastbound Benning Road ramp<br>- No additional access is provided |
| Concept 6 | Continuous CD Road/Extended SB Keneilworth Avenue Between Nannie Helen Burroughs Ave to East Capitol Street | Feasible, but complex | Pass | Pass | Pass | Fail (2) | > 2 years | High | Pass | - | Significant impact to community/environment (visual, noise, degrades access to/from surrounding neighborhoods) | | | Pros:<br>- Eliminate existing weave<br><br>Cons:<br>- Reduce existing access |

**Attachment A - Screening Matrix DRAFT**

| Alt # | Alternative Description | Comparative Evaluation Criteria | | | | | | | | | | | | Pros/Cons Summary |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Engineering/ Constructability | Safety | ROW/Property Requirements | | Turning Movements | Construction Duration | Construction Cost | Accomodates Bike/Ped? | Capacity/Operational Analysis | Environmental and Community Effects/Implications | | | |
| | Preliminary Screen 1 (Qualitative) Evaluation: | ● Easily implemented<br>● Feasible, but complex<br>● Not feasible | Does the alternative degrade safety? (Pass/Fail) | Does the alternative result in right-of-way impacts to CSX property or facilities? (Pass/Fail) | Does the alternative impact the WMATA viaduct? (Pass/Fail) | Does the alternative reduce the number of movements between Benning Road and DC-295? (Pass/Fail) | ● < 1 year<br>● 1-2 years<br>● > 2 years | Qualitative Cost Description (High/Medium/ Low) | Does the alternative accommodate bicycle and pedestrian movements? (Pass/Fail) | Does the alternative meet the future 2045 traffic demands? (Pass/Fail) | ● Benefit or no impact to community/environment<br>● Minor impact to community/environment<br>● Significant impact to community/environment | | | |
| | Final Screen 2 (Quantitative) Evaluation: | 3 = Easily implemented<br>2 = Feasible, but complex<br>1 = Not feasible | 3 = Eliminate current safety concerns<br>2 = No change<br>1 = Introduce additional safety concerns | 3 = No property required<br>2 = < x acres or y properties<br>1 = ≥ x acres or y properties (or requires a complex transaction) | | 3 = Alternative provides 7-9 turning movements<br>2 = Alternative provides 5-6 turning movements<br>1 = Alternative provides 4 turning movements | 3 = < 1 year<br>2 = 1-2 years<br>1 = > 2 years | 3 = < $x<br>2 = $x-$y<br>1 = $>y | 3 = Improves Bike/ped facilities and connections<br>2 = No change to bike/ped facilities and connections<br>1 = Degrades bike/ped facilities and connections | 3 = Alternative provides acceptable operations<br>2 = Alternative provides acceptable operations except for some movements<br>1 = Additional mitigations needed to address fatal flaws in operations | 3 = Benefit or no EJ impact<br>2 = Minor EJ impact<br>1 = Significant negative EJ impact | 3 = Improves access to/from surrounding neighborhoods<br>2 = No change in access to/from surrounding neighborhoods<br>1 = Degrades access to/from surrounding neighborhoods | 3 = Benefit or no impact to environmental resources (including §4(f)/§106)<br>2 = Minor impact to environmental resources<br>1 = Significant negative impact to environmental resources | |
| | Weighting:<br>(∑a%+b%+...+k% = 100%) | a% | b% | c% | | d% | e% | f% | g% | h% | i% | j% | k% | |
| Concept 7A | Two bi-directional ramp structures will be constructed to connect Benning Road and DC-295 to create a signalized intersection at the Benning Road level on the Whitlock Bridge. The north-facing ramp will include a single on-ramp lane to northbound DC-295 and a single off-ramp lane from southbound DC-295 that becomes a dedicated left turn lane to eastbound Benning Road (right-turn prohibited). The south-facing ramp will include a single on-ramp lane to southbound DC-295 and a single off-ramp lane from northbound DC-295 that diverges into a dedicated left turn lane and a shared left/right turn lane. Eastbound right turns to southbound DC-295 will not be permitted, while westbound right turns to northbound DC-295 will be permitted using a shared through lane. This concept includes the removal of the two existing ramps to and from Kenilworth Avenue, and it eliminates the weave maneuver to and from DC-295. | Feasible, but complex | Fail | Pass | Pass | Pass (8) | > 2 years | High | Pass | Pass (ramp intersection) | Minor impact to community/environment | | | Pros:<br>- Provides full access to and from Benning Road and DC-295 by a combination of added ramp structures and existing ramps.<br>- Keep high-demand movements (e.g., eastbound Benning Road to northbound DC-295, southbound DC-295 to westbound Benning Road) off the signalized ramp intersection by using existing ramps<br>- Eliminate existing weave<br><br>Cons:<br>- Reducing eastbound Benning Road exit to DC-295 to one lane may create a bottleneck based on the current and future volumes.<br>- Design exception for the north-facing bi-directional ramps due to grade above 9%<br>- Introducing merges from both sides of freeway on southbound DC-295<br>- Introducing back-to-back short merge on northbound DC-295 |
| Concept 7B | A single-lane off-ramp structure and a bi-directional ramp structure will be constructed to connect Benning Road and DC-295 to create a signalized intersection at the Benning Road level on the Whitlock Bridge. The north-facing ramp will include a single off-ramp lane from southbound DC-295 that becomes a dedicated left turn lane to eastbound Benning Road (right-turn prohibited). The south-facing ramp will include a single on-ramp lane to southbound DC-295 and a single off-ramp lane from northbound DC-295 that diverges into a dedicated left turn lane and a shared left/right turn lane. Eastbound right turns to southbound DC-295 will not be permitted. This concept includes the removal of the two existing ramps to and from Kenilworth Avenue, and it eliminates the weave maneuver to and from DC-295. | Feasible, but complex | Fail | Pass | Pass | Pass (7) | > 2 years | High | Pass | Pass (ramp intersection) | Minor impact to community/environment | | | Pros:<br>- Provides additional access to and from Benning Road and DC-295 by a combination of added ramp structures and existing ramps.<br>- Keep high-demand movements at existing ramps<br>- Eliminate existing weave<br><br>Cons:<br>- Reducing eastbound Benning Road exit to DC-295 to one lane may create a bottleneck based on the current and future volumes.<br>- Design exception for the north-facing single-lane off-ramp due to grade above 9%<br>- Limiting the north-facing ramp to a single-lane off-ramp prevents full access to and from Benning Road and DC-295 at the new signalized intersection<br>- Introducing merges from both sides of freeway on southbound DC-295<br>- Introducing back-to-back short merge on northbound DC-295 |
| Concept 7C | A single-lane off-ramp structure and a bi-directional ramp structure will be constructed to connect Benning Road and DC-295 to create a signalized intersection at the Benning Road level on the Whitlock Bridge. The north-facing ramp will include a single on-ramp lane to northbound DC-295. The south-facing ramp will include a single on-ramp lane to southbound DC-295 and a single off-ramp lane from northbound DC-295 that diverges into a dedicated left turn lane and a shared left/right turn lane. Eastbound right turns to southbound DC-295 will not be permitted, while westbound right turns to northbound DC-295 will be permitted using a shared through lane. This concept includes the removal of the two existing ramps to and from Kenilworth Avenue, and it eliminates the weave maneuver to and from DC-295. | Feasible, but complex | Fail | Pass | Pass | Pass (7) | > 2 years | HIgh | Pass | Pass (ramp intersection) | Minor impact to community/environment | | | Pros:<br>- Provides additional access to and from Benning Road and DC-295 by a combination of added ramp structures and existing ramps.<br>- Keep high-demand movements at existing ramps<br>- Eliminate existing weave<br><br>Cons:<br>- Reducing eastbound Benning Road exit to DC-295 to one lane may create a bottleneck based on the current and future volumes.<br>- Design exception for the north-facing single-lane on-ramp due to grade above 9%<br>- Limiting the north-facing ramp to a single-lane on-ramp prevents full access to and from Benning Road and DC-295 at the new signalized intersection<br>- Introducing merges from both sides of freeway on southbound DC-295<br>- Introducing back-to-back short merge on northbound DC-295 |

## Attachment A - Screening Matrix DRAFT

| Alt # | Alternative Description | Comparative Evaluation Criteria | | | | | | | | | | | | Pros/Cons Summary |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Engineering/ Constructability** | **Safety** | **ROW/Property Requirements** | | **Turning Movements** | **Construction Duration** | **Construction Cost** | **Accomodates Bike/Ped?** | **Capacity/Operational Analysis** | **Environmental and Community Effects/Implications** | | | |
| | **Preliminary Screen 1 (Qualitative) Evaluation:** | ● Easily implemented<br>● Feasible, but complex<br>● Not feasible | Does the alternative degrade safety? (Pass/Fail) | Does the alternative result in right-of-way impacts to CSX property or facilities? (Pass/Fail) | Does the alternative impact the WMATA viaduct? (Pass/Fail) | Does the alternative reduce the number of movements between Benning Road and DC-295? (Pass/Fail) | ● < 1 year<br>● 1-2 years<br>● > 2 years | Qualitative Cost Description (High/Medium/ Low) | Does the alternative accommodate bicycle and pedestrian movements? (Pass/Fail) | Does the alternative meet the future 2045 traffic demands? (Pass/Fail) | ● Benefit or no impact to community/environment<br>● Minor impact to community/environment<br>● Significant impact to community/environment | | | |
| | **Final Screen 2 (Quantitative) Evaluation:** | 3 = Easily implemented<br>2 = Feasible, but complex<br>1 = Not feasible | 3 = Eliminate current safety concerns<br>2 = No change<br>1 = Introduce additional safety concerns | 3 = No property required<br>2 = < x acres or y properties<br>1 = ≥ x acres or y properties (or requires a complex transaction) | | 3 = Alternative provides 7-9 turning movements<br>2 = Alternative provides 5-6 turning movements<br>1 = Alternative provides 4 turning movements | 3 = < 1 year<br>2 = 1-2 years<br>1 = > 2 years | 3 = < $x<br>2 = $x-$y<br>1 = $>y | 3 = Improves Bike/ped facilities and connections<br>2 = No change to bike/ped facilities and connections<br>1 = Degrades bike/ped facilities and connections | 3 = Alternative provides acceptable operations<br>2 = Alternative provides acceptable operations except for some movements<br>1 = Additional mitigations needed to address fatal flaws in operations | 3 = Benefit or no EJ impact<br>2 = Minor EJ impact<br>1 = Significant negative EJ impact | 3 = Improves access to/from surrounding neighborhoods<br>2 = No change in access to/from surrounding neighborhoods<br>1 = Degrades access to/from surrounding neighborhoods | 3 = Benefit or no impact to environmental resources (including §4(f)/§106)<br>2 = Minor impact to environmental resources<br>1 = Significant negative impact to environmental resources | |
| | **Weighting:<br>(∑a%+b%+…+k% = 100%)** | a% | b% | c% | | d% | e% | f% | g% | h% | i% | j% | k% | |
| Concept 7D | South side on-ramp NB-EB | Feasible, but complex | Pass | Pass | Pass | Pass (5) | 1-2 years | Medium | Pass | Pass (ramp intersection) | Minor impact to community/environment | | | Pros:<br>- Provides additional access from northbound DC-295 to eastbound Benning Road.<br>- Keep high-demand movements at existing ramps<br>- Eliminate existing weave<br>- Move northbound off-ramp exit at the right side of DC-295<br><br>Cons:<br>- Reducing eastbound Benning Road exit to DC-295 to one lane may create a bottleneck based on the current and future volumes. |
| Concept 8 | Modified I-295 NB Mainline between East Capitol Street and Benning Road, added south side and north side ramps | Feasible, but complex | Pass | Pass | Pass | - | > 2 years | High | - | - | - | | | Pros:<br>- Eliminate merging issue on northbound DC-295 from Benning Road<br><br>Cons:<br>- Reducing northbound DC-295 mainline to two lanes at Benning Road interchange may cause congestion in 2045. |

**Meeting Date: Wednesday, July 10, 2019**
Time: 10:00am – 12:00pm
Place: DDOT HQ, 4th Floor 55 M St. SE, Washington, DC 20003
Call-in 1.888.598.1409; Code - 8651869

# ATTACHMENT H:
# Meeting Sign-In Sheet

GOVERNMENT OF THE DISTRICT OF COLUMBIA
MURIEL BOWSER, MAYOR

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# Government of the District of Columbia

## Department of Transportation

d. Office of the Director

| BENNING ROAD RECONSTRUCTION AND STREETCAR PROJECT MEETING SIGN-IN SHEET | | | | |
|---|---|---|---|---|
| **Name** | **Firm or agency** | **Title** | **Email** | **Phone** |
| Robyn Jackson | DDOT | PM | robyn.jackson@dc.gov | 2/671-5110 |
| KIRTI PUROHIT | DDOT | ENV. | KIRTI.RAJPUROHIT@DC.GOV | |
| Julie Wilson | DDOT | Safety/Traf. Ops. | juhanna.wilson@dc.gov | 202-741-5367 |
| April Hall | DDOT | R/W Policy Analyst | april.hall@dc.gov | 202-524-8147 |
| Alicia Rowe | Jacobs | Des. Mgr | alicia.rowe@dc.gov | 973-289-1789 |
| Brett Ripkin | JAcobs | | brett.ripkin@jacobs.com | 410-707-9157 |
| Yi Zhao | DDOT/TESD | yi.zhao@dc.gov → | | 202-671-2708 |
| Ronaldo T. Nicholson | Parson | Vice President | Ronaldo.Nicholson@Parsons | 202-549-6063 |
| Diane Patterson | DDOT/TPD | Transportation Spec. | diane.patterson@dc.gov | |
| Raj Paradkar | Kimley-Horn | TMR specialist | Raj.Paradkar@kimley-horn.com | 410-419-0236 |
| Paul Elman | Kimley-Horn | Project Management | paul.elman@kimley-horn.com | 703-674-1378 |
| Jiaxin Tong | Kimley-Horn | Traffic Engineer | jiaxin.tong@kimley-horn.com | 703-870-3601 |

| | | | | |
|---|---|---|---|---|
| Kelly Hyland | PARSONS | Rdwy Engineer | kelly.hyland@parsons.com | 202-775-3330 |
| Prakash Patel | Parsons | Lead Civil | prakash.m.patel@parsons.com | 202-775-6020 |
| ADRIENNE AMEEL | Kimley-Horn | Traffic Eng | adrienne.ameel@kimley-horn.com | 517.214.1963 |
| Elizabeth Hynes | Parsons | NEPA/IMR lead | elizabeth.hynes@parsons.com | 202-549-5126 |
| Edward Stollof | DDOT | MAJOR Projects | Edward.Stollof | 202-535-2635 |
| TINA SWAIN | DDOT/ROW | ROW | tina.swain@dc.gov | 202-671-4632 |
| Paul Pattison | K-H | Streetcar | paul.pattison@kimley-horn.com | 704-283-5022 |
| Amir Hedayati | Parsons | Structures | amir.hedayati@Parsons.com | 202-775-6030 |
| Sarah Knox | Kimley-Horn | Public Involvement | Sarah.Knox@Kimley-horn.com | 703-674-1527 |
| DAVID TACKOOR | DDOT | IPMD | david.tackoor@dc.gov | 703-473-1079 |
| Jim Sebastian | DDOT | PSD | JIM.SEBASTIAN@DC.GOV | (202) 671-2331 |
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# Benning Road Reconstruction and Streetcar Project

IMR Workshop Meeting Minutes

**Meeting Date: Thursday, October 17, 2019**
**Time: 10:00am –12:00pm**
Place: DDOT HQ, 4th Floor 55 M St. SE, Washington, DC 20003
Call - in 1.888.598.1409; Code - 8651869

| IMR Workshop Meeting Attendees | |
|---|---|
| ***DDOT*** | ***Parsons Team*** |
| Robyn Jackson (RJ), Project Manager | Thomas Perry (TP), Project Manager |
| Zu-xuan Deng (ZD), Traffic | Elizabeth "Liz" Hynes, NEPA and IMR Lead |
| David Tackoor (DT), Team 4 Program Manager IPMD | Prakash Patel (PP), Civil/Roadway Lead |
| Yi Zhao (YZ), Traffic | Erin Murphy (EM) Public Involvement Lead |
| Dawit Muluneh (DM), Chief Engineer | Amir Hedayati (AH), Bridge and Structures Lead |
| Rick Kenney (RK), Deputy Chief Engineer | Jiaxin Tong (JT), Traffic |
| Emnete Banko (EB), Civil Engineer, Team 4 IPMD | Paul Pattison (PP), Streetcar |
| Kirti Purohit (KP), Environmental Policy Analyst, PSD | Raj Paradkar (RP), Traffic |
| April Hall (AH), IMPD R/W | Ronaldo "Nick" Nicholson (RN), VP |
| Tina Swain (TS), IMPD R/W | Kelly Hyland (KH), Project Engineer |
| Margaret Crane (MC), OGC | Zakiya James (ZJ), Project Engineer |
| Edward Stollof (ES), PPB/PSD | Honey Monroe (HM), Document Control** |
| | Ethan Melone (EM), Streetcar Technical Resource |
| **Other Attendees** | Kristen Kemp (KK), Document Control Lead** |
| Alicia Rowe (AR), Jacobs | Paul Elman (PE), Kimley-Horn |
| Chen Zhou (CZ), Jacobs | Steve Walter (SW), Planner |
| T.R. Hickey (TH), Jacobs | Rob Prunty (RP), Traffic |
| Abbe Karp (AK), SZPM | Sarah Knox (SK), Public Involvement |
| Brett Ripkin (BR), Jacobs | |
| | |

Grayed out – Not in attendance
** - Attendance on phone

**<u>Minutes</u>**

**IMR Workshop**
The goal of this workshop is to review the Parsons's team recommendation for two concepts to move to the alternative analysis phase based on the preliminary and final screening process.

<u>Existing Conditions</u>

- Currently facing incomplete interchanges
- ROW Issues with WMATA, CSXT, PEPCO, and NPS

# Benning Road Reconstruction and Streetcar Project

IMR Workshop Meeting Minutes

**Meeting Date: Thursday, October 17, 2019**
**Time: 10:00am –12:00pm**
Place: DDOT HQ, 4th Floor 55 M St. SE, Washington, DC 20003
Call - in 1.888.598.1409; Code - 8651869

- CSXT Existing 4 four sets of tracks and two sets of tracks running parallel to DC-295
- WMATA Orange Line Viaduct crossing over DC-295 on the north side and Blue/Silver Lines tunneling under DC-295 and CSXT existing tracks.
- Bridge 104 (North Bridge) and 104-1 (South Bridge) safety issue w/ movements coming off/on from/to Northbound DC-295 and SB Kenilworth Ave NE
- Crash data currently shows concentration along that interchange. Most accidents facing are rear end and left turns along the mainline.

**Concept Screening (2 Tier Screening Process)**

<u>Tier 1: Qualitative Analysis</u>
Initially, created 13 concepts in July, and added 6 more concepts based on feedback from the 7/10/2019 workshop and updated survey information.

Series 1-6: Eliminated based on safety and operational concerns and provide lower level of service to the community.
Series 9: Eliminated because it would introduce a left- and right-side merging issue on northbound DC-295 and encroach onto CSXT property.
Series 10: Eliminated based on grade separation feasibility at 36th Street. In addition, Concept 10A (overpass) would result in a visual impact to community.

<u>Tier 2: Final Concept Screening (Qualitative Analysis)</u>
General Note – Environmental and Community Effects/Implications were not a differentiator in the screening, since all concepts that did not pass were eliminated in Tier 1. Concepts in Tier 2 were given a raw score from 0-3 with three being the best case. A score of 0 was given to concepts that had ROW encroachments concerning CSXT, PEPCO, and NPS properties or generated less than 14 ft vertical clearance. Due to the DDOT -required minimum vertical clearance of 16'-6", a waiver will be required to have a 14 ft vertical clearance for the proposed ramps beneath the WMATA existing viaduct.

Initial Look on Series 7 and 8
The main difference between these series is the drop or no drop of DC-295 northbound mainline lane.
Series 7: Based on Traffic data, mainline traffic is more dynamic. VISSIM analysis must be run to show the pros and cons, but this series has more benefits than previously screened concepts.
Series 8: Due to the shape and position of existing ROW lines, Concepts 8A thru 8C were designed under the assumption that a wedged shaped property is owned by DDOT, but recently it was confirmed to be CSXT, as a result of our property records and research through the DC Surveyors Office.

DDOT ROW and Office-of-General-Counsel weighed-in regarding the difficulty to acquire ownership or easement with CSXT and PEPCO. This difficulty will also impact the sidewalk near the Kenilworth DC-295 to westbound Benning Road movement. An option of pedestrian bridge across the Benning Road at the west side of 36th Street/Benning Road intersection was discussed and recommended for Concepts 7 and 8 to allow the free-flow traffic from/to DC-295 northbound and southbound. This will improve traffic operation and bicyclist/pedestrian safety, , however, that may require easement from WMATA and/or PEPCO.

<u>Recommendation</u>
After scoring all concepts that passed the preliminary screen, the concepts that scored the highest in the final screening process for recommendation were **7C and 8D**. These concepts both are within DDOT R.O.W and have no clearance flaws.

**Final Memo**
The final memo will be based on comments received from DDOT and the Parsons team hopes to have concurrence regarding the recommended concepts by October 25th, 2019.
Bridge Concept Report submission will be made by January 2020
Preliminary 30% design submission will be made by May 2020

**Action Items**

1. DDOT is requesting data files including criteria and any other initial data to support the IMR for FHWA
2. Final Screening (Quantitative) Alt # Concept 7D Raw score for ROW/Property Requirements to be changed to "0"
3. Provide DDOT updated electronic files of all the items discussed, including, memo, concept layout exhibits, screening matrix, and construction cost estimate.

**DDOT Comments/Concerns**

1. Accommodates Bike/Pedestrians Concepts 8A-8D Raw scores of 3 needs to be justified since there is an impact on pedestrian safety on Benning across the shared use path.
2. Are there free movements on the bridge? Everything on the bridge is signalized. The only free movement will be along 36th street.

**Future Meetings**

1. PM2: Focus on the NEPA/ IMR. The two concepts will be posted online for public feedback before the next meeting
2. PM3: Focus on 30% Design

GOVERNMENT OF THE DISTRICT OF COLUMBIA
MURIEL BOWSER, MAYOR

# Government of the District of Columbia

## Department of Transportation

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| BENNING ROAD RECONSTRUCTION AND STREETCAR PROJECT MEETING SIGN-IN SHEET | | | | |
|---|---|---|---|---|
| Name | Firm or agency | Title | Email | Phone |
| Prakash Patel | Parsons | Lead Civil/Roadway | prakash.m.patel@parsons.com | 202-775-6020 |
| Jiaxin Tong | Kimley-Horn | Traffic Eng | jiaxin.tong@kimley-horn.com | 703-870-3601 |
| Kelly Hyland | Parsons | Roadway Eng. | kelly.hyland@parsons.com | 202-775-3330 |
| DAVE TACKOOR | DDOT | IPMD TEAM 4 | david.tackoor@dc.gov | 202 812 4627 |
| April Hall | DDOT | IPMD R/W | april.hall@dc.gov | 202-524-8147 |
| Zakiya James | Parsons | Ass. Structural Eng. | zakiya.james@parsons.com | 202-775-3390 |
| TINA SWAIN | DDOT | IPMD R/W | tina.swain@dc.gov | 202.671.4632 |
| Emmete Banko | DDOT | IPMD/Team 4 | emmete.banko@dc.gov | 202-671-4588 |
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| Amir Hedayati | Parsons | Structures Lead | Amir.Hedayati@Parsons.com | 202-775-6030 |
| Sarah Knox | Kimley Horn | Public Involvement | sarah.knox@kimley-horn.com | 703-674-1327 |
| Margaret Crane | DDOT | OGC | margaret.crane@dc.gov | 2/671-0477 |

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| Ron Williams | D. | ronald.williams6@dc.gov | 202-671-4644 |
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| Yi Zhao | DDOT - TESD | Yi.zhao@dc.gov | 202-671-2708 |
| Edward Stollof | DDOT - PSD | Edward.Stollof@dc.gov | 202-535-2536 |
| Raj Paradkar | Kimley-Horn | Raj.Paradkar@kimley-horn.com | 410-419-0236 |
| ROB PRUNTY | KIMLEY-HORN | rob.prunty@kimley-horn.com | 571-296-0214 |
| Alicia Rowe | Jacobs | alicia.rowe@dc.gov | 973-289-1789 |
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|---|---|
| **From:** | Tangirala, Rama (DOEE) |
| **To:** | Patel, Prakash N |
| **Cc:** | Perry, Thomas; Jackson, Robyn (DDOT); Banko, Emnete (DDOT); Parsons, Benning Road |
| **Subject:** | [EXTERNAL] RE: Benning Road Reconstruction and Streetcar Project - Information Request for the Existing Weather Station Facility |
| **Date:** | Thursday, May 7, 2020 6:46:13 PM |
| **Attachments:** | image001.png<br>image002.png |

Hello Prakash,

Good talking to you and to know about the Streetcar extension project. As briefly mentioned, the air quality monitoring station along I-295 (near the USPS sorting facility) is an important part of the District's ambient air monitoring network; this ambient monitoring network is a federal Clean Air Act mandate and funded by EPA grants. I look forward to meet with you and DDOT team to know more about the Streetcar extension project and its impact on the District's near-road air quality monitoring station.

Thank you.
Ram

**Dr. RAMA SESHU (RAM) TANGIRALA**, Chief, Monitoring and Assessment Branch, Air Quality Division, Department of Energy and Environment, Government of the District of Columbia, 1200 First Street NE, 5th Floor, Washington, DC 20002; Ph: (202) 535-2989 or (202) 997-8365| rama.tangirala@dc.gov | http://doee.dc.gov/ [doee.dc.gov]

With Mayor Bowser adjusting the District of Columbia's operating status in response to coronavirus (COVID-19), I will be teleworking through May 15, 2020. I can still be reached at rama.tangirala@dc.gov and (202) 535-2989 during this time.

**From:** Patel, Prakash N [mailto:Prakash.N.Patel@parsons.com]
**Sent:** Thursday, May 7, 2020 5:14 PM
**To:** Tangirala, Rama (DOEE)
**Cc:** Perry, Thomas; Jackson, Robyn (DDOT); Banko, Emnete (DDOT); Parsons, Benning Road
**Subject:** Benning Road Reconstruction and Streetcar Project - Information Request for the Existing Weather Station Facility



Hello Rama,

This is Prakash Patel from Parsons, consultant assisting DDOT on Benning Road Reconstruction and Streetcar Project which includes the Benning Road/DC-295 interchange modification. As a part of this work, the existing weather station located on the southwest quadrant of this interchange may be impacted, and we would like to know if you can provide us the available information for this facility. We think that DOEE is perhaps involved
or be responsible for the operation and maintenance of this existing facility. Please refer to the sketch below, showing this facility.

Please contact me if you need additional information, and thanks in advance in
providing us the details for this facility,

**PRAKASH N. PATEL, P.E.**
Principal Project Manager
100 M Street, SE, Suite 900, Washington, DC 20003
prakash.n.patel@parsons.com
Direct: +1 202.775.6020 / Mobile: +1 202.641.8202
Parsons / LinkedIn [linkedin.com] / Twitter [twitter.com] / Facebook [facebook.com] / Instagram [instagram.com]

**From:** Perry, Thomas
**To:** Thaung, KhinSann (DOEE); rama.tangirala@dc.gov
**Cc:** Banko, Emnete (DDOT); Jackson, Robyn (DDOT); Patel, Prakash N
**Subject:** RE: Weather Station
**Date:** Sunday, May 10, 2020 9:03:00 AM
**Attachments:** image001.png

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Sensitive

Hello KhinSann and Rama,

Thank you for your time on Friday to discuss our project and DOEE's air quality monitoring station.

At your convenience, please forward any drawings and/or specifications detailing the stations dimensions and requirements for relocation and operations.

Is their a report that details the data collected from the station for air quality? If so please forward as well.

Per our discussion we will seek to accommodate the station in a similar location adjacent to DC-295.

We also understand that the station is self-supporting and can be moved via crane or truck bed.

If you have any additional questions or comments, please feel free to contact Prakash and me and cc: Robyn Jackson and Emnete Banko.

For additional project details, please visit https://www.benningproject.com/

Regards,

Thomas

Thomas Perry, PE
Principal Project Manager
100 M Street, SE – 1114
Washington, DC 20003
thomas.perry@parsons.com
P: (202) 775-3397
C: (202) 306-4423

-----Original Appointment-----
**From:** Perry, Thomas
**Sent:** Friday, May 8, 2020 10:35 AM

**To:** Perry, Thomas; Prakash Patel; Jackson, Robyn (DDOT); Banko, Emnete (DDOT)
**Cc:** rama.tangirala@dc.gov; Prakash Patel; Thaung, KhinSann (DOEE)
**Subject:** Weather Station
**When:** Friday, May 8, 2020 11:00 AM-11:30 AM (UTC-05:00) Eastern Time (US & Canada).
**Where:** Microsoft Teams Meeting

FYI

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# F ESTIMATED COST AND PROJECT SCHEDULE

This memorandum is a direct excerpt from the *Interchange Modification Report*.

## 1.0 PROPOSED CONCEPTUAL SEQUENCE OF CONSTRUCTION AND CONCEPTUAL MAINTENANCE OF TRAFFIC

This section first describes the implementation of the proposed action in terms of the larger Benning Road Reconstruction and Streetcar Project, and then provides more specific information on the proposed conceptual sequence of construction and conceptual maintenance of traffic (MOT) that are fully documented in *Appendix F: Functional Plans for Preferred Alternative* and *Appendix I: MOT Technical Memorandum* of the Interchange Modification Report.

### 1.1 Background

The proposed action is one component of a larger set of infrastructure improvements proposed under the ongoing Benning Road Reconstruction and Streetcar Project to comprehensively advance and implement improvements along Benning Road NE from Oklahoma Avenue NE to East Capitol Street. As such, the conceptual sequence of construction and conceptual MOT plans for the proposed action are being developed as part of the larger program of projects and concurrently with the proposed improvements from the ongoing *Benning Road and Bridges Transportation Improvements Environmental Assessment*. Considering the existing roadway characteristics, geographical constraints, and complexity of the larger program of projects, particularly with the streetcar element, construction activities were divided into three segments (A, B, and C) along the Benning Road NE corridor, as shown in Figure 1-1. The proposed action is part of Segment B, which is detailed further in the subsections below. Segments A and C are not part of this project and are not described in detail herein; however, all three segments are summarized here to demonstrate the context in which the proposed action would be constructed.

*Segment A – from 26th Street NE to 36th Street NE.* This segment includes reconstruction of Benning Road NE to accommodate the proposed new streetcar line; installation of a single streetcar connector track along the west side of 26th Street NE and connection of existing streetcar tracks at the south end on Benning Road NE to the existing Carbarn yard track at the north end; installation of new streetcar tracks tying to existing tracks where the existing streetcar system currently ends at the west end; roadway construction; and retrofitting of the existing single-span bridge over Kingman Lake and a five-span bridge over the Anacostia River.

*Segment B – from 36th Street NE to Minnesota Avenue NE.* <u>This segment includes existing interchange access modifications and new access ramps</u>: demolition of existing bridge over DC-295 and reconstruction of a new five-span replacement bridge over DC-295 and CSXT tracks; modification of southbound Kenilworth Avenue NE; modification of existing ramps; modification to DC-295 to accommodate new and modified ramps; and construction of proposed ramps and approach retained roadways. Similar to Segment A, this segment also includes reconstruction of Benning

Road NE to accommodate the proposed new streetcar line and installation of new streetcar tracks tying to proposed streetcar tracks within adjacent segments, along with associated facilities.

*Segment C – from Minnesota Avenue NE to East Capitol Street.* Similar to Segment A, this segment includes the reconstruction of Benning Road NE to accommodate the proposed new streetcar line; installation of new streetcar tracks tying to proposed tracks at the west end; and an end-of-line stop and associated facilities near the existing Benning Road Metrorail station.


**Figure 1-1 | Benning Road Reconstruction and Streetcar Project Construction Segments**

## 1.2 Proposed Conceptual Construction Plan

Construction activities for the proposed action will occur within well-established work zones—the proposed conceptual sequence of construction plans are provided in *Appendix F: Functional Plans for Preferred Alternative*. The potential conceptual sequence of construction and phasing as indicated in those plans includes four phases, as depicted on Figure 1-2 and summarized below:

- **Phase 1:** This phase includes the demolition and subsequent construction of eastbound Benning Road NE (south side of Bridge 503/Whitlock Bridge), during which time all Benning Road NE traffic will travel along the existing north side of the bridge (two lanes). Phase 1 also includes the permanent closure and demolition of the existing ramp structures with deficient geometrics; construction and/or realignment of all new at-grade ramps and the commencement of construction of ramp structures on the south side of the existing bridge; and the commencement of work along mainline DC-295.
- **Phase 2:** With the completion of the southern portion of Bridge 503/Whitlock Bridge in Phase 1, traffic along Benning Road NE can now shift to the newly constructed two lanes. As such, Phase 2 includes the demolition of the remaining north portion of existing Bridge 503/Whitlock Bridge, and subsequent construction of westbound Benning Road NE (north side of Bridge 503/Whitlock Bridge). Phase 2 also includes the commencement of construction of the new ramp structure on the north side of Benning Road NE, continued

construction of ramp structures on the south side of the existing bridge, final realignment of all other ramps to their permanent position, and continued work along mainline DC-295.

- **Phases 3 and 4:** These phases include completing the construction of ramp structures on the north and south side of the existing bridge and all work along mainline DC-295. Additionally, these phases include finishing construction of the new bridge along Benning Road NE:
  - With the completion of two new travel lanes on structure in each direction along Benning Road NE in Phases 1 and 2, traffic along Benning Road NE can be shifted to one lane on each side in Phase 3 in order to construct all work within the median along Benning Road NE
  - With the completion of the median work in Phase 3, traffic along Benning Road NE can be shifted to the two inside lanes in Phase 4 in order to construct all work between the roadway and edge of structure along Benning Road NE

During construction, existing lanes and speeds would be modified as follows:

- Minimum number of lanes during construction:
  - Benning Road NE: minimum of one lane in each direction will remain open at all times during construction, including all phases of the replacement of Bridge 503/Whitlock Bridge along Benning Road NE
  - DC-295 Peak Hours/Weekdays: minimum of two travel lanes will remain open along northbound DC-295 and all three travel lanes will remain open along southbound DC-295 during weekday peak hours
  - DC-295 Off-Peak Hours/Night Work/Weekends: minimum of one lane along northbound DC-295 and two lanes along southbound DC-295 will remain open during off-peak hours, night work, and weekend work, as needed for selected bridge demolition and girder erection activities; temporary short-term closure of all lanes may be required during non-peak times for some critical activities
- Speed reductions for traffic through active work zones:
  - Benning Road NE: reduced from 35 mph to 25 mph in both directions
  - DC-295: reduced from 50 mph to 40 mph in both directions

During the construction, the District Department of Transportation (DDOT), in coordination with the Federal Highway Administration (FHWA) and other agencies, would implement a project-specific construction transportation management plan, which would include a program of travel demand management strategies to maximize multimodal capacity (for personal automobiles, transit vehicles, and nonmotorized traffic) and minimize impacts and disruption. These strategies would include measures to reduce vehicular travel demand, optimize use of the available capacity, and inform the public.

These and other potential strategies would be evaluated further at a later stage of project development as part of the overall Benning Road Reconstruction and Streetcar Project. DDOT would meet with the community before the start of construction for each major phase to discuss the expected impacts from construction activities.


**Figure 1-2 | Proposed Sequence of Construction**

## 1.3 Proposed Conceptual MOT

Information on detour/alternative routes are provided in *Appendix I: MOT Technical Memorandum*, as well as in *Appendix F: Functional Plans for the Preferred Alternative*. As shown there, traffic will utilize signed detour routes as needed as ramp(s) between DC-295 and Benning Road NE are modified (demolished, altered, and/or constructed). While Benning Road NE in both directions will remain open during all phases of construction, traffic can avoid traveling through the construction zone via signed alternative route(s). Primary detour/alternative routes will include Minnesota Avenue NE, a north-south minor arterial located parallel to DC-295 in the project area, and Nannie Helen Burroughs Avenue NE, which is a full-access interchange with DC-295 located approximately 3,500 feet north of Benning Road NE. Vehicles accessing the Nannie Helen Burroughs Avenue NE interchange will be able to access Benning Road NE via Kenilworth Avenue NE, a local north-south road located parallel to DC-295.

Overall, the proposed conceptual MOT for the proposed action include the following elements:

- Along DC-295, construction activities can be performed with minor changes to existing through-lane traffic. Specifically, during the demolition of Bridge 104 and the demolition and reconstruction of Bridge 104-1, lane closures would occur along southbound DC-295 during non-rush hour and weekends. Northbound DC-295 would be permanently reduced from three through lanes to two through lanes during construction to allow for the new interchange ramps
- Along Benning Road NE, particularly for the replacement of Bridge 503/Whitlock Bridge, construction activities can be performed in four phases such that all traffic shifts to one side of the existing roadway/structure while work is completed on the other side; once both sides are constructed (Phases 1 and 2), traffic can be shifted to the inside or outside lanes to perform the required median/outside-of-roadway work (Phases 3 and 4)
- Traffic can utilize existing ramps while construction activities for new and/or replacement ramps are taking place, or detour routes will be provided as required. Details for each existing ramp are summarized below:
    - The existing ramp from northbound DC-295 to westbound Benning Road NE and the ramp from southbound Kenilworth Avenue NE to northbound DC-295 over Bridge-104 (north bridge) will be closed and demolished, with detours in effect until new ramps are constructed and operational
    - The ramp from eastbound Benning Road NE to northbound DC-295 will be temporarily closed for the demolition and reconstruction of Bridge 104-1 (south bridge) and beam-erection activities, with detours in effect until the new ramp is constructed and operational
    - The ramp from eastbound Benning Road NE to southbound DC-295 will remain open during the pavement widening for shifted ramp alignment
    - The ramp from southbound DC-295 to westbound Benning Road NE (via Kenilworth Avenue NE) will remain open and operational for the duration of construction, except for a short-term/weekend/overnight closure for the demolition of Bridge 104 during which a detour would be in effect
    - The ramp from southbound DC-295 to Baker Street NE will remain open and operational until the new infrastructure at Alden Place NE has been constructed.

Once the new exit ramp at Alden Place NE is operational, the ramp at Baker Street NE will be removed

- Access to all local parcels and local roadways will be maintained at all times or detour routes will be provided
- Pedestrian traffic will be maintained with protected crossing at all times

## 2.0 PROPOSED PRELIMINARY CONSTRUCTION SCHEDULE

Upon completion of the NEPA and IMR processes, DDOT anticipates commencing final design for the interchange access improvements towards the end of FY 2020, with its completion in the 4th quarters of FY 2021. Construction activities would commence in FY 2022 and with anticipated opening in FY 2025-26. The schedule for the interchange design and construction is subject to funding appropriations.

Figure 2-1 shows the estimated project schedules, starting from the final design to completion of the construction. In addition to a normal schedule, an aggressive schedule is also shown in the figure. It was estimated that 60 months would be needed to complete the project from design through construction under normal conditions; with an aggressive approach, the period can be shortened to 55 months. An aggressive approach involves additional work crews and construction of multiple elements, including bridges concurrently.

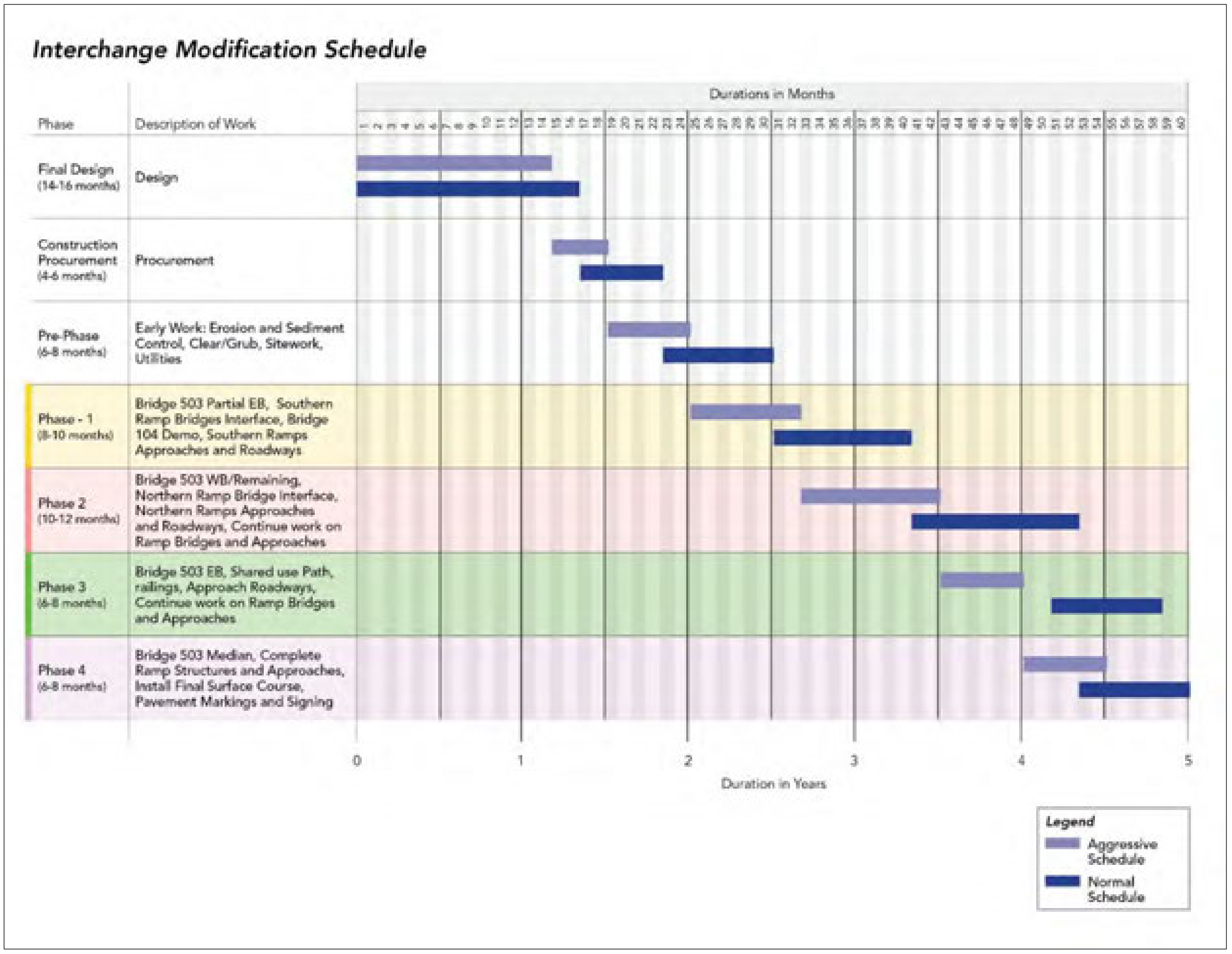

**Figure 2-1 | Proposed Construction Schedule**

## 3.0 PROJECTED CONSTRUCTION COST ESTIMATE AND VALIDATION

The construction cost estimate was calculated based on the functional construction plans. The estimate includes construction costs for roadway, bridges, retaining walls, utilities, drainage and stormwater management, maintenance of traffic, signing and pavement marking, traffic signals, lighting and other incidental items; additional costs such as surveying, mobilization and contingency are also included in the estimate. Table 2-1 provides a brief overview of the cost by category.

**Table 2-1 | Overview of Construction Cost for the Preferred Alternative**

| Cost Category | Estimated Cost |
|---|---|
| GENERAL REQUIREMENTS | $1,058,000 |
| EARTHWORK AND EXCAVATION | $1,112,000 |
| WATER AND SEWER SERVICES | $466,000 |
| ASPHALT CONSTRUCTION | $999,000 |
| PORTLAND CEMENT CONCRETE CONSTR | $521,000 |
| INCIDENTAL CONSTRUCTION | $5,574,000 |
| SIGNALS/ SIGNS/LIGHTING | $832,000 |
| STRUCTURES | $8,968,000 |
| TOTAL BASE CONSTRUCTION PRICE | $19,530,000 |
| Additional Contingency | $6,836,000 |
| TOTAL PRICE | $26,366,000 |

Notes: Contingency is estimated at 35%. Construction cost for the new main Bridge 503 is not included as it is part of the Benning Road Corridor cost estimate per that project's separate EA document.

**Construction Cost Estimate Assumptions.** This Construction Estimate is based upon a Design-Bid-Build style procurement and follows the traditional workflow. Additional assumptions include:

- It is assumed that utility relocations required to be performed by the respective agencies will have been completed before the contractor begins work, or as much as practical. New utilities that are to be performed by DDOT contractors are assumed to be included in this contract.
- The construction cost estimate assumes the contractor will follow the basic phasing as currently described above in Section 3.1. The selected contractor may vary somewhat from this plan to accommodate its own means and methods, but it is not anticipated that such differences will impact the overall cost significantly.

- The construction cost estimate assumes that there will be extended periods of night work required to accommodate construction in this highly congested work zone and the direct and indirect costs associated with this type of work have been incorporated into the overall costs.
- The construction cost estimate assumes portions of the work will progress through winter seasons, such as structures related activities, but no roadway/asphalt related work is deemed to be critical enough on the schedule to warrant extraordinary "out of season" measures.
- Construction access is always an important component of any construction project. The access concerns associated with this project will be 1.) no readily available staging/ laydown areas near the work zone and 2.) the limited access to the bridge structure over DC-295 and the CSXT rails. To address the access for construction of the bridge over DC-295 and CSXT rails, several options were investigated and a method selected that was considered constructible yet still allowed for conventional equipment. Productivities were adjusted accordingly to reflect the anticipated difficulties in constructing this structure.

**Construction Cost Estimate Type & Related Contingency.** Based on the level of design development, the construction cost estimate would be considered a Class 3 Estimate, according to the Association for the Advancement of Cost Engineering International (AACE) 18-R-87 Cost Estimate Classification System. Class 3 estimates are defined as estimates for projects in the 10% to 40% range, falling between a Scoping level and Design Field View level. It should also be noted that this project is a Major, Complex Project. Major, Complex Projects entail complete reconstruction, and include substantial construction directly over top of/complete demolition of existing facilities as well as over the active railroad tracks, with impacts to existing traffic flows during construction. They also involve utility, and environmental impacts that require highly unique mitigation and construction methods. As such, the level of design development definition at this stage corresponds to a project contingency rate of 35% of estimated construction costs.

Relatedly, for design and cost estimating purposes, the two greatest unknowns regarding this interchange project are the existing underground utilities and the subsurface soils and geologic conditions required to design bridge and retaining wall foundations. Typically, underground utility conflicts in the field requiring redesign or relocation are one of the biggest challenges on a reconstruction project of this nature. Providing as much information on the locations of utilities during the design development, including horizontal and vertical location, type and size, is critical to minimizing impacts and design changes during construction. While detailed underground utility locating and designating have not been performed on the project site, the design team has received utility records from DC Water and a compilation of as-built and record utility locations as part of the overall survey records and construction documents obtained for the project. DC Water, PEPCO, Washington Gas and Verizon have their existing facilities within the IMR work limits.

**Construction Cost Estimate Exclusions.** The following items were specifically excluded from the pricing:

- No owner related ROW costs are included.
- No special aesthetics related costs beyond those shown on the documents have been included.

- Any special containment of demolition debris beyond customary practices.
- Costs for professional services related to detail design and engineering, construction administration and management are not included.
- All utility relocations costs will be borne by individual utility owners, except DC Water facilities relocations will be reimbursed at 50% or per the Memorandum of Understanding between DDOT and DC Water.
- No COVID-19 impacts have been considered in any aspect of the estimate.
- Although preliminary reports suggest a potential presence of some hazardous waste materials, no attempt was made to price hazardous waste removal/remediation activities. At this preliminary stage of design, it is assumed the contingency will accommodate such unknown costs.
- No settlement or vibration monitoring plan has been included in the current estimate. The contingency would likely cover some such costs, but should the agency decide to implement an extensive program, the cost of that plan should be thoroughly examined when more details are known.

*[This page left intentionally blank.]*

# G ROADWAY CHARACTER

The Roadway Character section of the CE includes data and information regarding: existing and proposed road configuration, existing and future traffic, and existing and future roadway condition. This information appears graphically on the following pages.

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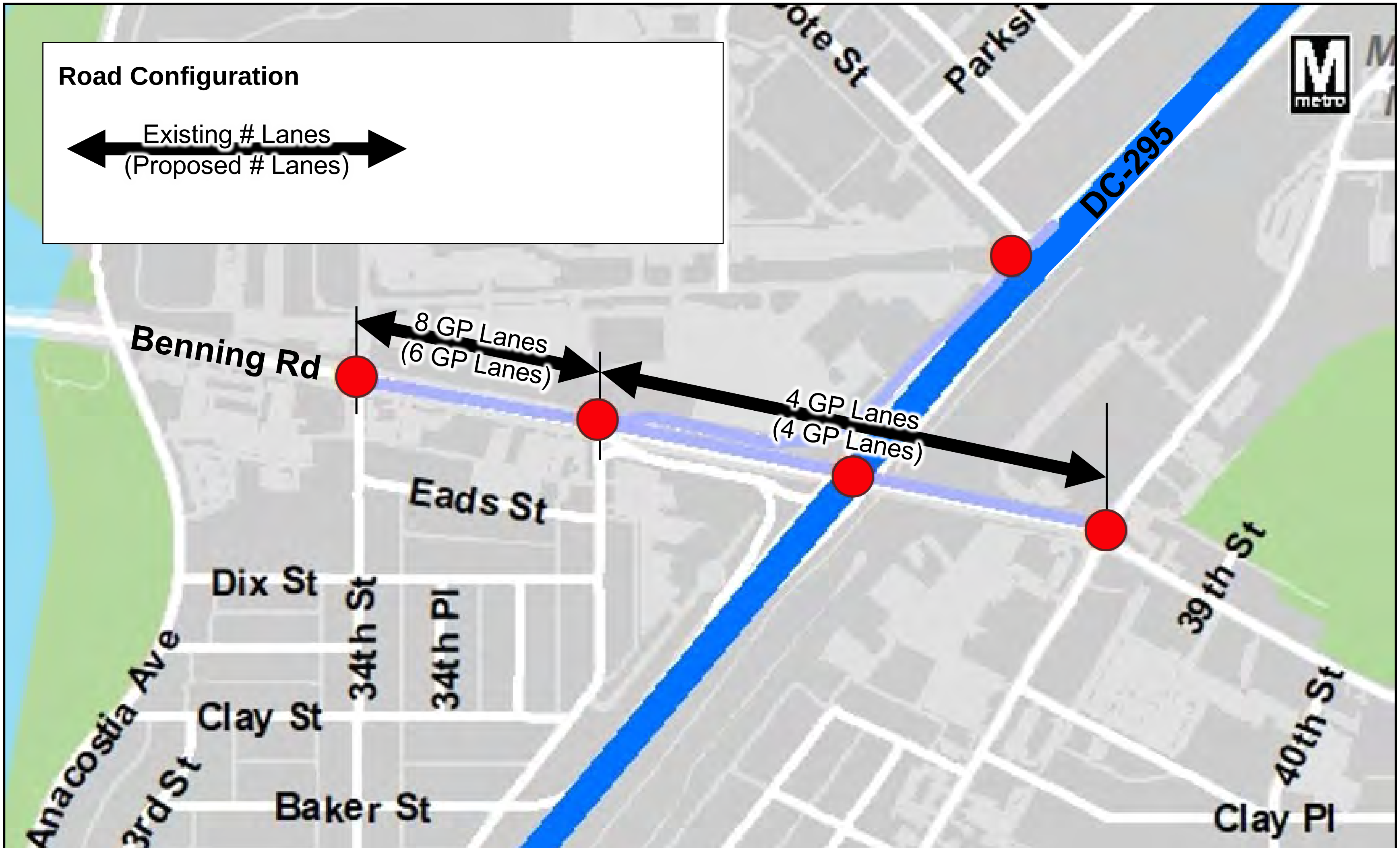
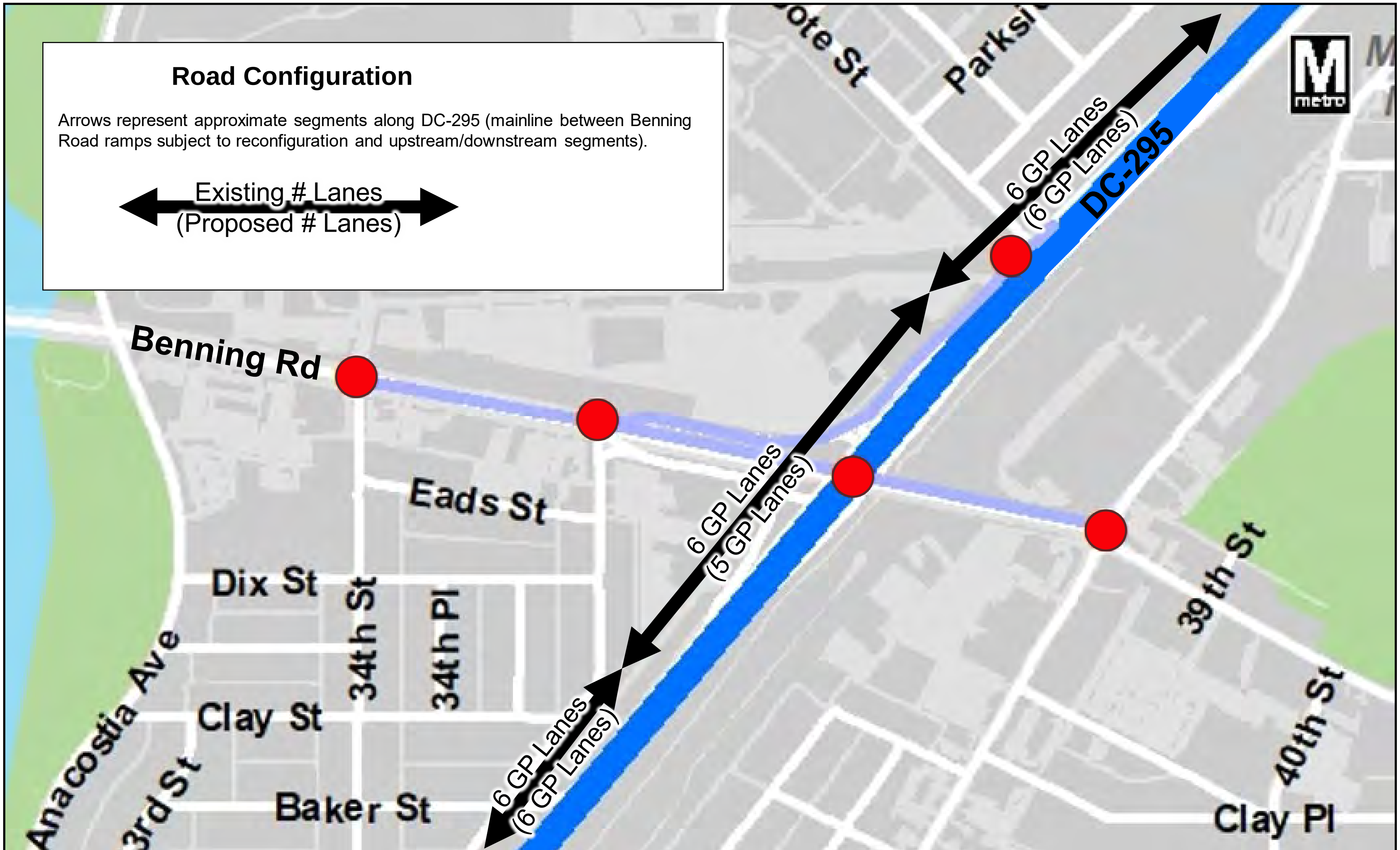
# Attachment G1 – Roadway Configuration




**Roadway Configuration**

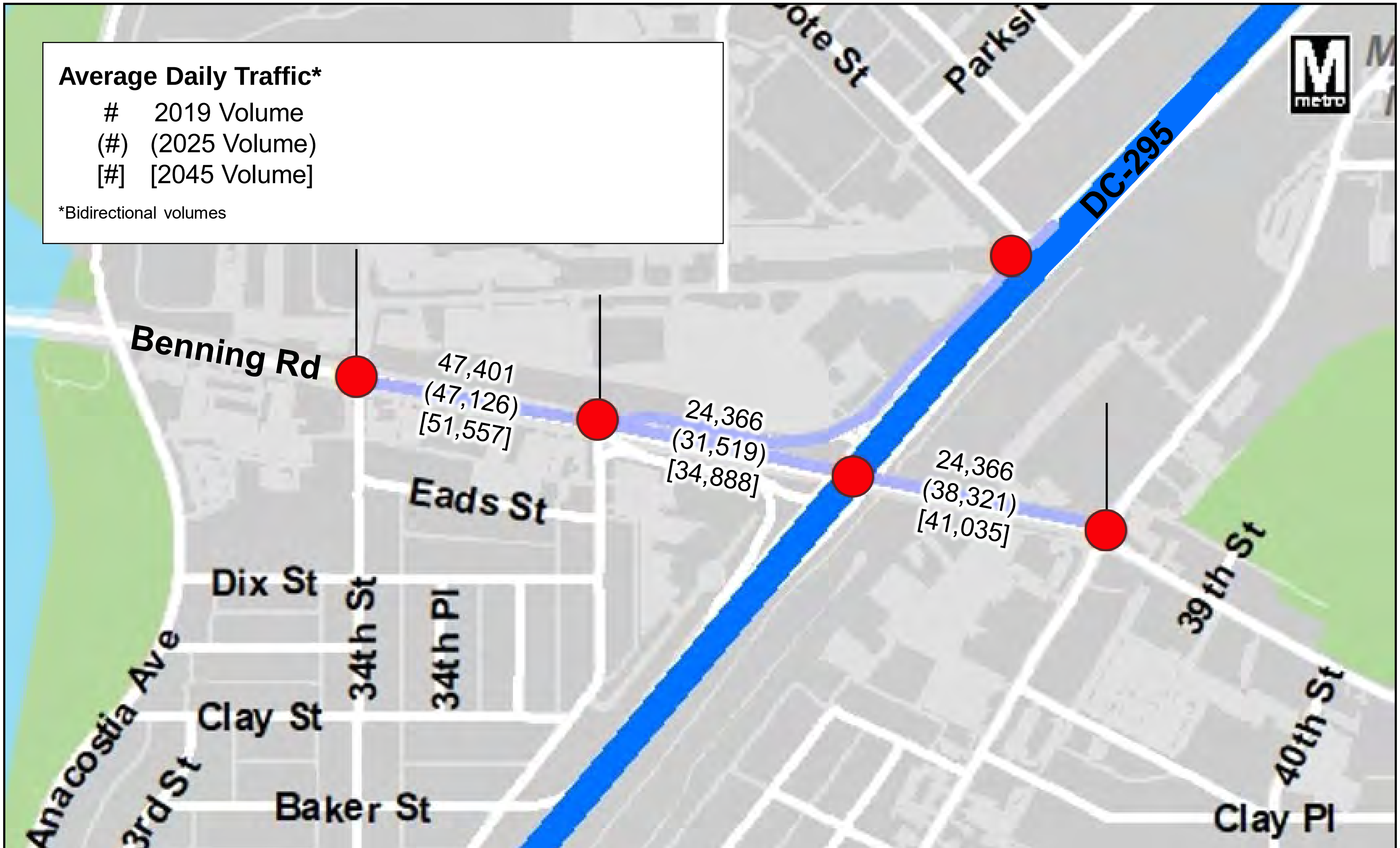
Benning Road NE

# Attachment G1 – Roadway Configuration




**Roadway Configuration**
DC-295

# Attachment G2 – Traffic

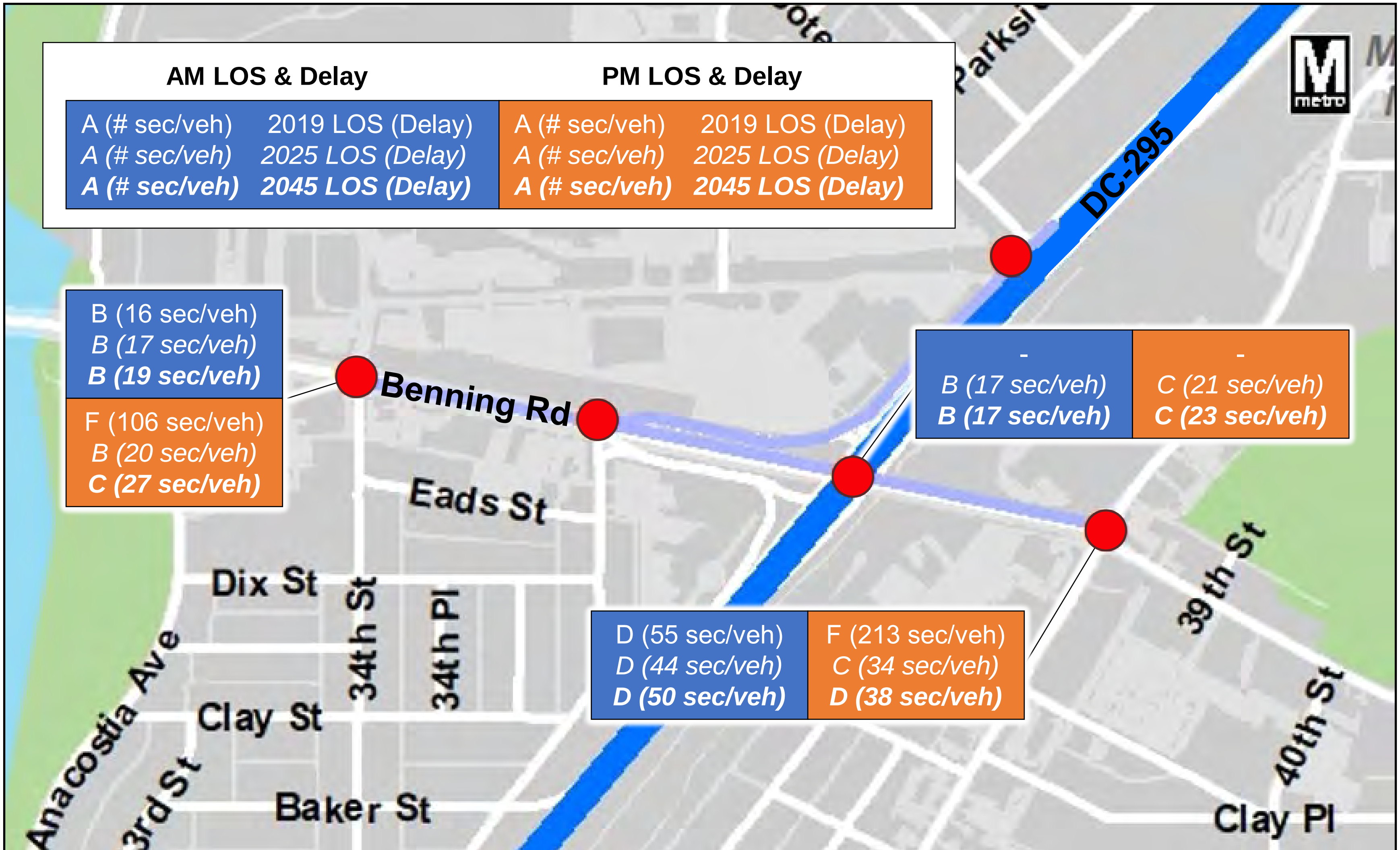



**Roadway ADT**
Benning Road NE

# Attachment G2 – Traffic

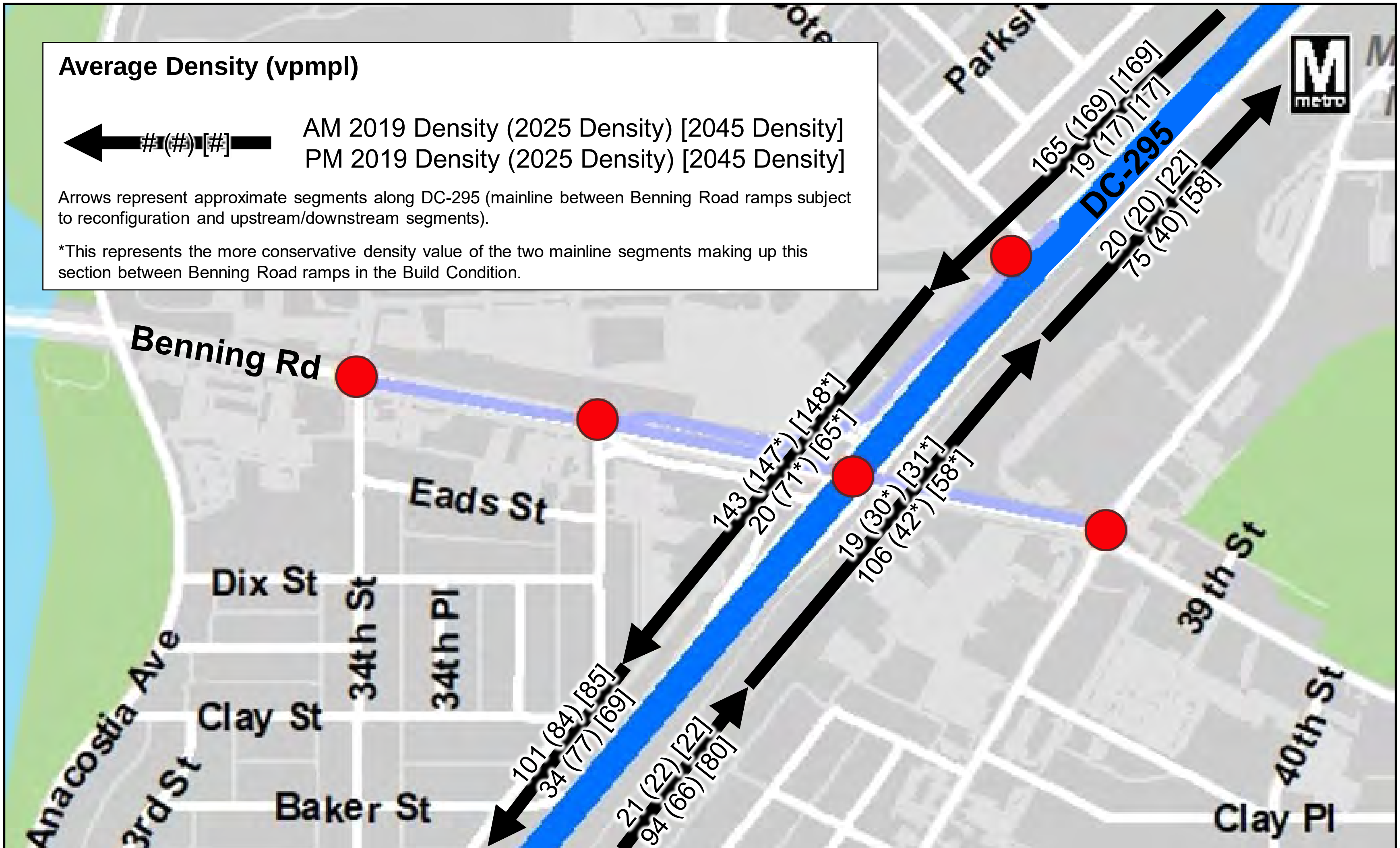

**Roadway ADT**
DC-295

# Attachment G2 – Traffic



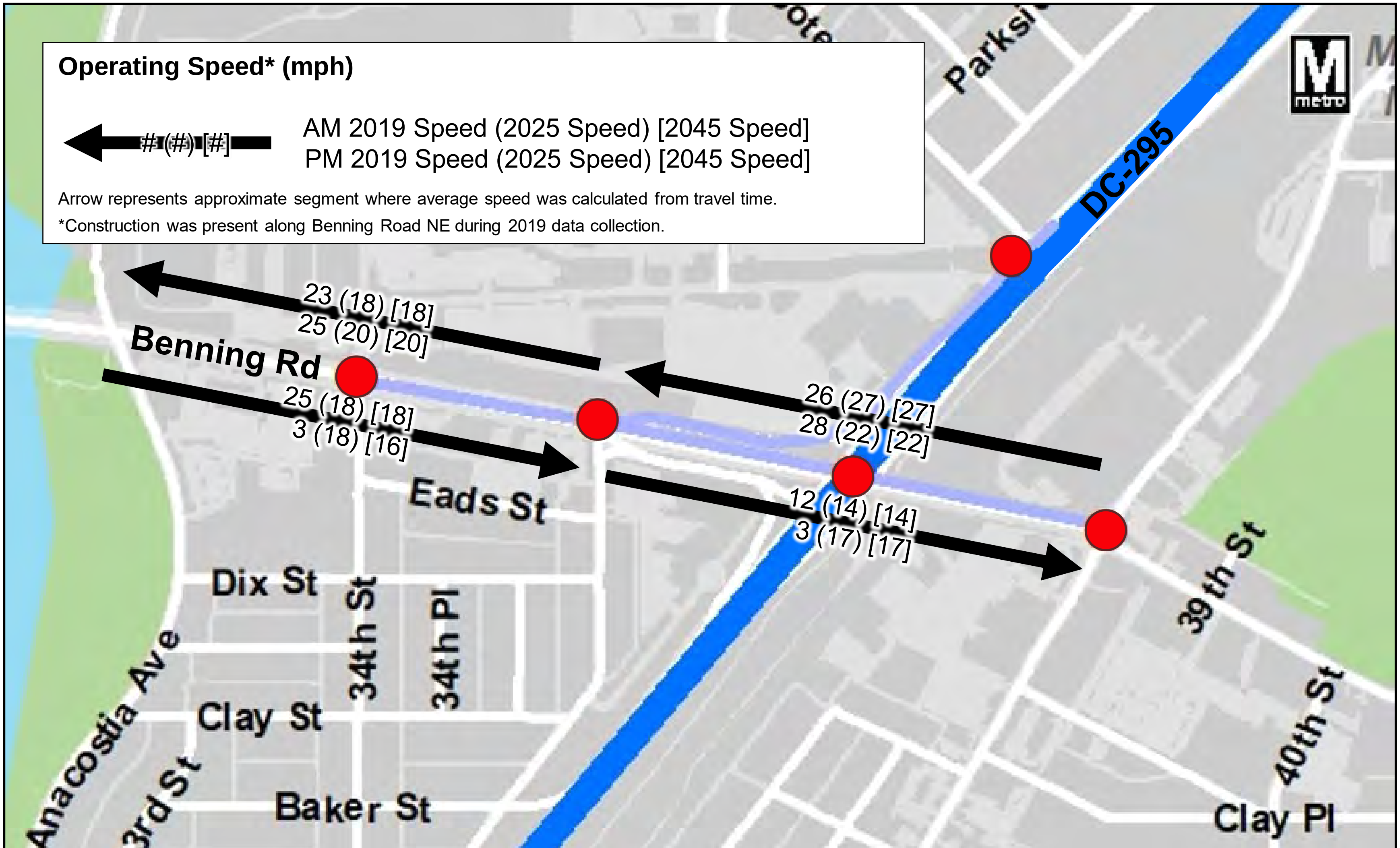

**Level of Service (Delay)**
Benning Road NE

# Attachment G2 – Traffic



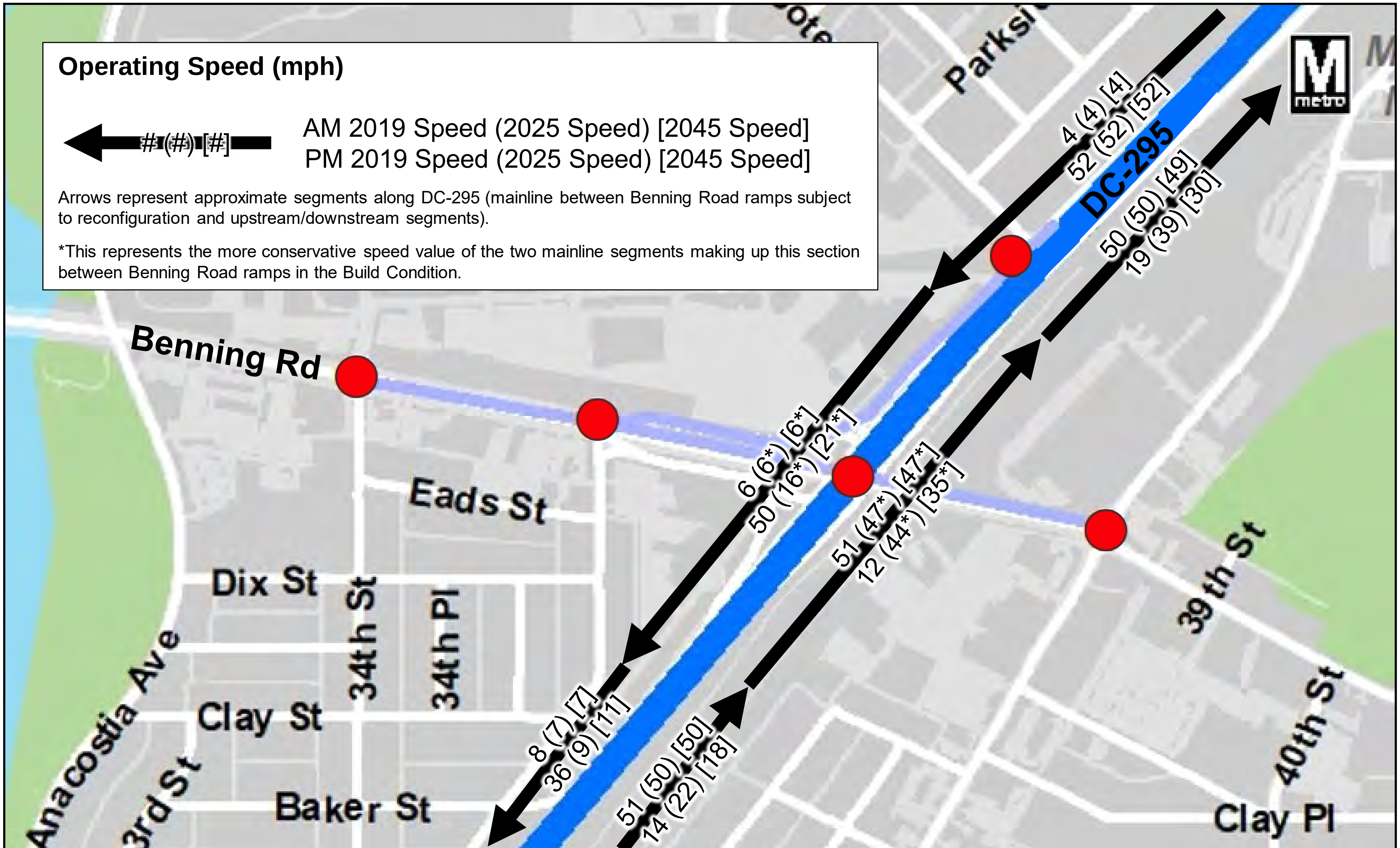

**Level of Service (Density)**
DC-295

# Attachment G2 – Traffic




**Operating Speed**
Benning Road NE

# Attachment G2 – Traffic




**Operating Speed**

DC-295

# Attachment G2 – Traffic


**Crashes (January 1, 2016 – December 31, 2018)**

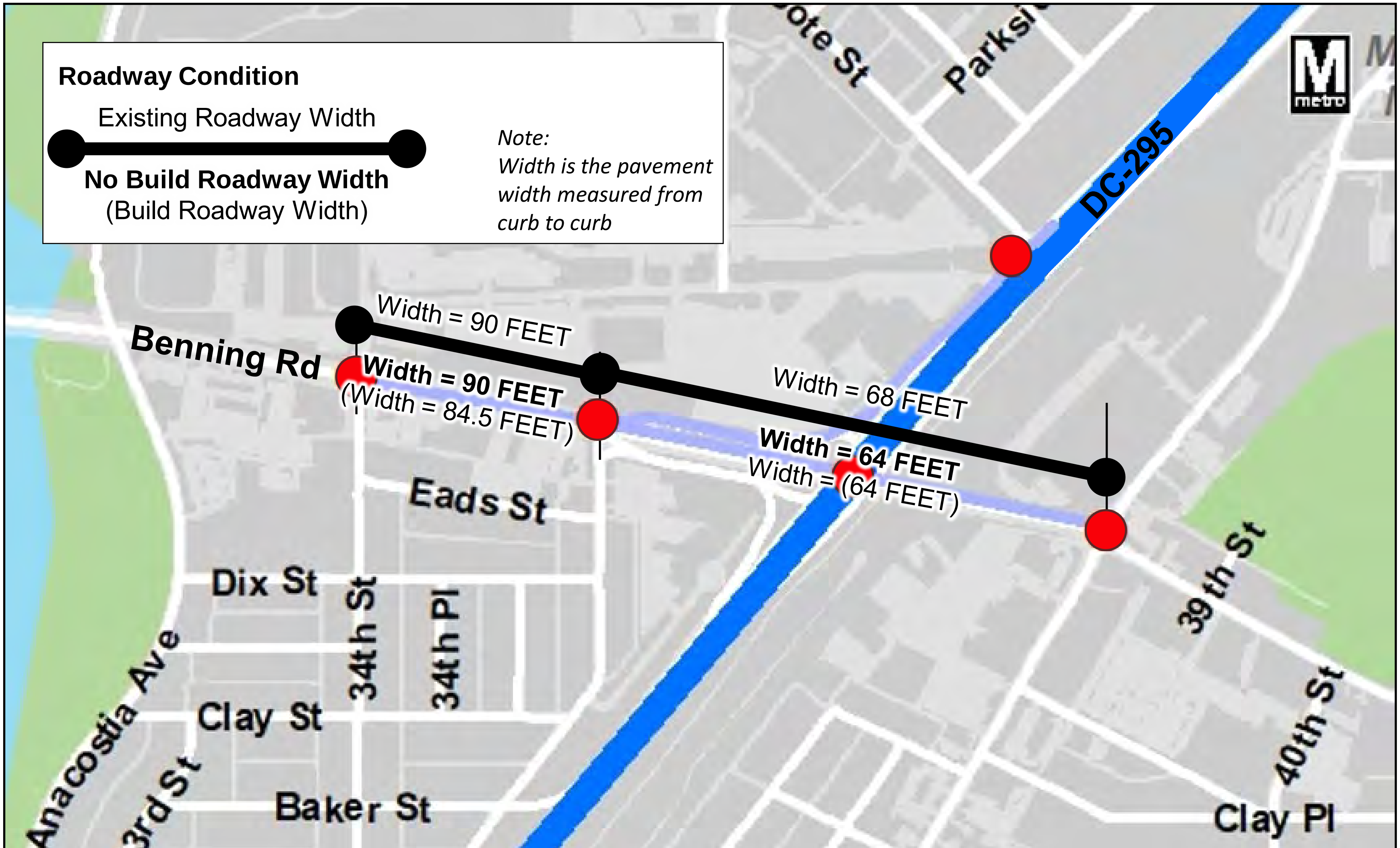
Benning Rd NE (34th St NE to Minnesota Ave NE)
**35 crashes**

DC-295 (Deane Ave NE/Nannie Helen Burroughs Ave NE to ~0.75 miles south of E Capitol St SE)
**61 crashes on mainline (20 crashes on ramps)**

**Crashes**

Benning Road NE and DC-295

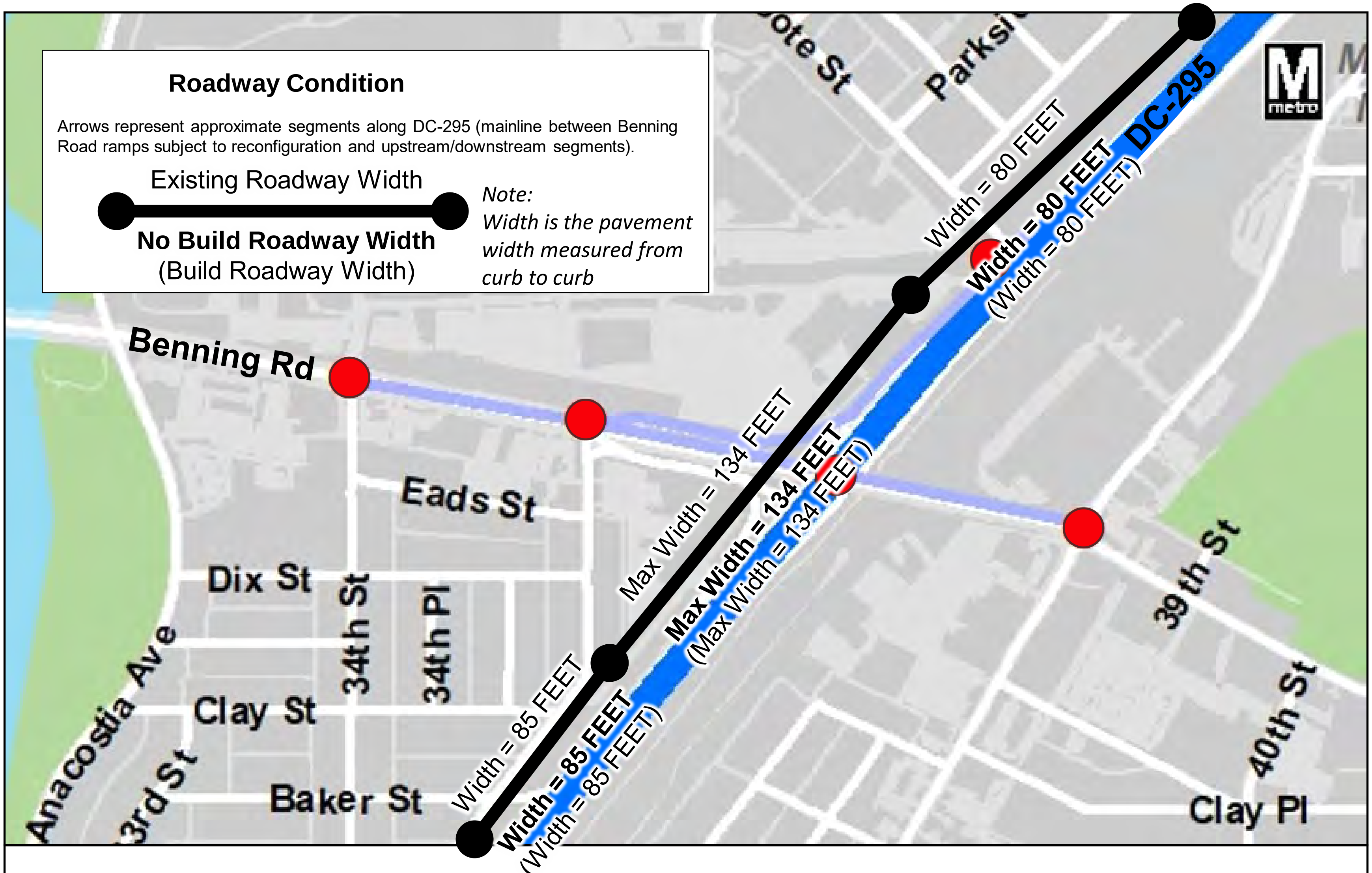
# Attachment G3 – Roadway Condition




**Roadway Condition**

Benning Road NE

# Attachment G3 – Roadway Condition




**Roadway Condition**

DC-295

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# H DESIGN CRITERIA FOR BRIDGES

There are three existing bridges in the Benning Road NE and DC-295 interchange. Bridges 104 and 104-1, which are both elevated over DC-295 southbound, are approaching the end of their fatigue life. Bridge 503 is in need of replacement of both substructure and superstructure and lacks adequate sidewalks that meet ADA compliance. Improvements are warranted that would replace the existing bridges in order to meet a 75-year life expectancy. These improvements would address future safety issues with the potential increase in pedestrian trips on the bridges as well as the general safety of the superstructure by addressing future structural integrity.

# 1 STRUCTURE DATA

The structure data for Bridge 503 correspond to the data required for the CE form.

| **Structure No.** | BR-503 – Eastbound (EB)<br><br>BR-503 –Westbound (WB) | **Sufficiency Rating:**<br><br>BR-503 EB: 5<br><br>BR-503 WB: 5 |
|---|---|---|
| **Will the structure be rehabilitated or replaced as part of the project?** | | |
| Replaced | | |
| **BRIDGE** | **EXISTING** | **PROPOSED** |
| **Bridge Type** | BR-503 EB and BR-503 WB: simple span steel beam superstructure | BR-503: Simple span steel plate girders; continuous for live load |
| **Number of Spans** | BR-503 EB: Seven Spans<br><br>BR-503 WB: Seven Spans | BR-503: Five spans |
| **Weight Restrictions** | N/A | N/A |
| **Curb to Curb Width** | BR-503 EB: 29′-0″<br><br>BR-503 WB: 30′-6″ | BR-503: 64'-0" Including variable median |
| **Shoulder Width** | BR-503 EB: 3′-6″<br><br>BR-503 WB: 3′-0″ L; 3′-6″ R | BR-503: 1'-0" |
| **Under Clearance** | BR-503 EB bridge: Min. vertical clearance of 21'-7" over CSXT and 15'-0" over DC-295 Northbound<br><br>BR-503 WB bridge: Min. vertical clearance of 22'-4" over CSXT and 17'-2" over DC-295 Northbound | BR-503: Min. vertical clearance of 23'-0" over CSXT and 14'-6" over DC-295 Northbound |

The structure data for Bridge 104 correspond to the data required for the CE form.

| **Structure No.** | BR-104 | **Sufficiency Rating:** 6 |
|---|---|---|
| **Will the structure be rehabilitated or replaced as part of the project?** | | |
| Superstructure will be demolished. | | |
| **BRIDGE** | **EXISTING** | **PROPOSED** |
| **Bridge Type** | Single span with steel rolled beams | N/A |
| **Number of Spans** | One | N/A |
| **Weight Restrictions** | N/A | N/A |
| **Curb to Curb Width** | DC-295 NB to Benning Road WB: 26'-0"<br><br>Kenilworth Ave. NE to DC-295 NB: Varies (30'-6" to 32'-6") | N/A |
| **Shoulder Width** | DC-295 NB to Benning Road WB: 2'-0"<br><br>Kenilworth Ave. NE to DC-295 NB: Varies (3'-0" t0 5'-6") | N/A |
| **Under Clearance** | Min. vertical clearance: 14'-6" | N/A |

The structure data for Bridge 104-1 correspond to the data required for the CE form.

| **Structure No.** | BR-104-1 | **Sufficiency Rating:**<br>4 |
|---|---|---|
| **Will the structure be rehabilitated or replaced as part of the project?** | | |
| Superstructure will be replaced. | | |
| **BRIDGE** | **EXISTING** | **PROPOSED** |
| **Bridge Type** | Single span with steel rolled beams | Single span inverset steel beams with pre-cast deck |
| **Number of Spans** | One | One |
| **Weight Restrictions** | N/A | N/A |
| **Curb to Curb Width** | 22′-0″ | 22′-0″ |
| **Shoulder Width** | Varies | 5′-0″ |
| **Under Clearance** | Min. vertical clearance: 14′-6″ | Min. vertical clearance: 15′-0″ |

The structure data for Ramp A correspond to the data required for the CE form.

| **Structure No.** | Ramp A over DC-295 NB | **Sufficiency Rating:** |
|---|---|---|
| | | N/A |
| **Will the structure be rehabilitated or replaced as part of the project?** | | |
| New structure | | |
| **BRIDGE** | **EXISTING** | **PROPOSED** |
| **Bridge Type** | N/A | Continuous steel plate girder |
| **Number of Spans** | N/A | Two |
| **Weight Restrictions** | N/A | N/A |
| **Curb to Curb Width** | N/A | Varies (21′-2″ to 62′-10″) |
| **Shoulder Width** | N/A | Varies (2′-0″ to 7′-7 ½″) |
| **Under Clearance** | N/A | Min. vertical clearance: 19′-0″ |

The structure data for Ramps B, C, and D correspond to the data required for the CE form.

| | | |
|---|---|---|
| **Structure No.** | Ramps C&D over DC-295 NB and Ramp B | **Sufficiency Rating:**<br>N/A |
| **Will the structure be rehabilitated or replaced as part of the project?** | | |
| New structure | | |
| **BRIDGE** | **EXISTING** | **PROPOSED** |
| **Bridge Type** | N/A | Steel plate girder |
| **Number of Spans** | N/A | One |
| **Weight Restrictions** | N/A | N/A |
| **Curb to Curb Width** | N/A | Ramp C: 26′-0″<br>Ramp D: 28′-0″ |
| **Shoulder Width** | N/A | Ramp C: Varies (2′-0″ Min.)<br>Ramp D: Varies (2′-0″ Min.) |
| **Under Clearance** | N/A | Min. vertical clearance: 14′-9″ |

# PROPERTY SURVEY REPORT

A file search of parcels adjacent to the project was completed and is attached here.

District Department of Transportation

# Property / Ownership Info per OTR website records

| LOT | SQUARE | SITE ADDRESS | OWNER | OWNER ADDRESS |
|---|---|---|---|---|
| 135 | 5017 | 3401 BENNING RD NE | 3401 BENNING ROAD LLC | 3399 BENNING RD NE WASHINGTON DC 20019-1502 |
| 836 | 5017 | 3443 BENNING RD NE | 3443 BENNING LLC | 3232 GEORGIA AVE NW STE 100 WASHINGTON DC 20010-3084 |
| 136 | 5017 | 3451 BENNING RD NE | 3451 BENNING LLC | 3232 GEORGIA AVE NW STE 100 WASHINGTON DC 20010-3254 |
| 51 | 5021 | 3621 BENNING RD NE | 3621 BENNING ROAD LLC | 1627 K ST NW # LL WASHINGTON DC 20006-1702 |
| 52 | 5081 | 4000 - 3962 BENNING RD NE | 4000 BENNING ROAD LLC | 1805 7TH ST NW STE 700 WASHINGTON DC 20001-3186 |
| 22 | 5081 | 3930 BENNING RD NE | AILUE O GUNTER | 200 RANDOLPH RD SILVER SPRING MD 20904-3535 |
| 804 | 5081 | 3938 BENNING RD NE | AROLI GROUP LLC | 3401 8TH ST NE WASHINGTON DC 20017-1747 |
| 100 | PAR-168 | KENILWORTH AV NE | B & O RAILROAD COMPANY (CSX) | 500 WATER ST # J910 JACKSONVILLE FL 32202-4423 |
| 116 | PAR-176 | MINNESOTA AV NE | B & O RAILROAD COMPANY (CSX) | 500 WATER ST JACKSONVILLE FL 32202-4423 |
| 834 | 5017 | 3423 - 3439 BENNING RD NE | BOULEVARD HOUSING CORPORATION | 6901 4TH ST NW WASHINGTON DC 20012-1967 |
| 837 | 5017 | 3445 BENNING RD NE | BYONG K CHOI | 7059 DEER VALLEY RD HIGHLAND MD 20777-9511 |
| 838 | 5017 | BENNING RD NE | BYONG K CHOI | 7059 DEER VALLEY RD HIGHLAND MD 20777-9511 |
| 812 | 5044 | 3924-3968 MINNESOTA AV | CEDAR-SENATOR SQUARE LLC | 44 S BAYLES AVE STE 304 PRT WASHINGTN NY 11050-3765 |
| 98 | PAR-168 | KENILWORTH AV NE | CONSOLIDATED RAIL CORPORATION (CSX) | 500 WATER ST JACKSONVILLE FL 32202-4423 |
| 107 | PAR-169 | KENILWORTH AV NE | CONSOLIDATED RAIL CORPORATION (CSX) | 500 WATER ST JACKSONVILLE FL 32202-4423 |
| 103 | PAR-176 | KENILWORTH AV NE | CONSOLIDATED RAIL CORPORATION (CSX) | 500 WATER ST JACKSONVILLE FL 32202-4423 |
| 806 | 5081 | 3940 BENNING RD NE | DAVID P BELT | 3940 BENNING RD NE WASHINGTON DC 20019-3401 |
| 18 | 5051N | 3935 BENNING RD NE | DISTRICT OF COLUMBIA | N/A |
| 15 | 5051N | 3939 - 3943 MINNESOTA AV NE | MARILYN PERNATIN TRUST | 44 S BAYLES AVE PRT WASHINGTN NY 11050-3767 |
| 16 | 5051N | 3903 - 3907 BENNING RD NE | MARILYN PERNATIN TRUSTEE | 44 S BAYLES AVE PRT WASHINGTN NY 11050-3767 |
| 17 | 5051N | 3939 BENNING RD NE | MARSHALL HEIGHTS COMMUNITY DEVELOPMENT ORGANIZATION INC | 3939 BENNING RD NE WASHINGTON DC 20019-3402 |
| 805 | 5081 | 3944 BENNING RD NE | MARTHA L JONES | 3944 BENNING RD NE WASHINGTON DC 20019-3401 |
| 811 | 5052 | 4020 MINNESOTA AVE NE | PARK 7 RESIDENTIAL LP | 4416 E WEST HWY STE 410 BETHESDA MD 20814-4568 |
| 812 | 5052 | 4020 MINNESOTA AVE NE | PARK 7 RESIDENTIAL LP | 4416 E WEST HWY STE 410 BETHESDA MD 20814-4568 |
| 114 | PAR-169 | 3400 BENNING RD NE | POTOMAC ELECTRIC POWER COMPANY | 701 9TH ST NW WASHINGTON DC 20001-4501 |
| 51 | 5080 | 3900 BENNING RD NE | SHOP E INCORP | PO BOX 711 DALLAS TX 75221-0711 |
| 808 | 5052 | 3700 BENNING RD NE | WASHINGTON GAS LIGHT COMPANY | N/A |
| 804 | 5080 | 3908 BENNING RD NE | WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY (WMATA) | 600 5TH ST NW WASHINGTON DC 20001-2610 |
| 2 | 5080 | BENNING RD NE | WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY (WMATA) | 600 5TH ST NW WASHINGTON DC 20001-2610 |
| 806 | 5139 | BENNING RD NE | WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY (WMATA) | 600 5TH ST NW WASHINGTON DC 20001-2610 |
| 112 | PAR-169 | BENNING RD NE | WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY (WMATA) | 600 5TH ST NW WASHINGTON DC 20001-2610 |
| 113 | PAR-169 | BENNING RD NE | WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY (WMATA) | 600 5TH ST NW WASHINGTON DC 20001-2610 |
| 15 | 5081 | BENNING RD NE | WILLIAM O SPEAKS | 15707 PRESSWICK LN BOWIE MD 20716-1714 |
| 14 | 5081 | BENNING RD NE | WILLIAM O SPEAKS | 15707 PRESSWICK LN BOWIE MD 20716-1714 |
| 52 | 5080 | 4013 MINNESOTA AV NE | WILLIAM PARK | 6805 TRED AVON PL GAINESVILLE VA 20155-3134 |

# J ECOLOGICAL RESOURCES

The limits of disturbance for the project were examined for the presence of rivers, streams, and wetlands as well as terrestrial and aquatic species habitat. No resources are present within the project area. The project will not require any additional right-of-way.

## 1. RIVERS, STREAMS, AND WETLANDS

The project is located within four different sub-watersheds: Anacostia River, Anacostia River/Benning-East Capitol, Watts Branch-Lower, and Watts Branch-Upper (Figure 1). There are no rivers, streams, floodplains or wetlands within the project limits (Figure 2).

## 2. HABITAT: FISH AND WILDLIFE-ENDANGERED SPECIES ACT

No habitat is present for either terrestrial or aquatic species nor any critical habitat as defined by the Endangered Species Act.

**Figure 1. Watersheds in the Study Area**

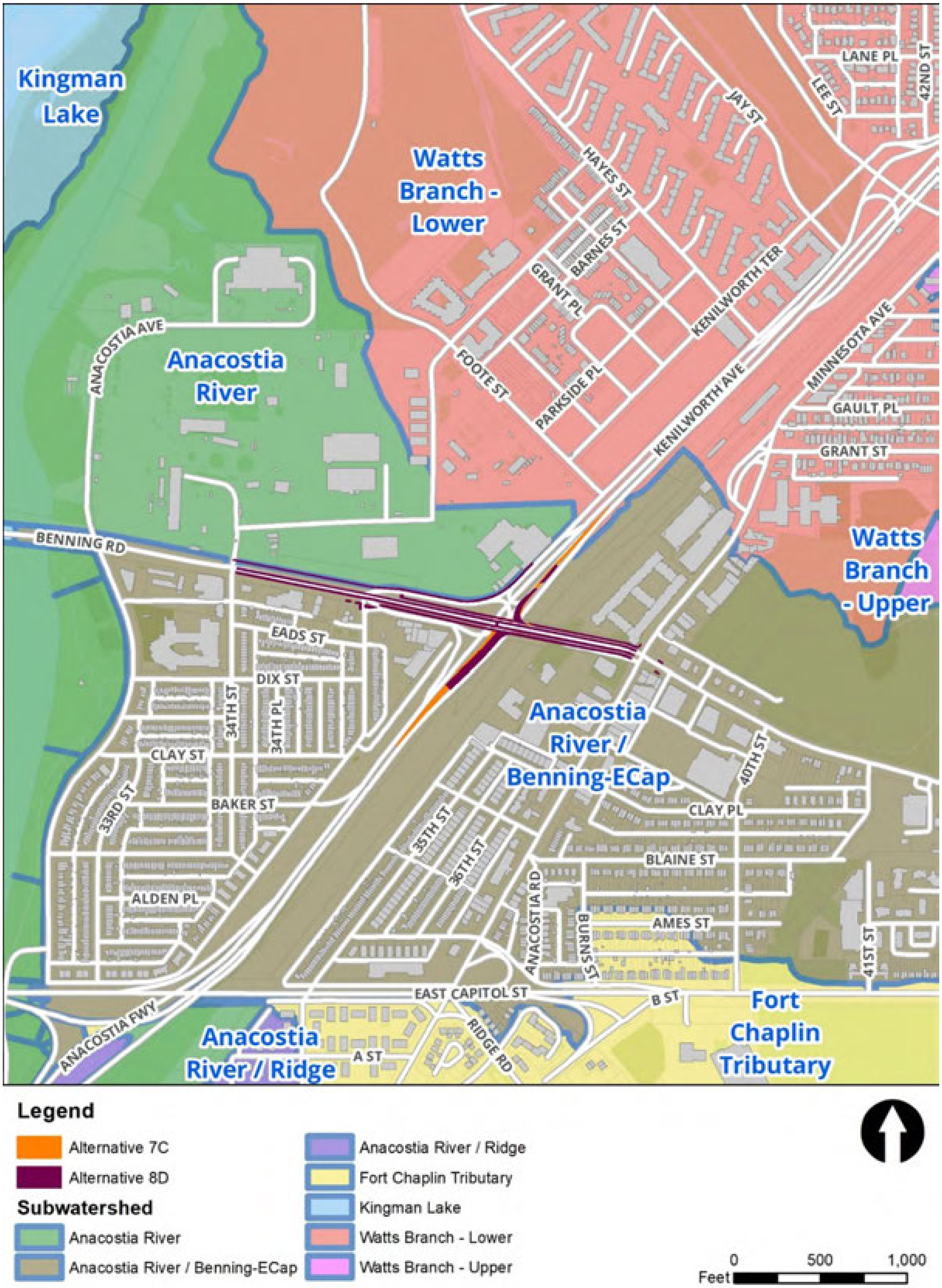
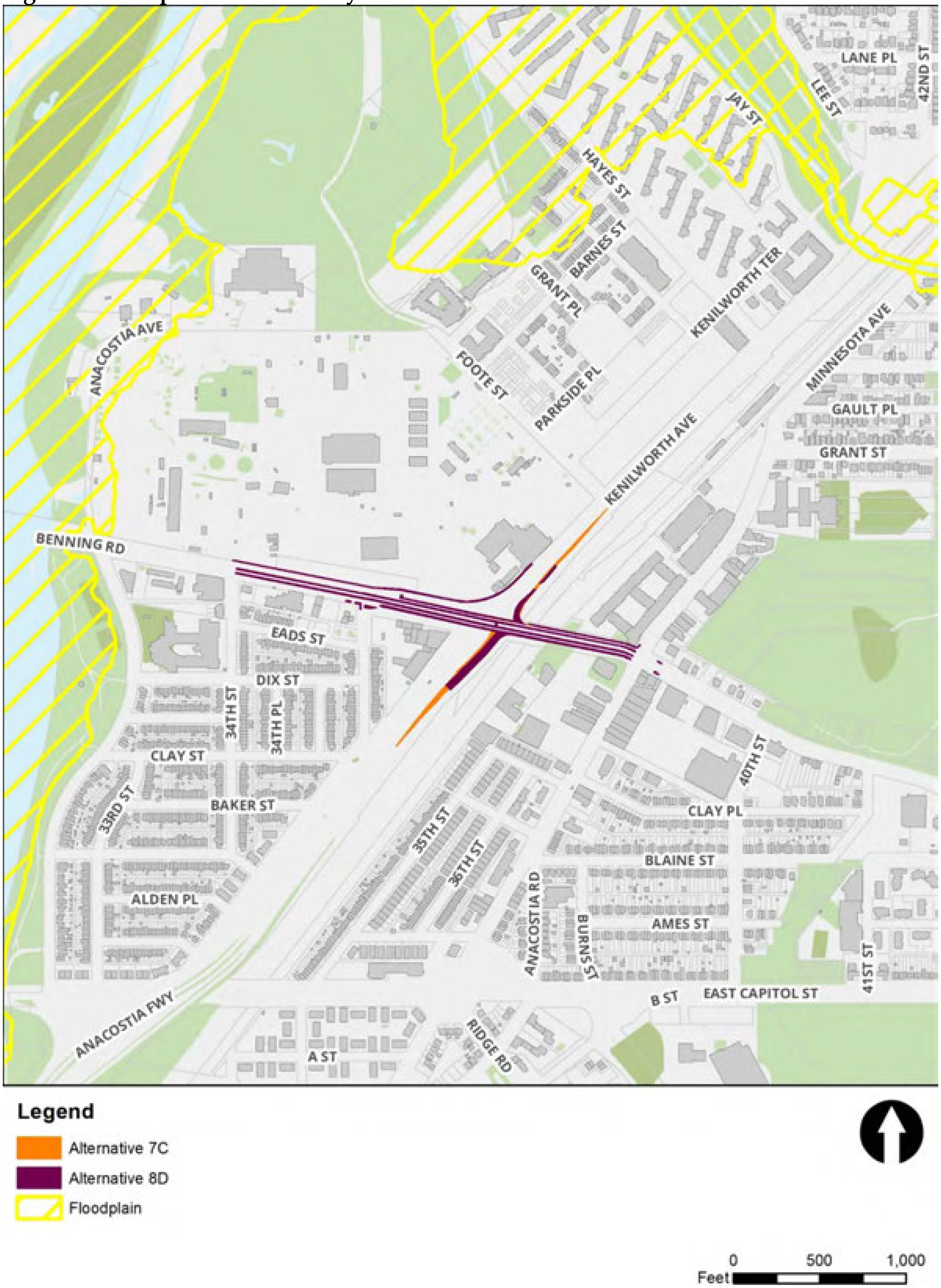


**Figure 2. Floodplains in the Study Area**



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# K CULTURAL RESOURCES

## 1. PROJECT DESCRIPTION

The purpose of the proposed modifications to the Benning Road NE and DC-295 interchange is to improve existing access along DC-295 to address deficiencies in transportation infrastructure conditions, to address safety conditions and enhance operations for both motorized and nonmotorized access, and to provide increased mobility and accessibility at the interchange.

The following six transportation needs within the vicinity of the Benning Road and DC-295 interchange are:

- Eliminate unsafe freeway connections
- Provide improved local access between Benning Road NE and DC-295
- Provide missing freeway connections to improve traffic flow to and from downtown Washington, DC
- Provide continuous, safe multimodal connections (motorized and nonmotorized) along Benning Road NE
- Replace obsolete infrastructure
- Address current levels of congestion and manage future traffic demands

Based on the results of an extensive screening process, Concept 8D was recommended for detailed evaluation in the IMR and NEPA documents.

## 2. PREFERRED ALTERNATIVE

The main focus of the Preferred Alternative is a reconfiguration of the Benning Road NE and DC-295 interchange through modification of three existing ramps in order to improve existing connections and accommodate the construction of three new ramps. The existing DC-295 northbound to Benning Road NE westbound and Kenilworth Avenue NE southbound to DC-295 northbound ramps do not meet the turning radius standards prescribed by the 2018 Green Book. The existing DC-295 northbound to Benning Road NE westbound and Benning Road NE eastbound to DC-295 northbound ramps converge in a short weave area that is an existing safety concern. To address these issues, the Preferred Alternative modifies the existing ramp from DC-295 northbound to Benning Road NE westbound to meet design criteria and ties this ramp into the bridge as a signalized intersection. The Kenilworth Avenue NE southbound to DC-295 northbound ramp is removed entirely, as this is a low-volume movement.

As part of the Preferred Alternative, movements from DC-295 northbound to Benning Road NE eastbound and movements from Benning Road NE westbound to DC-295 northbound and southbound are accommodated via three new ramps. Due to heavy demand on the Benning Road NE eastbound to DC-295 northbound ramp, the existing merge area is proposed to function as an add-lane.

All proposed interchange improvements stay within the existing DDOT right-of-way.

## 3. AREA OF POTENTIAL EFFECTS (APE) FOR CULTURAL RESOURCES

As defined by 36 CFR 800.16(d) of Section 106 of the National Historic Preservation Act (54 USC 306108), the Area of Potential Effects (APE) represents the "…geographic area or areas within which an undertaking could cause changes in the character or use of historic properties, if any such exists". In delineating the APE, factors taken into account include the elements of the proposed action, the existence of buildings, vegetation, and terrain with respect to potential visual or audible impacts, and construction activities necessary for the proposed action.

The APE for cultural resources for the proposed Benning Road NE/DC-295 Interchange Project consists of: the DDOT right-of-way which corresponds to the limits of disturbance for ground-disturbing construction activities, and two broader corridors along Benning Road NE and DC-295 which represent areas with possible visual intrusions. The proposed interchange project will not introduce any new vertical roadway elements to the existing viewshed and even though the new bridge over DC-295 will be about 1 foot higher than existing, this visual change will not be perceptible from increasing distances. Current residential and commercial development along both transportation corridors characterize the general vicinity and vegetation obscure views to and from Fort Mahan. Therefore, the visual portion of the APE is defined as a 400-foot wide corridor centered on the Benning Road centerline and extends from 200 feet west of 34$^{th}$ Street NE to 39$^{th}$ Street NE, and an approximately 500-foot wide corridor that extends along DC-295 from Foote Street NE to Clay Street NE and encompasses the adjacent railroad lines (Figure 1).

No cultural resources eligible for or listing on the National Register of Historic Places (NRHP) occur within the APE (Figure 1). The following NRHP-eligible/listed resources are adjacent to or occur within ½ mile of the APE: Fort Circle Parks Historic District and Fort Mahan, the Mayfair Mansions Historic District, and the Senator Theater Entrance Pavilion (Figure 1). The following NRHP-eligible/listed resources are located with ¾ mile of the APE: Engine Company 27 Building, the Langston Golf Course Historic District, and the Kingman Park Historic District (Figure 1).

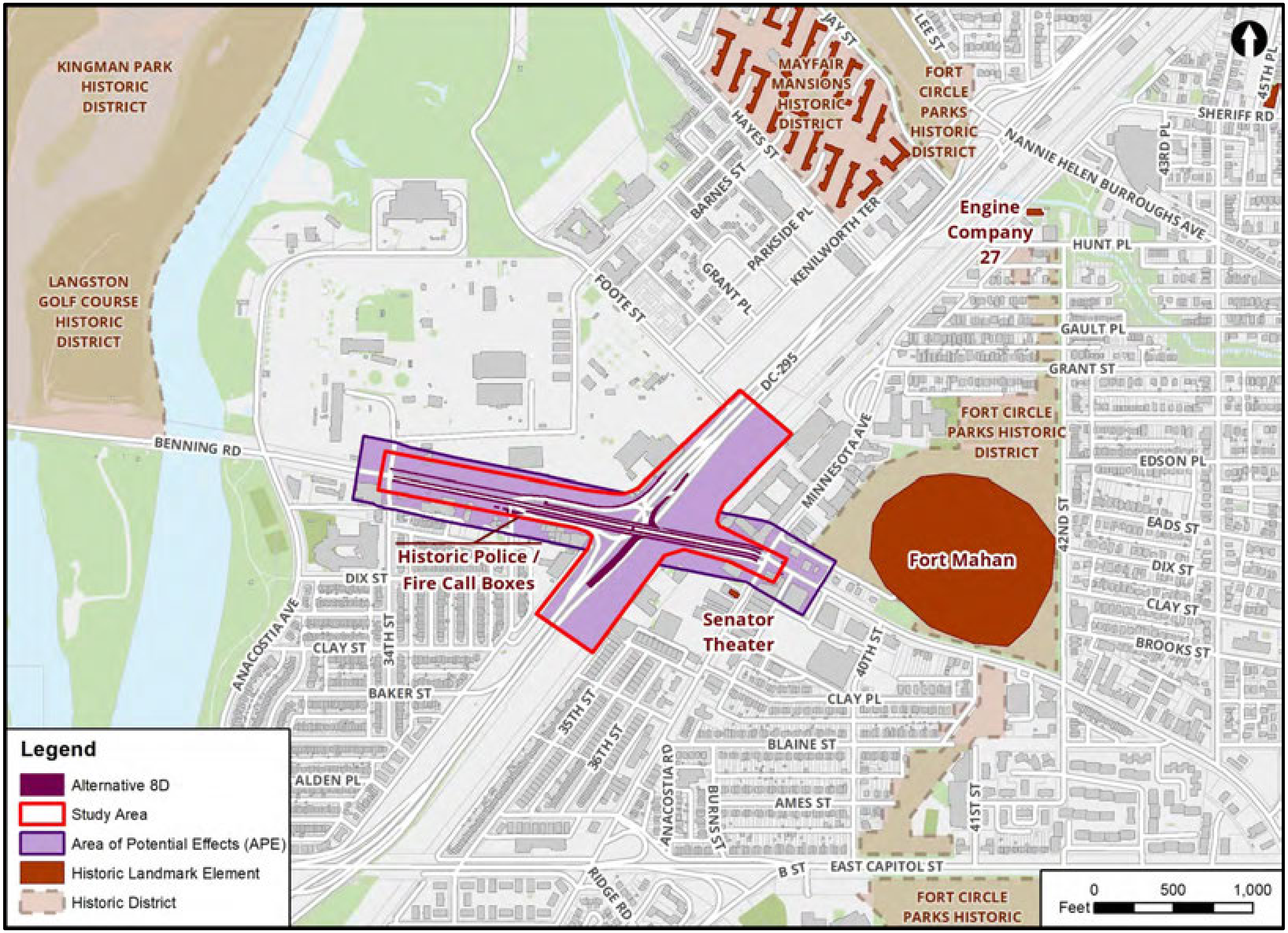


**Figure 1**. Area of Potential Effects and NRHP-eligible/listed Resources for the Benning Road/DC-295 Interchange Project

## 4. PRELIMINARY IMPACT ANALYSIS

All ground-disturbing activities will occur within DDOT right-of-way which has been previously disturbed by the original construction, subsequent widenings, and continued maintenance and upgrades of Benning Road NE, DC-295, and the railroad corridor from the 1860s-1870s to the present day. No archaeological resources are likely to occur and there will be no impact to archaeological resources.

No NRHP-eligible/listed resources are located in the APE. No visual intrusions to the viewsheds of adjacent historic properties such as the Fort Circle Parks Historic District and Fort Mahan, and the Senator Theater Entrance Pavilion, will occur. The views to and from the Fort Circle Parks Historic District and Fort Mahan are obscured by trees and vegetation. The current view to and from the Senator Theater Entrance Pavilion includes existing roadways and associated vertical features, and commercial and residential development, which will not be altered by any new vertical roadway elements associated with the interchange project.

Two historic police and fire call boxes are located at the southeast corner of the intersection of Benning Road NE and 36$^{th}$ Street NE. As requested by the DC SHPO, FHWA/DDOT will continue to consult with DC SHPO to determine the appropriate areas to relocate the historic fire and police call boxes in order to ensure their integrity of location and setting is diminished as little as possible (i.e., the relocation areas should be as close as possible to their historic locations).

# L AIR QUALITY REPORT

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# AIR QUALITY REPORT

Benning Road NE and DC-295 Interchange

District of Columbia

Prepared for:

District Department of Transportation
Planning and Sustainability Division

Submitted by:

Prepared by:
Kimley-Horn and Associates, Inc.

June 26, 2020

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# Table of Contents



# List of Tables

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# 1.0 Introduction

## *1.1. Project Location*

The interchange of Benning Road NE and DC-295 is located in the northeast quadrant of Washington, DC, between the East Capitol Street interchange (to the south) and the Nannie Helen Burroughs Avenue NE interchange (to the north).

## *1.2. Project Description*

DDOT proposes to reconstruct and reconfigure ramps to add movements to the interchange between DC-295 (Anacostia Freeway) and Benning Road NE in Washington, DC. The key design features of the proposed action are as follows:

- Construct three new ramps providing new movements (i.e., not provided under existing conditions) for the interchange: DC-295 northbound to Benning Road NE eastbound, Benning Road NE westbound to DC-295 southbound, and Benning Road NE westbound to DC-295 northbound. These improvements will provide three of the four identified “missing movements”; the other movement – southbound DC-295 SB to eastbound Benning Road NE – cannot be provided due to clearances/space under the existing CSX bridge.
- Maintain access to/from Benning Road NE and DC-295: Benning Road NE eastbound to DC-295 southbound, Benning Road NE eastbound to DC-295 northbound, northbound DC-295 to westbound Benning Road NE, and southbound DC-295 to westbound Benning Road NE (via Kenilworth Avenue NE). The three existing ramps that connect directly to Benning Road NE will be modified to accommodate the interchange improvements.
- Relocate the River Terrace (Baker Street NE) off-ramp approximately 800 feet south of the existing location to a new connection at Alden Place NE. The off-ramp relocation is required in order to accommodate new/relocate ramp improvements described above to facilitate the safe exit and entrance of weaving traffic to and from DC-295.
- Remove existing bridge structure that carries two ramps: Kenilworth Avenue NE southbound to DC-295 northbound, and DC-295 northbound to Benning Road NE westbound. A new bridge structure will be constructed to tie into the Benning Road NE bridge and include a new signalized intersection on the bridge for the DC-295 northbound to Benning Road NE westbound ramp. The low-volume Kenilworth Avenue NE southbound to DC-295 northbound movement is removed.
- Maintain the current freeway capacity of three lanes in the southbound direction on DC-295. In the opposite direction, the existing left-side on-ramp

from East Capitol Street eastbound to DC-295 northbound becomes a drop lane, decreasing the number of northbound through lanes from three to two lanes at the Benning Road NE interchange. As a result, the innermost left lane along DC-295 becomes a single-lane exit at Benning Road NE; the Benning Road NE to DC-295 northbound ramps merge with the mainline as an add-lane to restore a three-lane section upstream of the Nannie Helen Burroughs NE interchange.

- Improve the local roadway network at signalized intersections in the study area, including bicycle and pedestrian improvements.

A Categorical Exclusion is being prepared for the proposed project. The DDOT Environment Division confirmed that this project meets the criteria of CE-2 projects and no significant impact exists.

### *1.3. Project Purpose*

The purpose of the DC-295 and Benning Road NE interchange modification is to improve existing access along DC-295 to address deficiencies in transportation infrastructure conditions, address safety conditions and enhance operations for both motorized and non-motorized access, and to provide increased mobility and accessibility at the Benning Road NE interchange.

In relation to the identified purpose and need, the proposed action described above will:

- Increase the number of movements at the interchange
- Provide safe pedestrian and bicycle facilities
- Provide connectivity to the east
- Correct turning radius deficiencies on existing ramps
- Lengthen or eliminate short merge/weave areas
- Increase deceleration/acceleration distance for on-/off-ramps
- Maintain structural integrity and safety of bridges
  Stay within existing DDOT right-of-way

## 2.0 Air Quality Analysis Elements and Considerations

Air pollution originates from various sources. Emissions from industry and internal combustion engines are the most prevalent sources. The impact resulting from highway construction ranges from intensifying existing air pollution problems to improving the ambient air quality. Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. Motor vehicles emit carbon monoxide (CO), nitrogen oxide

(NO), hydrocarbons (HC), particulate matter (PM), sulfur dioxide ($SO_2$), and lead (Pb) (listed in order of decreasing emission rates).

The Federal Clean Air Act of 1970 established the National Ambient Air Quality Standards (NAAQS) for six principal pollutants, which are called “criteria” air pollutants. These were established in order to protect public health, safety, and welfare from known or anticipated effects of air pollutants. The NAAQS contain criteria for sulfur dioxide ($SO_2$), particulate matter ($PM_{10}$, 10-micron and smaller, $PM_{2.5}$, 2.5-micron and smaller), carbon monoxide (CO), nitrogen dioxide ($NO_2$), ozone ($O_3$), and lead (Pb). The NAAQS, set by the U.S. Environmental Protection Agency (EPA), are presented in Table 1.

The primary pollutants from motor vehicles are unburned hydrocarbons (HC), nitrogen oxides (NOx), CO, and particulates. HC and NOx can combine in a complex series of reactions catalyzed by sunlight to produce photochemical oxidants such as $O_3$ and $NO_2$. Because these reactions take place over a period of several hours, maximum concentrations of photochemical oxidants are often found far downwind of the precursor sources.

**Table 1. EPA National Ambient Air Quality Standards**

| **Pollutant** | | **Primary/ Secondary** | **Averaging Time** | **Level** | **Form** |
|---|---|---|---|---|---|
| Carbon Monoxide (CO) | | primary | 8 hours | 9 ppm | Not to be exceeded more than once per year |
| | | | 1 hour | 35 ppm | |
| Lead (Pb) | | primary and secondary | Rolling 3 month average | 0.15 μg/m$^3$ [(1)] | Not to be exceeded |
| Nitrogen Dioxide ($NO_2$) | | primary | 1 hour | 100 ppb | 98$^{th}$ percentile of 1-hour daily maximum concentrations, averaged over 3 years |
| | | primary and secondary | 1 year | 53 ppb [(2)] | Annual mean |
| Ozone ($O_3$) | | primary and secondary | 8 hours | 0.070 ppm [(3)] | Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years |
| Particle Pollution (PM) | $PM_{2.5}$ | primary | 1 year | 12.0 μg/m$^3$ | Annual mean, averaged over 3 years |
| | | secondary | 1 year | 15.0 μg/m$^3$ | Annual mean, averaged over 3 years |
| | | primary and secondary | 24 hours | 35 μg/m$^3$ | 98$^{th}$ percentile, averaged over 3 years |
| | $PM_{10}$ | primary and secondary | 24 hours | 150 μg/m$^3$ | Not to be exceeded more than once per year on average over 3 years |

| | | | | |
|---|---|---|---|---|
| Sulfur Dioxide ($SO_2$) | primary | 1 hour | 75 ppb (4) | 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years |
| | secondary | 3 hours | 0.5 ppm | Not to be exceeded more than once per year |
| (1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect.<br>(2) The level of the annual NO2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.<br>(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.<br>(4) The previous SO2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2)any area for which implementation plans providing for attainment of the current (2010) standard have not been submitted and approved and which is designated nonattainment under the previous SO2 standards or is not meeting the requirements of a SIP call under the previous SO2 standards (40 CFR 50.4(3)), A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the require NAAQS. | | | | |
| Source: US EPA, https://www.epa.gov/criteria-air-pollutants/naaqs-table, accessed April 7, 2020. | | | | |

## 3.0 Attainment Status

The proposed project is located in the District of Columbia, which has been determined to comply with all NAAQS with the exception of the 2015 8-hour ground-level ozone standard. The area is a marginal non-attainment area for the 8-hour ozone standard (for marginal designation, which is the lowest designation for non-attainment, the area has a design value of 0.071 up to but not including 0.081 ppm, based on the 2015 EPA standards). However, the proposed project is not anticipated to create any adverse effects on the air quality within this area for ground-level ozone or any of the other criteria pollutants shown in Table 1.

## 4.0 Pollutants

### *4.1. Carbon Monoxide*

CO is a colorless, odorless gas that can be harmful when inhaled in large amounts. CO is released when something is burned. The greatest sources of CO to outdoor air are cars, trucks and other vehicles or machinery that burn fossil fuels. A variety of items in homes such as unvented kerosene and gas space heaters, leaking chimneys and furnaces, and gas stoves also release CO and can affect air quality indoors. The District of Columbia is an attainment area for CO and thus no microscale carbon monoxide analysis is required for this project.

### *4.2. Ozone & Oxides*

Automobiles are regarded as sources of hydrocarbons (HC) and nitrogen oxides (NOx). HC and NOx emitted from cars are carried into the atmosphere where they react with sunlight to form ozone ($O_3$) and nitrogen dioxide ($NO_2$). Automotive emissions of HC and NOx are expected to decrease in the future due to the continued installation and maintenance of pollution control devices on new cars. However, regarding area-wide emissions, these technological improvements may be offset by the increasing number of cars on the transportation facilities of the area.

The photochemical reactions that form $O_3$ and $NO_2$ require several hours to occur. For this reason, the peak levels of $O_3$ generally occur ten to twenty kilometers downwind of the source of HC emissions. Urban areas as a whole are regarded as sources of HC, not individual streets and highways. The emissions of all sources in an urban area mix in the atmosphere, and, in the presence of sunlight, this mixture reacts to form $O_3$, $NO_2$, and other photochemical oxidants. The best example of this type of air pollution is the smog that forms in Los Angeles, California. Since ozone has a regional rather than local impact, project-level analysis is never required to assess the impacts of this pollutant.

### *4.3. Particulate Matter & Sulfur Dioxide*

Mobile sources serve as contributors to particulate matter emissions. For projects within non-attainment or maintenance areas for $PM_{2.5}$, qualitative analyses are required. The District of Columbia is designated as in attainment for both the annual and the 24-hour $PM_{2.5}$ standards. Therefore, no analysis is required for this pollutant.

Automobiles are not regarded as significant sources of sulfur dioxide ($SO_2$). Nationwide, highway sources account for less than two percent of $SO_2$ emissions. $SO_2$ are predominantly the result of non-highway sources (e.g., industrial, commercial, and agricultural). Because emissions of $SO_2$ from automobiles are very low, there is no reason to suspect that traffic on the project will cause air quality standards for $SO_2$ to exceed the NAAQS.

### *4.4. Lead*

Automobiles without catalytic converters can burn regular gasoline. The burning of regular gasoline emits lead as a result of regular gasoline containing tetraethyl lead, which is added by refineries to increase the octane rating of the fuel. Newer cars with catalytic converters burn unleaded gasoline, thereby eliminating lead emissions. Also, the United States Environmental Protection Agency (EPA) has required the reduction in the lead content of leaded gasoline. The overall average lead content of gasoline in 1974 was approximately 0.53 gram per liter. By 1989, this composite average had dropped to 0.003 gram per liter. The Clean Air Act Amendments of 1990 made the sale, supply, or transport of leaded gasoline or lead additives unlawful after December 31, 1995. Because of these reasons, it is not expected that traffic on the proposed project will cause the NAAQS for lead to be exceeded. No analysis is required to address the effects of lead.

## 5.0 Mobile Source Air Toxics (MSAT)

FHWA most recently updated its guidance for the assessment of MSATs in the NEPA process for highway projects in 2016[1]. The updated guidance states that "*EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers or contributors and non-cancer hazard contributors from the 2011 National Air Toxics Assessment (NATA)[2]. These are 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter.*" It also specifies three possible categories or tiers of analysis, namely, 1) projects with no meaningful potential MSAT effects or exempt projects (for which MSAT analyses are not required), 2) projects with low potential MSAT effects (requiring only qualitative analyses), and 3) projects with higher potential MSAT effects (requiring quantitative analyses).

As this project involves a CE, and therefore under FHWA guidance may be categorized as a Tier 1 project for which no meaningful MSAT effects would be expected, neither a qualitative nor a quantitative analysis is needed. In addition, this project has been determined to generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special MSAT concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause a meaningful increase in MSAT impacts of the project from that of the no-build alternative.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. As noted in the referenced FHWA MSAT guidance, based on regulations now in effect, an analysis of national trends with EPA's MOVES2014 model forecasts a combined reduction of over 90 percent in the total annual emissions rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 45 percent. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

[1] FHWA, "*INFORMATION: Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*", October 18, 2016. See: http://www.fhwa.dot.gov/environment/air_quality/air_toxics/

[2] See: https://www.epa.gov/national-air-toxics-assessment

## 6.0 Construction Air Quality

During construction of the proposed project, all materials resulting from clearing and grubbing, demolition or other operations will be removed from the project by the Contractor. During construction, measures will be taken to reduce the dust generated by construction when the control of dust is necessary for the protection and comfort of motorists or area residents. Construction activities will be subject to requirements as set forth in section 107.17c of the *District of Columbia Department of Transportation Standard Specifications for Highways and Structures*, 2013 as well as the air quality regulations in the current Title 20 District of Columbia Municipal Regulations (DCMR 20), "Environment and Energy."

## 7.0 Summary

Vehicles are a major contributor to decreased air quality because they emit a variety of pollutants into the air. Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. New highways or the widening of existing highways increase localized levels of vehicle emissions, but these increases could be offset due to increases in speeds from reductions in congestion and because vehicle emissions will decrease in areas where traffic shifts to the new roadway. Significant progress has been made in reducing criteria pollutant emissions from motor vehicles and improving air quality, even as vehicle travel has increased rapidly. The proposed project is located in the District of Columbia, which has been designated as a marginal nonattainment area for the 2015 8-hour ozone standard. However, the build alternatives being studied for this project are not expected to create any adverse effects on the area's air quality. This evaluation completes the assessment requirements for air quality of the 1990 Clean Air Act Amendments and the NEPA process, and no additional reports are necessary.

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# M NOISE

## EXECUTIVE SUMMARY

This technical memorandum evaluates the potential traffic noise impacts and feasible abatement measures under the requirements of Title 23, Part 772 of the Code of Federal Regulations (Title 23 CFR 772) “Procedures for Abatement of Highway Traffic Noise.” Title 23 CFR 772 provides procedures for preparing operational and construction noise studies as well as evaluating noise abatement considered for federal and federal-aid highway projects. According to Title 23 CFR 772.3, all highway projects that are developed in conformance with this regulation are deemed to be in conformance with Federal Highway Administration (FHWA) noise standards. The District Department of Transportation (DDOT) Highway Noise Policy and Regulations follows the requirements of 23 CFR 772 and was used for this traffic noise analysis.

The study includes (a) short-term noise measurements; (b) roadway traffic noise modeling using FHWA's Traffic Noise Model version 2.5 (TNM 2.5); and (c) construction noise.

Traffic noise levels under the Build Alternative are predicted to range between 42 and 66 dBA in design year 2045. In most cases, traffic noise levels in the Build condition remained the same or were 1 to 3 dBA less than the existing and future No-Build traffic noise levels. This is due to the portions of westbound Benning Road NE on-ramp to southbound DC-295 where the retaining wall portions of the ramp are blocking the line of sight to the general purpose lanes of DC-295. Consequently, some noise attenuation effects are a result of this configuration. For those locations where increases are predicted, the difference in traffic noise levels from existing conditions to Build conditions was determined to be 1 dB; therefore, there would be no substantial noise increase (an increase of 10 dB or more) within the study area.

In the District, construction noise is regulated by Title 20 of the District of Columbia Code of Municipal Regulations (DCMR). These regulations are the appropriate standards to use when assessing project-related impacts.

There are many measures that can be taken to minimize noise intrusion without placing unreasonable constraints on the construction process or substantially increasing costs. These include noise monitoring to ensure that contractors take all reasonable steps to minimize impacts when near sensitive areas; noise testing and inspection of equipment to ensure that all equipment on site is in good condition and effectively muffled; and an active community liaison program. A community liaison program would keep residents informed about construction plans so they can plan around periods of particularly high noise levels, and it would provide a conduit for residents to express any concerns or complaints.

A combination of the mitigation techniques for equipment noise control as well as administrative measures, when properly implemented, can be selected to provide the most effective means to minimize the effects of construction activity. Application of the mitigation measures will reduce the construction impacts; however, temporary increases in noise would likely occur at some locations.

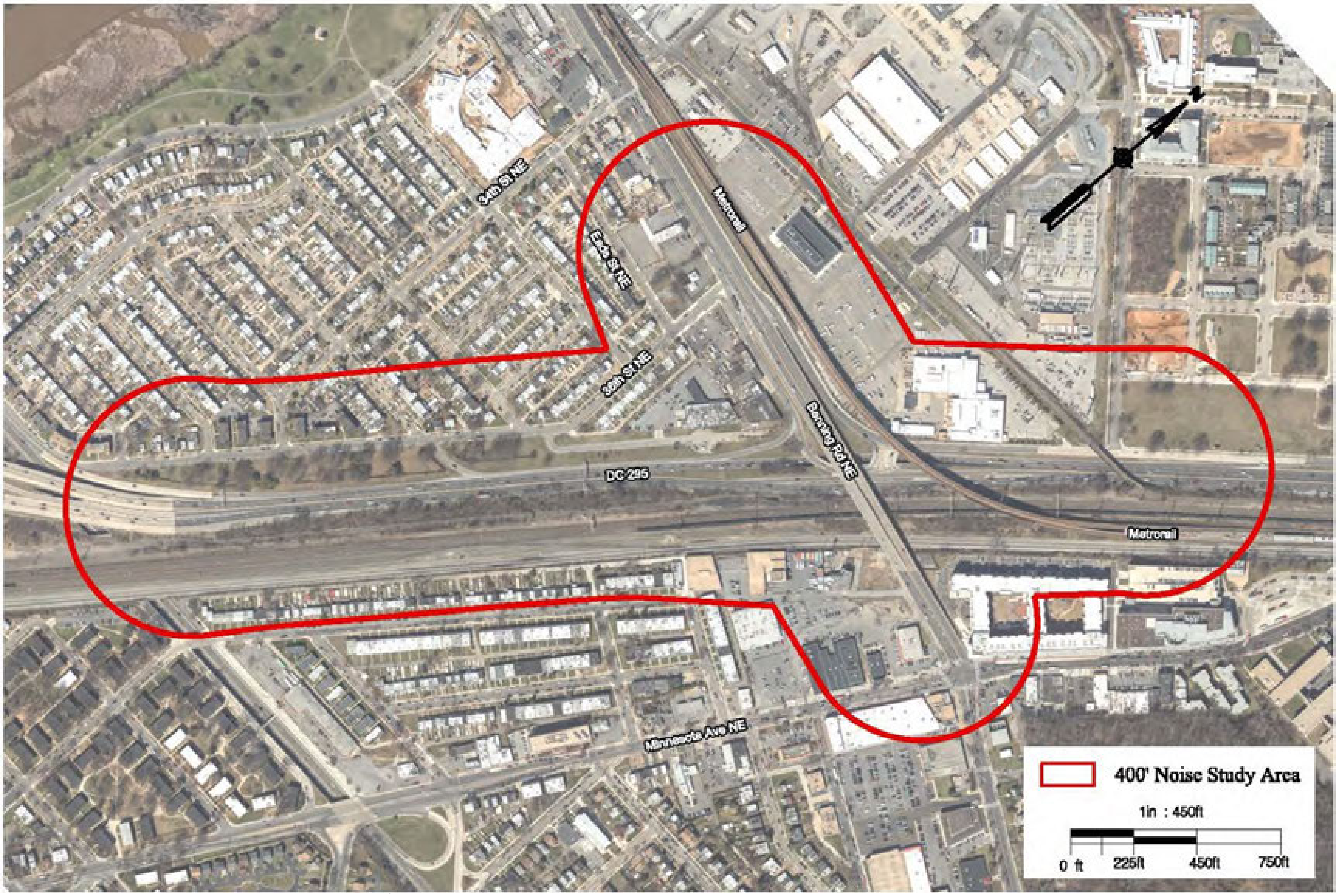
# 1 INTRODUCTION

As part of the ongoing Benning Road NE and DC-295 Interchange Project, the District Department of Transportation (DDOT) has initiated a preliminary design project aimed at improving the Benning Road corridor to accommodate all modes of transportation safely and efficiently. The Benning Road Reconstruction and Streetcar Project will improve safety conditions and operations, address deficiencies in infrastructure, and provide additional transit options in Ward 7 and Ward 5 and along the approximately two miles of Benning Road NE from Oklahoma Avenue NE to East Capitol Street. This study is only concerned with Build Alternative B (Concept 8D) at the Benning Road NE/Anacostia Freeway (DC-295) interchange.

## 1.1 PROJECT DESCRIPTION

The Preferred Alternative includes the following interchange improvements that modify existing access: (1) Construct a new one-lane off-ramp from DC-295 northbound that widens to a two-lane intersection approach to provide new access to Benning Road NE in both directions. This is a left-side off-ramp that connects to the Benning Road NE bridge at a signalized intersection; (2) Construct a new one-lane on-ramp from Benning Road NE westbound to DC-295 southbound. This ramp structure starts on the Benning Road NE bridge before merging with the Benning Road NE eastbound to DC-295 southbound on-ramp on the right side of DC-295; (3) Reconstruct/realign a one-lane on-ramp from Benning Road NE eastbound to DC-295 southbound. This ramp merges with the new ramp from Benning Road NE westbound to DC-295 southbound before merging with the mainline of DC-295 southbound; (4) Construct a new one-lane on-ramp from Benning Road NE westbound to DC-295 northbound. This ramp starts on the Benning Road NE bridge before sloping down under the existing Metrorail bridge structure, where it merges with the reconstructed ramp from Benning Road NE eastbound to DC-295 northbound; (5) Reconstruct/realign a one-lane on-ramp from Benning Road NE eastbound to DC-295 northbound. The reconstructed ramp lane is added as a third through lane on northbound DC-295 after merging with the new ramp from Benning Road NE westbound; (6) Remove an existing bridge structure carrying an off-ramp from DC-295 northbound to Benning Road NE westbound and an on-ramp from Kenilworth Avenue NE southbound to DC-295 northbound; (7) Restripe DC-295 northbound between the proposed off- and on-ramps with Benning Road NE, reducing the number of through lanes along this segment of DC-295 from three to two to accommodate new ramps and structures; (8) Eliminate the off-ramp from DC-295 southbound to Baker Street NE (River Terrace exit) and reconstruct the off-ramp approximately 800 feet south at Alden Place NE. DC-295 widens to maintain four lanes from the old off-ramp to the new off-ramp location. An additional through lane is dropped at the off-ramp to East Capitol Street to maintain the existing two-lane cross section south of this interchange. The off-ramp relocation is required in order to accommodate the southbound ramp from westbound Benning Road NE and facilitate the safe exit and entrance of weaving traffic to and from DC-295.

The Preferred Alternative best meets the Purpose and Need for the Project while minimizing associated impacts. The proposed changes in access improve system attributes, including the incorporation of missing movements, and address issues such as system continuity, problematic weaving areas, conflicts between local and regional traffic, and other policy concerns associated with 23 USC 111 and 23 CFR 625.




Benning Road and DC-295 Interchange

## 1.2 PURPOSE OF NOISE ANALYSIS REPORT

The purpose of this technical report is to document potential impacts of operation and construction of the Benning Road NE and DC-295 Interchange Project related to traffic noise, and to describe abatement measures, as warranted. The technical report supports and is part of the CE.

# 2 METHODOLOGY

## 2.1 FEDERAL REGULATIONS AND DISTRICT POLICY COMPLIANCE

The Noise Control Act of 1972 gives the US Environmental Protection Agency (USEPA) the authority to establish noise regulations to control major noise sources, including motor vehicles and construction equipment. Furthermore, the USEPA is required to set noise emission standards for motor vehicles used for interstate commerce and FHWA is required to enforce the USEPA noise emission standards through the Office of Motor Carrier Safety. The National Environmental Policy Act (NEPA) of 1969 gives broad authority and responsibility to federal agencies to evaluate and mitigate adverse environmental impacts caused by federal actions. FHWA is required to comply with NEPA, including mitigating adverse highway traffic noise effects.

The Federal-Aid Highway Act of 1970 mandates FHWA to develop standards for mitigating highway traffic noise. It also requires FHWA to establish traffic noise level criteria for various types of land uses. The Act prohibits FHWA approval of federal-aid highway projects unless adequate consideration has been made for noise abatement measures to comply with the standards. FHWA regulations for highway traffic noise for federal-aid highway projects are contained in 23 CFR 772 Procedures for Abatement of Highway Traffic Noise and Construction Noise. The regulations contain noise abatement criteria, which represent the threshold at which abatement of highway traffic noise must be considered for specific types of land uses. The regulations do not mandate that the abatement criteria be met in all situations, but rather require that reasonable and feasible efforts be made to provide noise mitigation when the abatement criteria are approached or exceeded.

The District Department of Transportation (DDOT) Highway Noise Policy and Regulations was developed to implement the requirements of 23 CFR 772 *Procedures for Abatement of Highway Traffic Noise and Construction Noise*, FHWA's *Highway Traffic Noise Analysis and Abatement Policy and Guidance*, and the noise-related requirements of NEPA. The current DDOT Highway Noise Policy and Regulations became effective on June 20, 2012.

Under Title 23 CFR 772.5, projects are categorized as Type I, Type II, or Type III projects.

- Type I projects: Include the construction of a highway on new location or the physical alteration of an existing highway where there is either: (1) Substantial Horizontal Alteration – A project that halves the distance between the traffic noise source and the closest receptor between the existing condition to the future build condition; or (2) Substantial Vertical Alteration – A project that removes shielding therefore exposing the line-of-sight between the receptor and the traffic noise source. This is done by either altering the vertical alignment of the highway or by altering the topography between the highway traffic noise source and the receptor.

- Type II project: A Federal or Federal-aid highway project for noise abatement on an existing highway.
- Type III project: A Federal or Federal-aid highway project that does not meet the classifications of a Type I or Type II project. Type III projects do not require a noise analysis.

## 2.2 SOUND LEVEL METRICS

The following sections describe the necessary technical terminologies and concepts that are used when presenting and discussing the noise study analysis.

### 2.2.1 Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound. In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

### 2.2.2 Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

### 2.2.3 Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (µPa). One µPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 µPa. Because of this huge range of values, sound is rarely expressed in terms of µPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of hearing for humans is 0 dB, which corresponds to 20 µPa.

### 2.2.4 Addition of Decibels

Because decibels are logarithmic units, SPLs cannot be added or subtracted through ordinary arithmetic means. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB—rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dB louder than one source.

### 2.2.5 A-Weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an "A-weighted" sound level (expressed in units of dBA) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-weighted levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C-, and D-scales), but these scales are rarely used in conjunction with highway-traffic noise. Noise levels for traffic noise reports are typically reported in terms of

A-weighted decibels or dBA. Figure 2-1 shows typical A weighted noise levels for various noise sources.

### 2.2.6 Human Response to Changes in Noise Levels

As discussed above, doubling sound energy results in a 3-dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness is usually different than what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels, when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000 Hz–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Furthermore, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound would generally be perceived as barely detectable.


**Figure 2.1 | Typical A-Weighted Noise Levels**

## 2.3 SOUND LEVEL METRICS

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors.

### 2.3.1 Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.

### 2.3.2 Ground Absorption

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance.

### 2.3.3 Atmospheric Effects

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) from the highway due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have some effects.

### 2.3.4 Shielding by Natural or Man-Made Features

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and man-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receiver specifically to reduce noise. Taller barriers provide increased noise reduction.

## 2.4 NOISE DESCRIPTORS

- **Equivalent Sound Level (Leq):** Leq represents an average of the sound energy occurring over a specified period. In effect, Leq is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour A-weighted equivalent sound level (Leq[h]) is the energy average of A-weighted sound levels occurring during a one-hour period.

- **Percentile-Exceeded Sound Level (Ln):** Ln represents the sound level exceeded for a given percentage of a specified period (e.g., L10 is the sound level exceeded 10 percent of the time, and L90 is the sound level exceeded 90 percent of the time).
- **Maximum Sound Level (Lmax):** Lmax is the highest instantaneous sound level measured during a specified period.
- **Day-Night Level (Ldn):** Ldn is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during nighttime hours between 10 p.m. and 7 a.m.

## 2.5 NOISE ABATEMENT CRITERIA

The DDOT Highway Noise Policy and Regulations has adopted the noise abatement criteria (NAC) that have been established by FHWA (23 CFR 772) for determining traffic noise impacts for a variety of land uses. The NAC, listed in Table 2.1 for various activities, represent the upper limit of acceptable traffic noise conditions and also a balancing of that which may be desirable with that which may be achievable. The NAC applies to outdoor areas having frequent human use and where lowered noise levels are desired. They do not apply to the entire tract of land on which the activity is based, but only to that portion where the activity takes place. The NAC is given in terms of the hourly, A-weighted, equivalent sound level in decibels (dBA). The noise impact assessment is made using the guidelines listed in Table 2.1.

**Table 2.1 | Activity Categories and Noise Abatement Criteria**

| Activity Category | Activity $L_{eq}[h]$[1] | Evaluation Location | Description of Activities |
|---|---|---|---|
| A | 57 | Exterior | Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. |
| B[2] | 67 | Exterior | Residential |
| C | 67 | Exterior | Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings. |
| D | 52 | Interior | Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios. |
| E | 72 | Exterior | Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A-D or F. |
| F | -- | -- | Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing. |
| G | -- | -- | Undeveloped lands that are not permitted (without building permits). |

[1] The $L_{eq}$(h) activity criteria values are for impact determination only and are not design standards for noise abatement measures. All values are A-weighted decibels (dBA).

[2] Includes undeveloped lands permitted for this activity category.
Source: 23 CFR Part 772, 2010

## 2.6 NOISE IMPACT DETERMINATION AND ANALYSIS PROCEDURE

A traffic noise impact, according to 23 CFR 772.5 and DDOT's Highway Noise Policy and Regulations, is defined as "design year build condition noise levels that approach or exceed the Noise Abatement Criteria (NAC) for the future build condition; or design build year condition noise levels that create a substantial noise increase over existing noise levels." DDOT's Highway Noise Policy and Regulations defines "approach" to be "1.0 dB(A) less than NAC." While DDOT's

Highway Noise Policy and Regulations define "substantial noise increase" for Type I projects to be "an increase in noise levels of 10.0 dB(A) or more in the design year over the existing noise level," 23 CFR 772.5 defines it as "an increase in noise levels of 5 to 15 dB(A) in the design year over the existing noise level." According to DDOT's Highway Noise Policy and Regulations, if "a highway traffic noise impact is deemed to occur … noise abatement must be considered."

## 2.7 TRAFFIC NOISE LEVEL PREDICTION

### 2.7.1 Highway Noise Computation Model

Since roadway noise can be determined accurately through computer modeling techniques for areas that are dominated by roadway traffic, design year traffic noise calculations have been predicted using FHWA's Traffic Noise Model (TNM) Version 2.5, which is the latest approved version. The TNM was developed and sponsored by the U. S. Department of Transportation and John A. Volpe National Transportation Systems Center, Acoustics facility. The TNM estimates vehicle noise emissions and resulting noise levels based on reference energy mean emission levels. The existing and proposed alignments (horizontal and vertical) are input into the model, along with the receptor locations, traffic volumes of cars, medium trucks (vehicles with 2 axles and 6 tires), heavy trucks, average vehicle speeds, pavement type, and any traffic control devices. The TNM uses its acoustic algorithms to predict noise levels at the selected receptor locations by taking into account sound propagation variables, such as atmospheric absorption, divergence, intervening ground, barriers, and building rows.

TNM input is based on a three-dimensional grid created for the study area to be modeled. All roadways, barriers, terrain lines, and receptor points are defined by x, y, and z coordinates. Receptors, defined as single points, are typically located at frequent outdoor use areas such as residences, playgrounds, and a trail. Roadways, terrain lines, and barriers are coded into TNM as line segments defined by a series of points. A series of line segments that represent a particular modeling feature is often referred as a "line string". Line strings are created for all pertinent roadways and distinguishing terrain features within the study area. To obtain the elevations for existing areas, line strings are draped onto three dimensional (3D) digital terrain map files. The line strings are then extracted from the design files and imported into TNM. Elevations for proposed roadways are extracted from the proposed plan and profile data.

### 2.7.2 Modeling Assumptions and Considerations

Receptors were modeled at a height of 5 feet above the corresponding elevation of their represented frequent outdoor use area for all first-story land uses such as residential backyards and playgrounds and were modeled at a height of 10 or 15 feet above ground at multi-family residential balconies depending on the relative height of the balcony. The propagation path between source and receiver is modeled in TNM by specifying special terrain features and building structures. Propagation of noise can be further specified by selecting ground types such as hard soil, loose soil, pavement, lawn, and field grass. The lawn option was chosen as the overall ground type for this study because other than roads, buildings, and parking lots, the study area is grassy.

### 2.7.3 Traffic Volumes and Flow Control

Traffic noise is a function of traffic volumes and traffic speed. Noise increases with speed and higher volumes of traffic. However, at higher volumes, speed decreases (stop and go), so the worst-case traffic noise levels are experienced when there is a balance between the volume and speed. For purposes of determining noise impacts, the peak-traffic-noise occurs when traffic is operating under level of service (LOS) C conditions. Under these conditions, traffic is heavy, but remains free flowing.

Since TNM produces hourly Leq values, all traffic inputs are based on hourly traffic volumes. The worst-case traffic noise levels produced within the peak-traffic-noise-hour is typically during the peak traffic hours. In order to determine the noise levels generated by traffic, the TNM computer program requires inputs of traffic volumes, speeds, and vehicle types. The source of the volumes and speeds used for the noise analysis as well as the determination of the peak-traffic-noise-hour is discussed in the next section.

Traffic volumes were provided by the traffic engineers as hourly volumes for the existing (2017), No-Build (2045), and Build (2045) conditions. Based on the provided traffic data, the traffic volumes were consistently higher in the PM peak hour. Therefore, to produce the peak-noise-hour conditions, the PM peak traffic volumes were used in this study. In some cases, the PM peak hour traffic volumes exceeded volumes considered to be LOS C. In those situations, the PM peak hour traffic volumes were capped at the LOS C volumes provided by the traffic engineers.

Appendix D presents the comprehensive listing of the traffic volumes, speeds, and traffic distribution used for the noise analysis for the existing, No-Build, and Build conditions.

# 3 EXISTING NOISE ENVIRONMENT

A site survey was conducted to identify frequent outdoor use areas that could be subject to potential traffic noise impacts from the proposed project. Noise monitoring was also conducted to develop a comparison between the monitored results and the output obtained from the noise prediction model. This exercise was performed to validate the model so that it could be used with confidence to predict the worst-hour traffic noise levels for the existing and future conditions. All of the short-term measurements were conducted with simultaneous traffic recordings for noise model validation purposes.

## 3.1 NOISE MEASUREMENT PROCEDURE

Noise measurements were conducted in conformance with the guidelines outlined in FHWA's *Noise Measurement Handbook* (2018) and DDOT's *Highway Noise Policy and Regulations* (2012).

## 3.2 NOISE MEASUREMENT RESULTS

Short-term noise measurements were conducted at five sites in June 2020 using Larson-Davis model LxT Type 1 sound level meters. Measurements were taken for a duration of 15-minutes at each site. The measurement locations are identified in Figures 1 through 4 in Appendix A, and addresses are listed in Table 3.1. Noise measurement site photographs are presented in Appendix B and field notes are located in Appendix C.

Field staff attended each meter during the short-term measurements (15 minutes in duration). Locations were chosen to ensure the capture of dominant sources of traffic noise DC-295 and Benning Road). Any non-traffic noise sources (e.g., air conditioning units and dogs barking) that could potentially contaminate the measured noise levels were avoided.

The calibration of the sound level meter was checked before and after measurement using the Larson-Davis Model CAL200 acoustic calibrator. Temperature, wind speed, and humidity were recorded manually during the short-term monitoring sessions using a Kestrel 3000 portable weather station. During the short-term measurements, calm wind speeds were typically observed and ranged from zero to two miles per hour (mph).

**Table 3.1 | Noise Measurement Results**

| Site No. | Location | Land Use | Date | Start Time | Duration (Minutes) | Measured Noise Level, Leq(h), dBA |
|---|---|---|---|---|---|---|
| ST1 | 417 36th St NE Washington, D.C. | Residential | 6/24/20 | 12:00 | 15 | 57.5 |
| ST2 | Park 7 Apartments<br>4020 Minnesota Ave NE<br>Washington, D.C. | Residential | 6/24/20 | 09:51 | 15 | 62.1 |
| ST3 | 208 Kenilworth Ave NE<br>Washington, D.C. | Residential | 6/23/20 | 10:17 | 15 | 64.0 |
| ST4 | 140 35th St NE Washington, D.C. | Residential | 6/23/20 | 10:17 | 15 | 61.4 |
| ST5 | The Grove at Parkside<br>600 Kenilworth Terrace NE<br>Washington, D.C. | Residential | 6/24/20 | 11:00 | 15 | 59.1 |

## 3.3 TRAFFIC NOISE MODEL VALIDATION

Measurement data from the short-term sites were used for model validation. During the validation measurements, traffic volumes on Benning Road NE and DC-295 were concurrently recorded. The traffic counts were tabulated according to vehicle types, including automobiles, medium trucks (2-axle with 6-wheels but not including pick-up trucks), and heavy trucks (3 or more axle vehicles). Traffic volumes were normalized to 1 hour after counting the traffic during the measurement periods by reviewing simultaneous video recordings of traffic. These normalized volumes were assigned to the corresponding roadways within the project area to simulate the noise source strength at the roadways during the actual measurement periods. After inputting the traffic counts, site geometry, and any other pertinent existing features, noise levels at the validation sites were calculated in the TNM software. Table 3.2 presents the results of the model validation. Traffic volumes collected during the validation measurements were included in Appendix D.

According to DDOT's Highway Noise Policy and Regulations, the difference between measured and modeled values must lie within ±3 dB to fall within the accepted level of accuracy. Differences greater than ±3 dB require that both the measured and validation run be carefully examined to determine the reason(s) for the margin of error. If the differences between the measured and modeled is more than ±3 dB, then the model should be calibrated accordingly so that the difference is within ±3 dB.

**Table 3.2 | Noise Model Validation Results**

| Site No. | Measured Noise Level, Leq(h), dBA | | Difference in Noise Level, Leq(h), dBA (Measured Minus Modeled) |
|---|---|---|---|
| | Measured | Modeled | |
| ST1 | 57.5 | 58.6 | 1.1 |
| ST2 | 62.1 | 61 | -1.1 |
| ST3 | 64.0 | 63.8 | -0.2 |
| ST4 | 61.4 | 61.9 | 0.5 |
| ST5 | 59.1 | 60.1 | 1.0 |

## 3.4 COMMON NOISE ENVIRONMENT (CNE) DETERMINATION AND EXISTING NOISE SETTING

This section outlines the CNEs within the project area that contain noise sensitive receptors within at least 400 feet of the proposed project limits that were considered for evaluation of traffic noise analysis.

A CNE is defined as a group of receptors that share similar noise sources, traffic variables, and topographic features. Generally, CNEs will also be separated by NAC Category but not in all cases. Twelve CNE areas were determined to be present within the study area.

Land use in the study area is mixed use with residential (both single-family and multi-family), Almas Temple, office buildings, and commercial uses. Modeled noise receptors were placed at the frequent outdoor use areas of the residential properties with one receptor representing the interior of the temple. The land uses associated with the remaining land uses, which include office buildings and commercial, were not considered noise sensitive because there are no frequent outdoor use areas on the properties; therefore, modeled noise receptors were not included at these locations.

**CNE A**

CNE A is located north of Benning Road NE and west of DC-295. This CNE contains commercial land use and offices without any frequent outdoor use areas that would be considered noise sensitive. Therefore, no receptors have been included in this CNE and has not been considered for noise impact analysis.

**CNE B**

CNE B is located at the northwest quadrant of the Benning Road NE and DC-295 interchange. This CNE contains a commercial facility without any frequent outdoor use areas that would be considered noise sensitive. Therefore, no receptors have been included in this CNE and has not been considered for noise impact analysis.

**CNE C**

This CNE is located south of Benning Road NE and west of DC-295. CNE C contains commercial land use immediately adjacent to Benning Road NE as well as single-family residences located behind the commercial buildings. The commercial facilities do not contain any frequent outdoor use areas that would be considered noise sensitive. Therefore, noise receptors have only been included in CNE C at the residential properties and has been considered for noise impact analysis.

**CNE D**

CNE D is located at the southwest quadrant of the Benning Road NE and DC-295 interchange. This CNE contains a commercial facility with no frequent outdoor use areas that would be considered noise sensitive. Noise receptors have not been included in this CNE and has not been considered for noise impact analysis.

**CNE E**

CNE E is located at the northeast quadrant of the Benning Road NE and DC-295 interchange. This CNE contains the Park 7 Apartment building complex with frequent outdoor use areas that are considered noise sensitive. Noise receptors have been included in CNE E at the courtyard locations of the complex and has been considered for noise impact analysis.

**CNE F**

This CNE is located north of Benning Road NE and east of DC-295. CNE F contains commercial land uses with no frequent outdoor use areas that would be considered noise sensitive. Noise receptors have not been included in this CNE and has been considered for noise impact analysis.

**CNE G**

CNE G is located at the southeast quadrant of the Benning Road NE and DC-295 interchange. This CNE contains a commercial facility and an office building without any frequent outdoor use areas that would be considered noise sensitive. Therefore, no receptors have been included in this CNE and has not been considered for noise impact analysis.

**CNE H**

CNE H is located south of Benning Road NE and east of DC-295. This CNE contains several commercial facilities with no frequent outdoor use areas that would be considered noise sensitive. Noise receptors have not been included for CNE H and has not been considered for noise impact analysis.

**CNE I**

CNE I is located west of DC-295 and south of Benning Road NE. This CNE contains multi-family townhouses with frequent outdoor use areas that are considered noise sensitive as well as a multi-family apartment complex that has no frequent outdoor use areas and therefore, not considered noise sensitive. Noise receptors have been included in CNE I at all residences; however, only the multi-family residential townhouses have been considered for noise impact analysis where the noise receptors located at the apartment buildings are for informational purposes only.

**CNE J**

This CNE is located east of DC-295 and south of Benning Road NE. CNE J contains single-family residences with frequent outdoor use areas as well as Almas Temple which are all considered noise sensitive. The temple does not have any frequent outdoor use areas; however, the interior is considered noise sensitive. Noise receptors have been included throughout this CNE and has been considered for noise impact analysis.

**CNE K**

CNE K is located west of DC-295 and north of Benning Road NE. CNE K the Grove at Parkside Apartments, a power sub-station, and undeveloped land. The apartment building, undeveloped land, nor sub-station does not contain any frequent outdoor use areas that would be considered noise sensitive. However, noise receptors have been included in CNE K at the apartment complex for informational purposes but have not been considered for noise impact analysis.

**CNE L**

CNE L is located east of DC-295 and north of Benning Road NE. This CNE contains an office building with no frequent outdoor use areas that would be considered noise sensitive. Noise receptors have not been included CNE L and has not been considered for noise impact analysis.

# 4 FUTURE NOISE ENVIRONMENT, IMPACTS, AND NOISE ABATEMENT DETERMINATION

This section presents predicted peak-noise-hour traffic noise levels within the project area under the No-Build and Build conditions. The noise study focuses on analyzing noise impact based on the possible future worst-case scenario and assesses the highest equivalent hourly noise levels for the build alternative. Noise levels are generally highest when traffic volumes are at capacity but remain free flowing, a condition known as level of service C (LOS C), as described in Section 2.7.3 Traffic Volumes and Flow Control. The peak-noise-hour traffic noise levels for the design year (2045) were predicted using TNM.

## 4.1 TRAFFIC NOISE IMPACTS

Table 4.1 presents the calculated noise levels for noise sensitive sites for the peak-noise-hour under existing, No-Build, and Build conditions, respectively.

Traffic noise levels under the Build Alternative are predicted to range between 42 and 66 dBA in design year 2045. In most cases, traffic noise levels in the Build condition stayed the same or were 1 to 3 dBA less than the existing traffic noise levels. This is due to the portions of westbound Benning Road on-ramp to southbound DC-295 where the retaining wall portions of the ramp are blocking the line of sight to the general purpose lanes of DC-295. For those locations where increases are predicted, the difference in traffic noise levels from existing conditions to Build conditions was determined to be 1 dB; therefore, there would be no substantial noise increase (an increase of 10 dB or more) within the study area.

**CNE A**

CNE A does not contain any noise sensitive land uses and noise impact analysis has not been conducted.

**CNE B**

CNE B does not contain any noise sensitive land uses and noise impact analysis has not been conducted.

**CNE C**

Future design year (2045) build noise levels are predicted to range from 44 to 57 dBA. The majority of the twenty-seven sites (Receptors C1 to C27) representing 67 residences are predicted to experience noise levels under the future design year (2045) Build condition that are equal to or less than existing and future No-Build levels and all are less than the NAC. None of the sites are predicted to be impacted under the substantial increase criterion. Figures 1 and 3 in Appendix A show CNE C.

**CNE D**

CNE D does not contain any noise sensitive land uses and noise impact analysis has not been conducted.

**CNE E**

Future design year (2045) build noise levels are predicted to range from 42 to 43 dBA. Two sites (Receptors E1 and E2), representing two multi-family common use areas, are predicted to experience noise levels under the future design year (2045) Build condition that are equal to or less than existing and future No-Build levels and all are less than the NAC. Neither of the sites are predicted to be impacted under the substantial increase criterion. Figures 2 and 4 in Appendix A show CNE E.

**CNE F**

CNE F does not contain any noise sensitive land uses and noise impact analysis has not been conducted.

**CNE G**

CNE G does not contain any noise sensitive land uses and noise impact analysis has not been conducted.

**CNE H**

CNE H does not contain any noise sensitive land uses and noise impact analysis has not been conducted.

**CNE I**

Future design year (2045) build noise levels are predicted to range from 43 to 66 dBA. The majority of receptors in this area are predicted to experience noise levels under the future design year (2045) Build condition that are equal to or less than existing and future No-Build levels and all are less than the NAC. None of the sites are predicted to be impacted under the substantial increase criterion. Figures 1 and 3 in Appendix A show CNE I.

**CNE J**

Future design year (2045) build noise levels are predicted to range from 58 to 60 dBA for NAC Category B receptors and are predicted to be 34 dBA in the interior of Almas Temple (Receptor J35) with a NAC of 52 dBA. Thirty-four sites (Receptors J1 to J34) representing 88 residences are predicted to experience noise levels under the future design year (2045) Build condition that are equal to or less than existing and future No-Build levels and all are less than the NAC. None of the sites are predicted to be impacted under the substantial increase criterion. Figures 1, 2, and 3 in Appendix A show CNE J.

**CNE K**

Future design year (2045) build noise levels are predicted to range from 60 to 66 dBA. The apartment building, undeveloped land, nor sub-station does not contain any frequent outdoor use areas that would be considered noise sensitive and are included for informational purposes. Figure 4 in Appendix A shows CNE K.

**CNE L**

CNE L does not contain any noise sensitive land uses and noise impact analysis has not been conducted.

**Table 4.1 | Predicted Traffic Noise Levels**

| Receptor No. | Land Use | Activity Category (NAC)[1], Leq(h), dBA | Dwelling Units | Predicted Traffic Only Noise Level, Leq(h), dBA | | | Abatement Considered |
|---|---|---|---|---|---|---|---|
| | | | | Existing (2019) | No Build (2045) | Build (2045) | |
| C1 | Residential | B (67) | 2 | 57 | 58 | 56 | No |
| C2 | Residential | B (67) | 3 | 57 | 58 | 57 | No |
| C3 | Residential | B (67) | 3 | 54 | 55 | 54 | No |
| C4 | Residential | B (67) | 3 | 53 | 54 | 54 | No |
| C5 | Residential | B (67) | 3 | 54 | 55 | 54 | No |
| C6 | Residential | B (67) | 2 | 54 | 55 | 54 | No |
| C7 | Residential | B (67) | 2 | 53 | 54 | 53 | No |
| C8 | Residential | B (67) | 2 | 48 | 49 | 48 | No |
| C9 | Residential | B (67) | 3 | 50 | 51 | 50 | No |
| C10 | Residential | B (67) | 3 | 53 | 54 | 54 | No |
| C11 | Residential | B (67) | 3 | 54 | 55 | 54 | No |
| C12 | Residential | B (67) | 2 | 54 | 55 | 55 | No |
| C13 | Residential | B (67) | 2 | 45 | 45 | 46 | No |
| C14 | Residential | B (67) | 3 | 44 | 44 | 45 | No |
| C15 | Residential | B (67) | 3 | 45 | 45 | 45 | No |
| C16 | Residential | B (67) | 2 | 45 | 45 | 45 | No |
| C17 | Residential | B (67) | 3 | 45 | 45 | 45 | No |
| C18 | Residential | B (67) | 1 | 45 | 45 | 46 | No |
| C19 | Residential | B (67) | 1 | 46 | 46 | 47 | No |
| C20 | Residential | B (67) | 3 | 51 | 51 | 51 | No |
| C21 | Residential | B (67) | 2 | 52 | 53 | 52 | No |
| C22 | Residential | B (67) | 3 | 43 | 44 | 44 | No |
| C23 | Residential | B (67) | 3 | 44 | 44 | 45 | No |
| C24 | Residential | B (67) | 3 | 44 | 44 | 45 | No |
| C25 | Residential | B (67) | 3 | 44 | 44 | 45 | No |
| C26 | Residential | B (67) | 2 | 45 | 45 | 45 | No |
| C27 | Residential | B (67) | 2 | 49 | 50 | 50 | No |
| E1 | Residential | B (67) | 1 | 43 | 44 | 43 | No |
| E2 | Residential | B (67) | 1 | 42 | 42 | 42 | No |
| I1[2] | Residential | B (67) | 1 | 65 | 65 | 65.8 | No |
| I2[2] | Residential | B (67) | 1 | 64 | 64 | 65 | No |
| I3[2] | Residential | B (67) | 2 | 64 | 64 | 65 | No |

| Receptor No. | Land Use | Activity Category (NAC)[1], Leq(h), dBA | Dwelling Units | Predicted Traffic Only Noise Level, Leq(h), dBA | | | Abatement Considered |
|---|---|---|---|---|---|---|---|
| | | | | Existing (2019) | No Build (2045) | Build (2045) | |
| I4[2] | Residential | B (67) | 2 | 54 | 54 | 55 | No |
| I5[2] | Residential | B (67) | 1 | 57 | 57 | 58 | No |
| I6[2] | Residential | B (67) | 1 | 50 | 50 | 51 | No |
| I7[2] | Residential | B (67) | 1 | 48 | 48 | 49 | No |
| I8[2] | Residential | B (67) | 1 | 58 | 58 | 59 | No |
| I9 | Residential | B (67) | 2 | 52 | 52 | 52 | No |
| I10 | Residential | B (67) | 5 | 50 | 50 | 51 | No |
| I11 | Residential | B (67) | 2 | 48 | 48 | 48 | No |
| I12 | Residential | B (67) | 3 | 47 | 47 | 47 | No |
| I13 | Residential | B (67) | 2 | 46 | 46 | 47 | No |
| I14 | Residential | B (67) | 3 | 46 | 46 | 47 | No |
| I15[2] | Residential | B (67) | 1 | 63 | 63 | 63 | No |
| I16[2] | Residential | B (67) | 1 | 63 | 63 | 63 | No |
| I17[2] | Residential | B (67) | 1 | 63 | 63 | 63 | No |
| I18 | Residential | B (67) | 2 | 52 | 52 | 52 | No |
| I19 | Residential | B (67) | 2 | 46 | 46 | 46 | No |
| I20 | Residential | B (67) | 2 | 50 | 50 | 51 | No |
| I21 | Residential | B (67) | 4 | 43 | 43 | 43 | No |
| I22 | Residential | B (67) | 3 | 50 | 50 | 50 | No |
| I23 | Residential | B (67) | 2 | 43 | 44 | 44 | No |
| I24 | Residential | B (67) | 3 | 48 | 48 | 49 | No |
| I25 | Residential | B (67) | 2 | 44 | 44 | 44 | No |
| I26 | Residential | B (67) | 3 | 47 | 47 | 47 | No |
| I27[2] | Residential | B (67) | 1 | 62 | 62 | 62 | No |
| I28[2] | Residential | B (67) | 1 | 62 | 62 | 62 | No |
| I29[2] | Residential | B (67) | 1 | 61 | 61 | 60 | No |
| I30 | Residential | B (67) | 2 | 61 | 62 | 61 | No |
| I31 | Residential | B (67) | 3 | 58 | 58 | 58 | No |
| I32 | Residential | B (67) | 3 | 56 | 56 | 55 | No |
| I33 | Residential | B (67) | 2 | 53 | 53 | 52 | No |
| I34 | Residential | B (67) | 2 | 52 | 52 | 53 | No |
| I35 | Residential | B (67) | 3 | 51 | 52 | 52 | No |
| I36 | Residential | B (67) | 3 | 52 | 52 | 52 | No |
| I37 | Residential | B (67) | 3 | 51 | 52 | 51 | No |
| I38 | Residential | B (67) | 2 | 52 | 52 | 51 | No |
| I39 | Residential | B (67) | 2 | 63 | 63 | 62 | No |
| I40 | Residential | B (67) | 2 | 63 | 63 | 61 | No |
| I41 | Residential | B (67) | 4 | 62 | 62 | 61 | No |
| I42 | Residential | B (67) | 3 | 61 | 61 | 59 | No |
| I43 | Residential | B (67) | 2 | 60 | 60 | 59 | No |
| I44 | Residential | B (67) | 3 | 59 | 59 | 59 | No |

| Receptor No. | Land Use | Activity Category (NAC)[1], Leq(h), dBA | Dwelling Units | Predicted Traffic Only Noise Level, Leq(h), dBA | | | Abatement Considered |
|---|---|---|---|---|---|---|---|
| | | | | Existing (2019) | No Build (2045) | Build (2045) | |
| I45 | Residential | B (67) | 3 | 57 | 57 | 55 | No |
| I46 | Residential | B (67) | 3 | 58 | 58 | 57 | No |
| I47 | Residential | B (67) | 3 | 55 | 55 | 53 | No |
| I48 | Residential | B (67) | 2 | 56 | 56 | 55 | No |
| I49 | Residential | B (67) | 3 | 53 | 53 | 52 | No |
| I50 | Residential | B (67) | 3 | 55 | 55 | 54 | No |
| I51 | Residential | B (67) | 3 | 52 | 52 | 51 | No |
| I52 | Residential | B (67) | 3 | 54 | 54 | 53 | No |
| I53 | Residential | B (67) | 1 | 57 | 57 | 55 | No |
| I54 | Residential | B (67) | 2 | 48 | 48 | 48 | No |
| I55 | Residential | B (67) | 3 | 47 | 47 | 48 | No |
| I56 | Residential | B (67) | 2 | 66 | 66 | 63 | No |
| I57 | Residential | B (67) | 2 | 64 | 64 | 62 | No |
| I58 | Residential | B (67) | 1 | 64 | 64 | 61 | No |
| I59 | Residential | B (67) | 2 | 56 | 56 | 55 | No |
| I60 | Residential | B (67) | 3 | 55 | 55 | 54 | No |
| I61 | Residential | B (67) | 2 | 55 | 55 | 54 | No |
| I62 | Residential | B (67) | 2 | 54 | 54 | 53 | No |
| I63 | Residential | B (67) | 3 | 54 | 54 | 53 | No |
| I64 | Residential | B (67) | 2 | 53 | 53 | 53 | No |
| I65 | Residential | B (67) | 1 | 53 | 54 | 53 | No |
| I66 | Residential | B (67) | 3 | 60 | 60 | 58 | No |
| I67 | Residential | B (67) | 3 | 59 | 59 | 57 | No |
| I68 | Residential | B (67) | 3 | 56 | 56 | 55 | No |
| I69 | Residential | B (67) | 3 | 55 | 55 | 54 | No |
| I70 | Residential | B (67) | 3 | 54 | 54 | 54 | No |
| I71 | Residential | B (67) | 2 | 53 | 54 | 53 | No |
| I72 | Residential | B (67) | 2 | 53 | 53 | 53 | No |
| I73 | Residential | B (67) | 2 | 53 | 53 | 52 | No |
| I74 | Residential | B (67) | 2 | **69** | **69** | 66 | No |
| I75 | Residential | B (67) | 3 | **68** | **68** | 66 | No |
| I76 | Residential | B (67) | 3 | **67** | **67** | 64 | No |
| I77 | Residential | B (67) | 3 | 65 | 65 | 63 | No |
| I78 | Residential | B (67) | 4 | 64 | 64 | 62 | No |
| I79 | Residential | B (67) | 3 | 62 | 62 | 60 | No |
| I80 | Residential | B (67) | 3 | 61 | 61 | 59 | No |
| I81 | Residential | B (67) | 3 | 60 | 60 | 58 | No |
| I82 | Residential | B (67) | 2 | 60 | 60 | 58 | No |
| J1 | Residential | B (67) | 1 | 58 | 58 | 59 | No |
| J2 | Residential | B (67) | 3 | 58 | 58 | 59 | No |
| J3 | Residential | B (67) | 3 | 58 | 58 | 59 | No |

| Receptor No. | Land Use | Activity Category (NAC)[1], Leq(h), dBA | Dwelling Units | Predicted Traffic Only Noise Level, Leq(h), dBA | | | Abatement Considered |
|---|---|---|---|---|---|---|---|
| | | | | Existing (2019) | No Build (2045) | Build (2045) | |
| J4 | Residential | B (67) | 3 | 59 | 59 | 59 | No |
| J5 | Residential | B (67) | 2 | 59 | 59 | 59 | No |
| J6 | Residential | B (67) | 3 | 59 | 59 | 59 | No |
| J7 | Residential | B (67) | 2 | 59 | 59 | 59 | No |
| J8 | Residential | B (67) | 4 | 59 | 59 | 59 | No |
| J9 | Residential | B (67) | 3 | 59 | 59 | 59 | No |
| J10 | Residential | B (67) | 2 | 59 | 59 | 59 | No |
| J11 | Residential | B (67) | 3 | 59 | 59 | 59 | No |
| J12 | Residential | B (67) | 3 | 59 | 59 | 59 | No |
| J13 | Residential | B (67) | 4 | 59 | 59 | 59 | No |
| J14 | Residential | B (67) | 3 | 59 | 59 | 59 | No |
| J15 | Residential | B (67) | 3 | 60 | 60 | 60 | No |
| J16 | Residential | B (67) | 1 | 59 | 59 | 59 | No |
| J17 | Residential | B (67) | 3 | 59 | 59 | 59 | No |
| J18 | Residential | B (67) | 3 | 59 | 59 | 59 | No |
| J19 | Residential | B (67) | 2 | 59 | 59 | 59 | No |
| J20 | Residential | B (67) | 1 | 59 | 59 | 60 | No |
| J21 | Residential | B (67) | 3 | 60 | 60 | 59 | No |
| J22 | Residential | B (67) | 3 | 60 | 60 | 59 | No |
| J23 | Residential | B (67) | 3 | 60 | 60 | 59 | No |
| J24 | Residential | B (67) | 3 | 60 | 60 | 59 | No |
| J25 | Residential | B (67) | 3 | 60 | 60 | 59 | No |
| J26 | Residential | B (67) | 3 | 60 | 60 | 59 | No |
| J27 | Residential | B (67) | 3 | 60 | 60 | 59 | No |
| J28 | Residential | B (67) | 3 | 60 | 60 | 59 | No |
| J29 | Residential | B (67) | 2 | 60 | 60 | 59 | No |
| J30 | Residential | B (67) | 2 | 60 | 60 | 58 | No |
| J31 | Residential | B (67) | 2 | 60 | 60 | 59 | No |
| J32 | Residential | B (67) | 2 | 60 | 60 | 59 | No |
| J33 | Residential | B (67) | 2 | 60 | 60 | 58 | No |
| J34 | Residential | B (67) | 2 | 60 | 60 | 58 | No |
| J35 | Interior | D (52) | 1 | 37 | 37 | 34 | No |
| K1[2] | Residential | B (67) | -- | 60 | 60 | 60 | No |
| K2[2] | -- | G | -- | **66** | **66** | **66** | No[2] |
| K3[2] | -- | G | -- | 60 | 60 | 60 | No |

Notes:

**Bold** - Indicates noise impact.

1 - NAC - Noise Abatement Criteria.

2 - Receptors do not represent areas of frequent outdoor use and are for informational purposes only.

## 4.2 NOISE ABATEMENT MEASURES

There were no Activity Category B or D land use facilities that were predicted to exceed the NAC. Since no areas were predicted to experience traffic noise impacts in the future Build condition, evaluation of noise abatement measures was not required.

# 5 CONSTRUCTION NOISE

DDOT is also concerned with noise generated during the construction phase of the project since noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. The degree of construction noise impact will vary, as it is directly related to the types and number of equipment used and the proximity to the noise-sensitive land uses within the project area. Land uses that are sensitive to traffic noise are also potentially considered to be sensitive to construction noise. Any construction noise impacts that do occur as a result of roadway construction measures are anticipated to be temporary in nature and will cease upon completion of the project construction phase.

Table 5.1 summarizes noise levels produced by construction equipment commonly used on roadway construction projects. As indicated, equipment involved in construction is expected to generate noise levels ranging from 80 to 89 dBA at a distance of 50 feet. Noise produced by construction equipment would be reduced over distance at a rate of approximately 6 dB per doubling of distance.

**Table 5.1 | Construction Equipment Noise**

| Equipment | Maximum Noise Level (dBA at 50 feet) |
|---|---|
| Scrapers | 89 |
| Bulldozers | 85 |
| Heavy Trucks | 88 |
| Backhoe | 80 |
| Pneumatic Tools | 85 |
| Concrete Pump | 82 |

Source: Federal Transit Administration, 2018

In the District, construction noise is regulated by Title 20 of the District of Columbia Code of Municipal Regulations (DCMR). These regulations are the appropriate standards to use when assessing project-related impacts. The regulations are as follows:

- From 7:00 a.m. to 7:00 p.m. on any weekday, noise levels resulting from construction or demolition (excluding pile driver devices) shall not exceed a Leq of eighty 80 dBA.
- From 7:00 p.m. to 7:00 a.m., the maximum noise levels prescribed in Table 5.2 shall apply.

- In cases involving noise from construction or demolition, measurements shall be made twenty-five feet (25 feet) from the outermost limits of the construction site provided that when construction work is performed inside an occupied multi-unit apartment building, hospital, nursing home, community-based residential facility, or other similar facility which serves as a temporary or permanent dwelling for its residents, measurement of noise from the construction or demolition shall be made twenty-five (25) feet from the source of the noise. This provision shall be subject to the exemption for emergency work.
- No permit for building construction or demolition shall be issued until the permit applicant has assured in writing that the noise emanating from the planned construction will comply with the limitations established by the code.
- No noise from construction, excluding minor home repairs, shall be permitted within a residential, special purpose, or waterfront zone on any Sunday or legal holiday, or after 7:00 p.m. and before 7:00 a.m. on any weekday.

**Table 5.2 | Nighttime Permissible Sound Levels**

| Zone | Maximum Noise Level (dBA) |
|---|---|
| Commercial or light-manufacturing zone | 60 |
| Industrial zone | 65 |
| Residential, special purpose, or waterfront zone | 55 |

There are many measures that can be taken to minimize noise intrusion without placing unreasonable constraints on the construction process or substantially increasing costs. These include noise monitoring to ensure that contractors take all reasonable steps to minimize impacts when near sensitive areas; noise testing and inspection of equipment to ensure that all equipment on site is in good condition and effectively muffled; and an active community liaison program. A community liaison program would keep residents informed about construction plans so they can plan around periods of particularly high noise levels, and it would provide a conduit for residents to express any concerns or complaints.

The following are possible control measures that can be implemented to minimize noise disturbances at sensitive areas during construction:

- All equipment should have sound-control devices no less effective than those provided on the original equipment. Each internal combustion engine used for any purpose on the job or related to the job shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine should be operated on the job site without an appropriate muffler.
- Construction methods or equipment that will provide the lowest level of noise impact should be used.

- Idling equipment should be turned off.
- Truck loading, unloading, and hauling operations should be restricted so that noise and vibration are kept to a minimum through residential neighborhoods to the greatest possible extent.
- Where feasible, temporary noise barriers should be used and relocated, as needed, to protect sensitive receptors against excessive noise from construction activities involving large equipment and by small items such as compressors, generators, pneumatic tools, and jackhammers. Noise barriers can be made of heavy plywood, moveable insulated sound blankets, or other best available control techniques.
- Construction activities should be minimized in residential areas during evening, nighttime, weekend, and holiday periods. Noise impacts are typically minimized when construction activities are performed during daytime hours; however, nighttime construction may be desirable (e.g., in commercial areas where businesses may be disrupted during daytime hours) or necessary to avoid major traffic disruption. Coordination with the District should occur before construction can be performed in noise-sensitive areas.
- Construction lay-down or staging areas should be selected in industrially zoned districts. If industrially zoned areas are not available, commercially zoned areas may be used, or locations that are at least 100 feet from any noise-sensitive land use (e.g., residences).

A combination of the mitigation techniques for equipment noise control as well as administrative measures, when properly implemented, can be selected to provide the most effective means to minimize the effects of construction activity. Application of the mitigation measures will reduce the construction impacts; however, temporary increases in noise would likely occur at some locations.

# 6 REFERENCES

23 CFR Part 772, 2010. Procedures for Abatement of Highway Traffic Noise and Construction Noise, 23 Codes of Federal Regulations, Part 772. July.

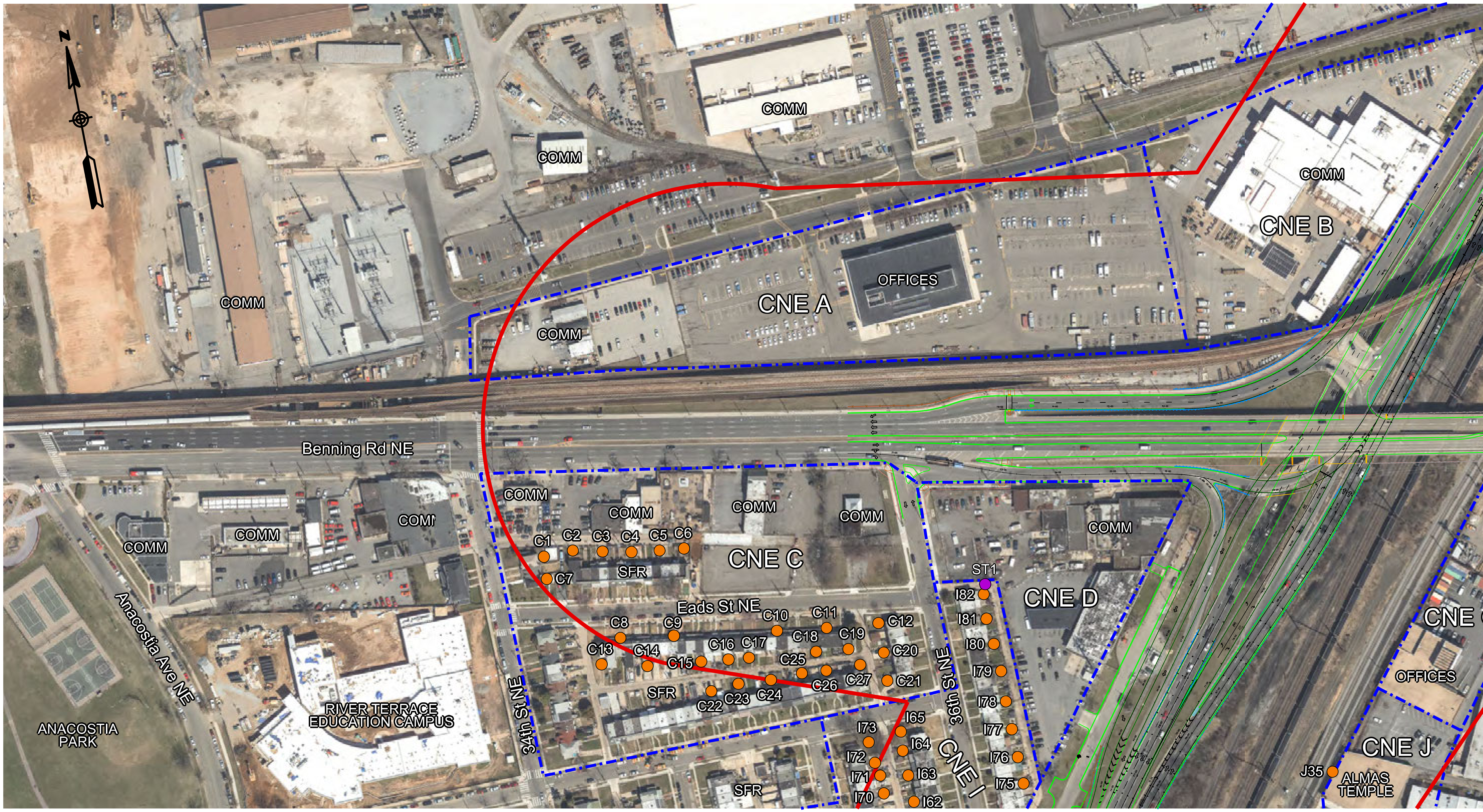
DDOT, 2012. Environmental Manual, Chapter 15 – Highway Noise Policy and Regulations. District of Columbia Department of Transportation. April 7, 2011 June 20.

FHWA, 2004. FHWA Traffic Noise Model, TNM 2.5, U.S. Department of Transportation, Report No. FHWA–PD–96–010, Revision No. 1, April.

FHWA, 2011. Highway Traffic Noise Analysis and Abatement Policy and Guidance, U.S. Department of Transportation, December.

FTA, 2018. Transit Noise and Vibration Impact Assessment Guidance Manual, Federal Transit Administration, FTA-VA-90-1003-06. September.

**Appendix A: Noise Receptor, Monitoring Locations**




BENNING ROAD NE/DC-295
INTERCHANGE PROJECT
Washington, D.C.

District Department of Transportation

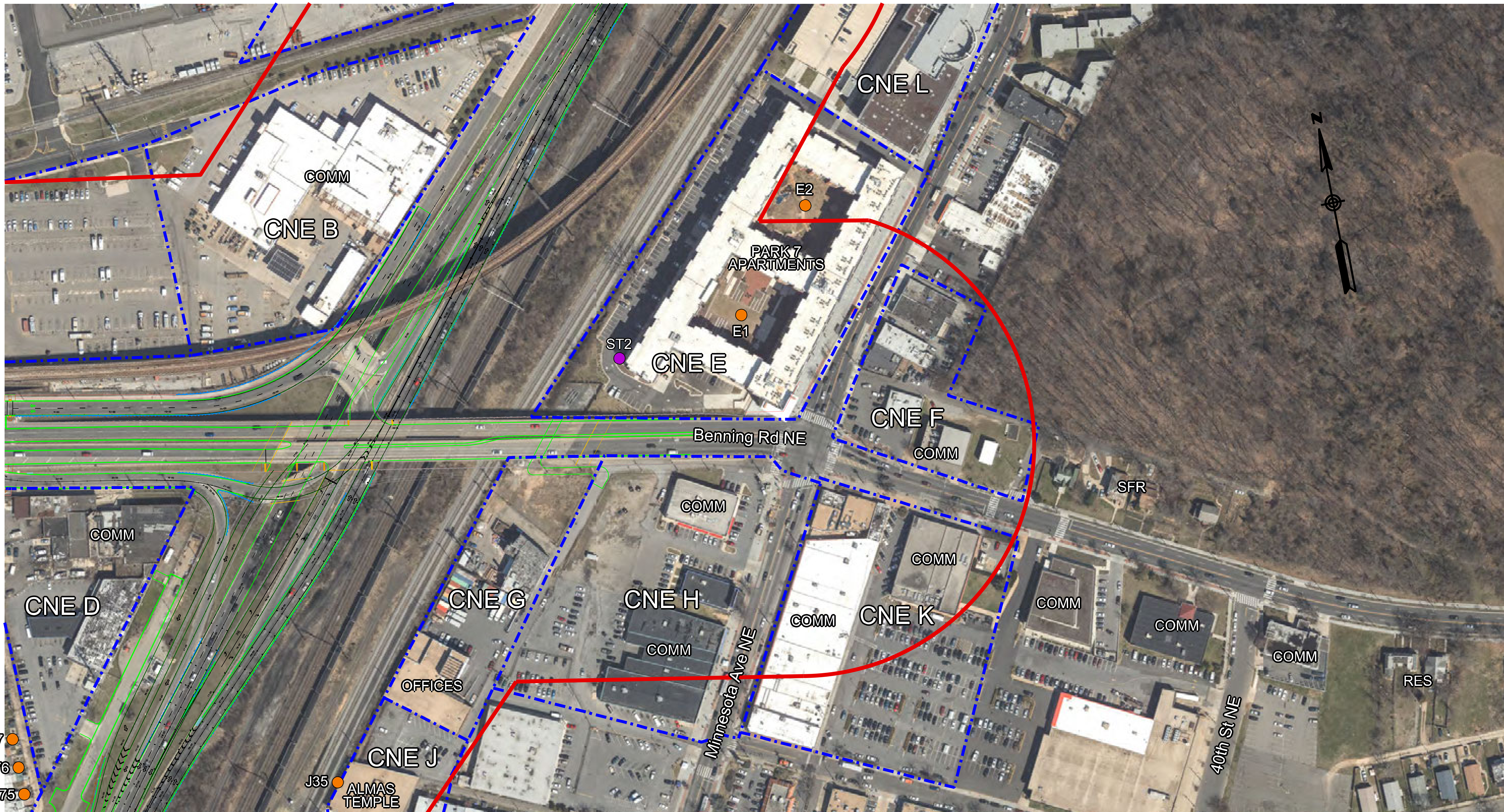
1in : 175ft

0 ft 80ft 175ft 225ft

Noise Receptors
Short-Term Monitoring Site
Common Noise Environment (CNE) Areas

Noise Study Area
SFR Single Family
MFR Multi Family
COMM Commercial

Figure 1
Land Use and Noise Monitoring Locations




BENNING ROAD NE/DC-295
INTERCHANGE PROJECT
Washington, D.C.

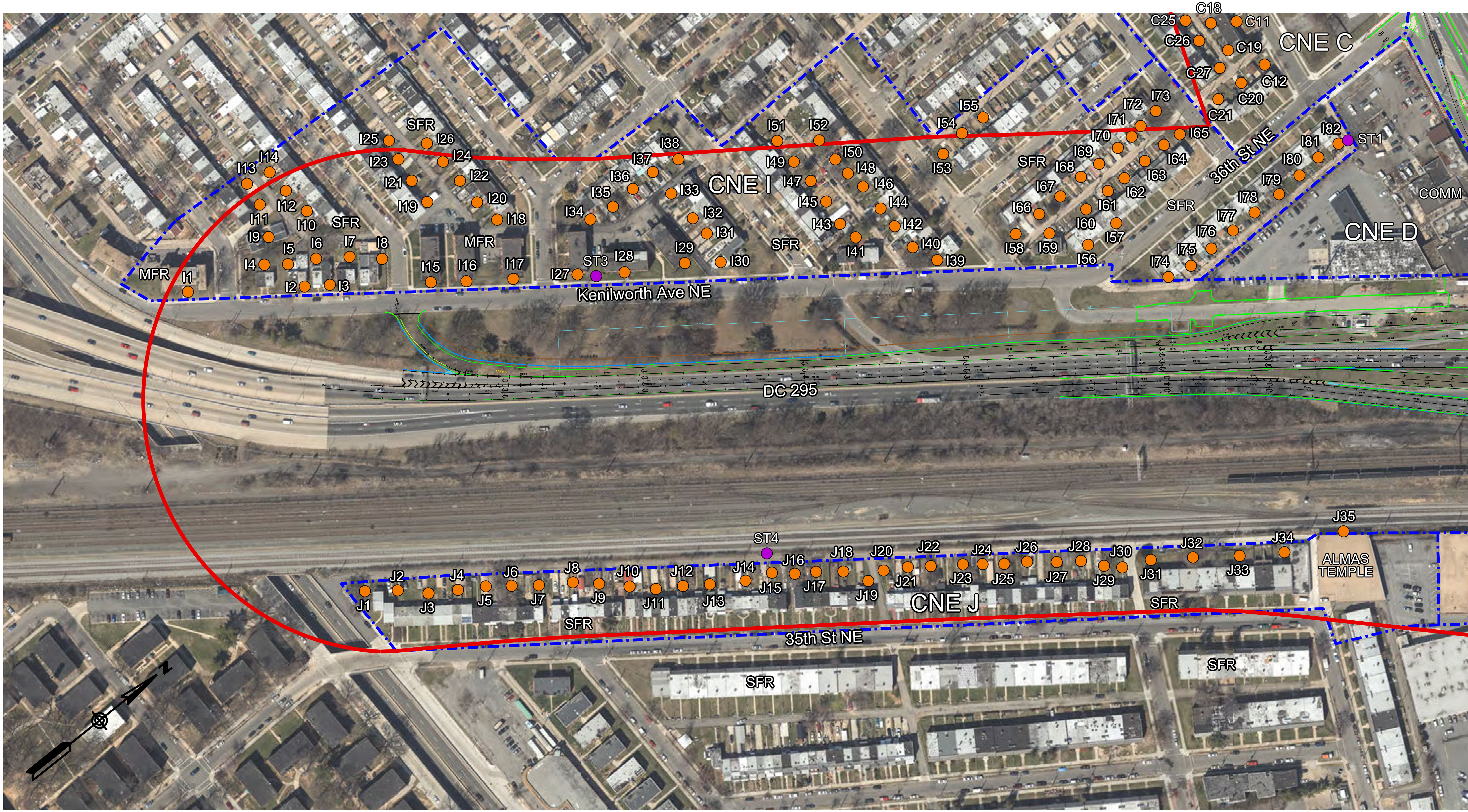
District Department of Transportation

1in : 175ft

0 ft 80ft 175ft 225ft

- Noise Receptors
- Short-Term Monitoring Site
- Common Noise Environment (CNE) Areas
- Noise Study Area
- SFR Single Family
- MFR Multi Family
- COMM Commercial

Figure 2
Land Use and Noise Monitoring Locations




BENNING ROAD NE/DC-295
INTERCHANGE PROJECT
Washington, D.C.

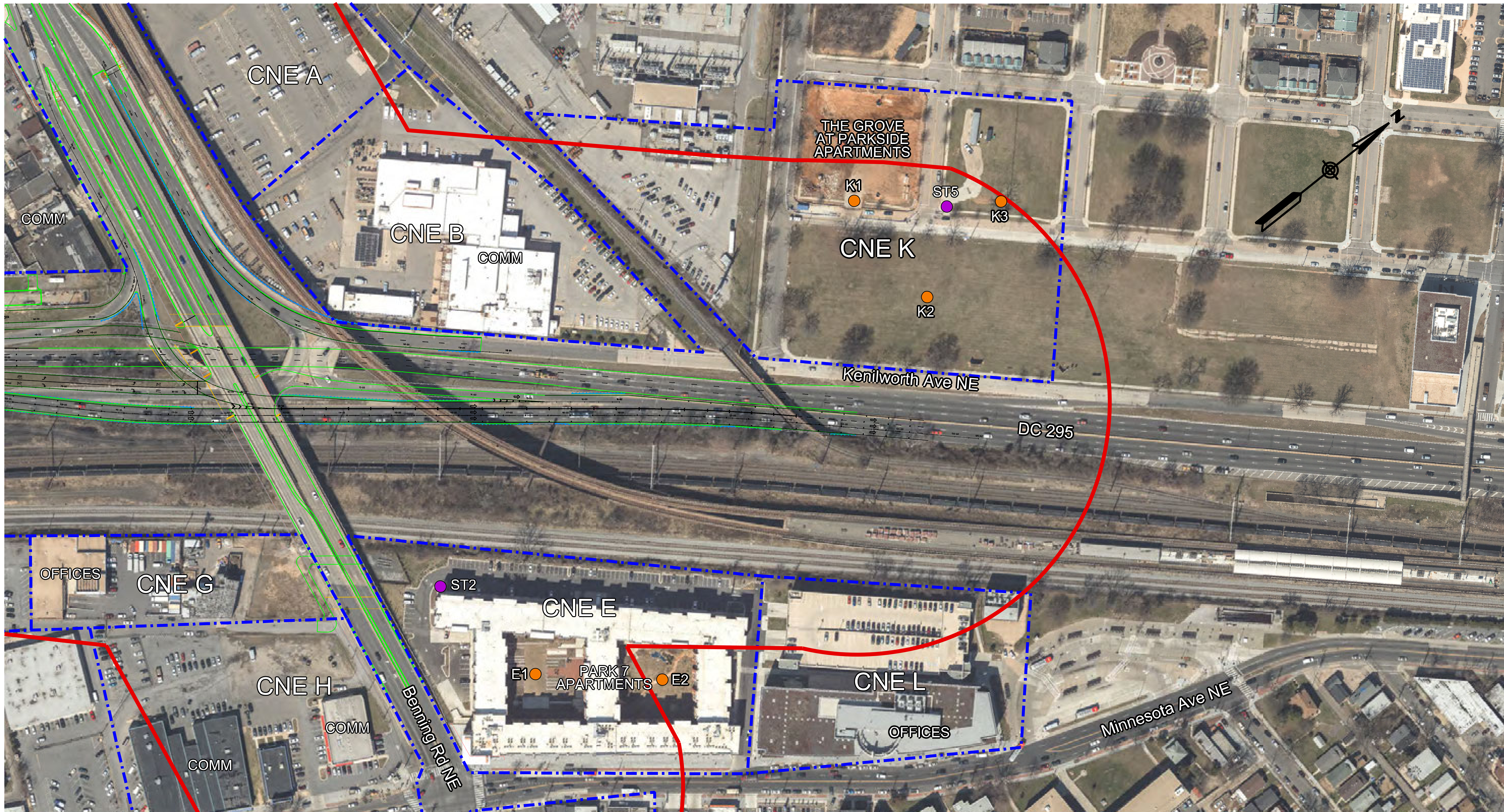
District Department of Transportation

1in : 175ft

0 ft 80ft 175ft 225ft

Noise Receptors
Short-Term Monitoring Site
Common Noise Environment (CNE) Areas
Noise Study Area
SFR Single Family
MFR Multi Family
COMM Commercial

Figure 3
Land Use and Noise Monitoring Locations




BENNING ROAD NE/DC-295
INTERCHANGE PROJECT
Washington, D.C.

District Department of Transportation

1in : 175ft

0 ft 80ft 175ft 225ft

Noise Receptors
Short-Term Monitoring Site
Common Noise Environment (CNE) Areas
Noise Study Area
SFR Single Family
MFR Multi Family
COMM Commercial

Figure 4
Land Use and Noise Monitoring Locations

## Appendix B: Noise Measurement Site Photos

**SHORT-TERM MEASUREMENT SITE ST 1**

**SHORT-TERM MEASUREMENT SITE ST2**

**SHORT-TERM MEASUREMENT SITE ST3**

SHORT-TERM MEASUREMENT SITE ST4

SHORT-TERM MEASUREMENT SITE ST5

## Appendix C: Noise Measurement Field Forms

# FIELD SURVEY FORM

| | | | |
|---|---|---|---|
| PROJECT: Benning Road Interchange | ENGINEER: OGDEN | | DATE: 6/24/20 |
| MEASUREMENT ADDRESS: 417 36th St. NE | CITY: washington DC | ☐ Single-Family ☒ Multi-Family ☐ School ☐ Recreational ☐ Commercial ☐ Church | SITE NO.: ST1 |

**SOUND LEVEL METER:** ☐ LD-870 ☐ LD-820 ☒ LD-LxT ☐ LD-824 ☐ LD-812 ☐ B&K-2250 ☐ LD-2900 ☐ ____
SERIAL #: 6169

**MICROPHONE:** ☒ NON-POLAR ☐ POLARIZED ☒ 1/2-INCH ☐ FREEFIELD ☐ 1-INCH ☒ RANDOM ☒ WIND SCREEN
SERIAL #: LW135545

**PRE AMP:** ☐ LD-900 ☒ LD-LxT ☐ LD-828 ☐ ZC-0032 ☐ LD-902 ☐ ____
SERIAL #: 46632

**CALIBRATOR:** ☐ LD CA250 ☒ LD CA200 ☐ B&K 4231 ☐ ____
S/N 16684
Freq, Hz.: ☐ 250 ☒ 1000 ☐ 84 ☐ ____

**CALIBRATION RECORD:**

Input, dB / Reading, dB / Offset, dB / Time
Before 114 / 114.0 / +0.02 / 11:33
After 114 / 114.0 / +0.03 / 12:29

**METER SETTINGS:** ☒ A-WTD ☐ LINEAR ☒ SLOW ☐ 1/1 OCT ☒ INTERVALS 15 - MINUTE ☐ C-WTD ☐ IMPULSE ☐ FAST ☐ 1/3 OCT ☒ $L_N$ PERCENTILE VALUES

**NOTES:**

SYSTEM PWR: ☒ BAT ☐ AC

(observations during measurement)

TEMP: 87.1 °F R.H.: 40.1 %

WIND SPEED: — MPH

TOWARD (DIR): Calm

SKIES: Clear

CAMERA ____

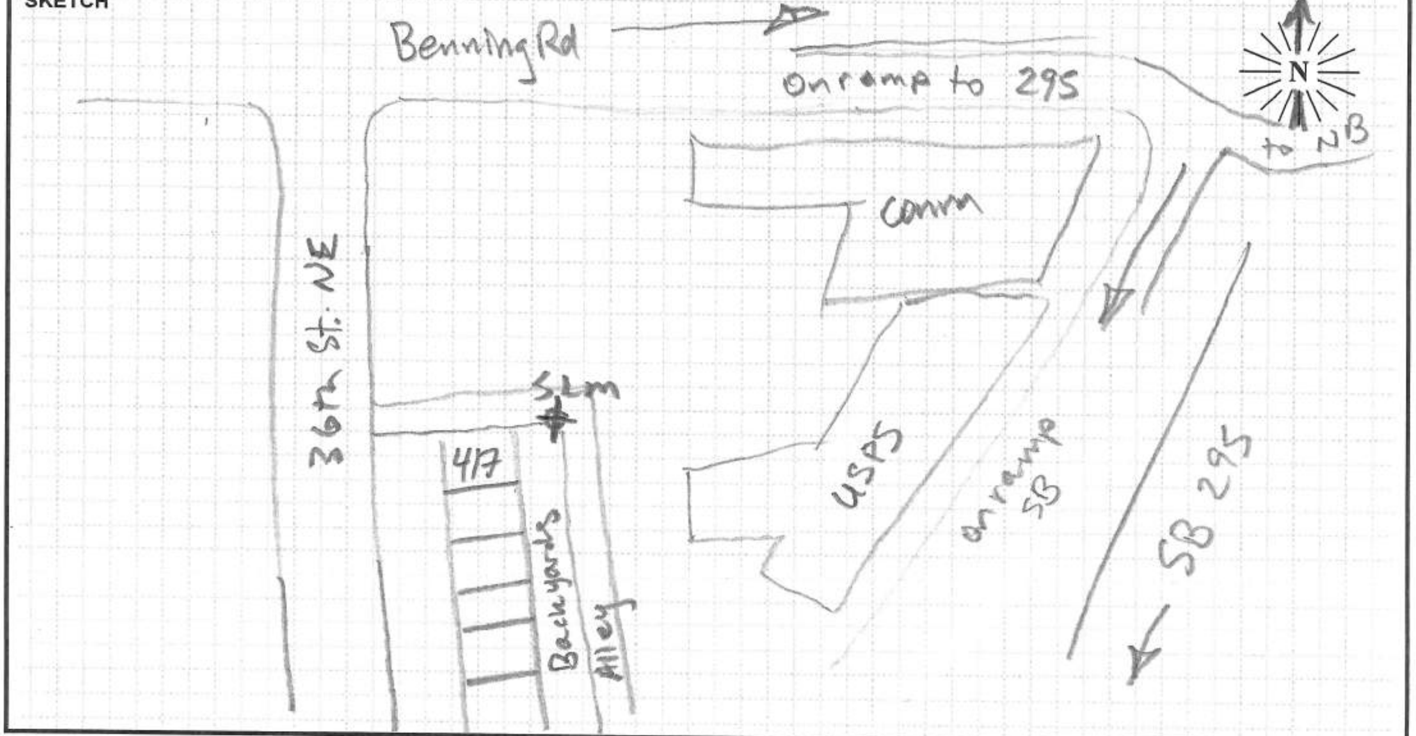
☐ VIDEO ☐ RADAR

**NOTES:**

**MEASUREMENT TYPE:** ☐ Long Term ☒ Short Term

| DATE | START TIME | STOP TIME | $L_{MIN}$ | $L_{99}$ | $L_{90}$ | $L_{50}$ | $L_{25}$ | $L_{10}$ | $L_{01}$ | $L_{MAX}$ | $L_{EQ}$ | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6/24 | 12:00 | 12:15 | 52.9 | 53.0 | 53.5 | 56.2 | 58.1 | 60.6 | 63.2 | 63.7 | 57.5 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

SKETCH




PARSONS

# FIELD SURVEY FORM

| | | | |
|---|---|---|---|
| PROJECT: Benning Road Interchange | | ENGINEER: OGDEN | DATE: 6/24/20 |
| MEASUREMENT ADDRESS: Park 7 Apartments 4020 Minnesota Ave NE | CITY: Washington DC | ☐ Single-Family ☑ Multi-Family ☐ School ☐ Recreational ☐ Commercial ☐ Church | SITE NO.: ST2 |

**SOUND LEVEL METER:** ☐ LD-870 ☐ LD-820 ☑ LD-LxT ☐ LD-824 ☐ LD-812 ☐ B&K-2250 ☐ LD-2900 ☐ ______
SERIAL #: 6169

**MICROPHONE:** ☑ NON-POLAR ☐ POLARIZED ☑ 1/2-INCH ☑ FREEFIELD ☐ 1-INCH ☑ RANDOM ☑ WIND SCREEN
SERIAL #: LW135545

**PRE AMP:** ☐ LD-900 ☑ LD-LxT ☐ LD-828 ☐ ZC-0032 ☐ LD-902 ☐ ______
SERIAL #: 46632

**CALIBRATOR:** ☐ LD CA250 ☑ LD CA200 ☐ B&K 4231 ☐ ______
S/N 16684
Freq, Hz. ☐ 250 ☑ 1000 ☐ 84 ☐ ______

**CALIBRATION RECORD:**

| | Input, dB | Reading, dB | Offset, dB | Time |
|---|---|---|---|---|
| Before | 114 | 113.9 | -0.05 | 9:17 |
| After | 114 | 113.9 | -0.04 | 10:29 |

**METER SETTINGS:** ☑ A-WTD ☐ LINEAR ☑ SLOW ☐ 1/1 OCT ☑ INTERVALS 15 - MINUTE ☐ C-WTD ☐ IMPULSE ☐ FAST ☐ 1/3 OCT ☑ $L_N$ PERCENTILE VALUES

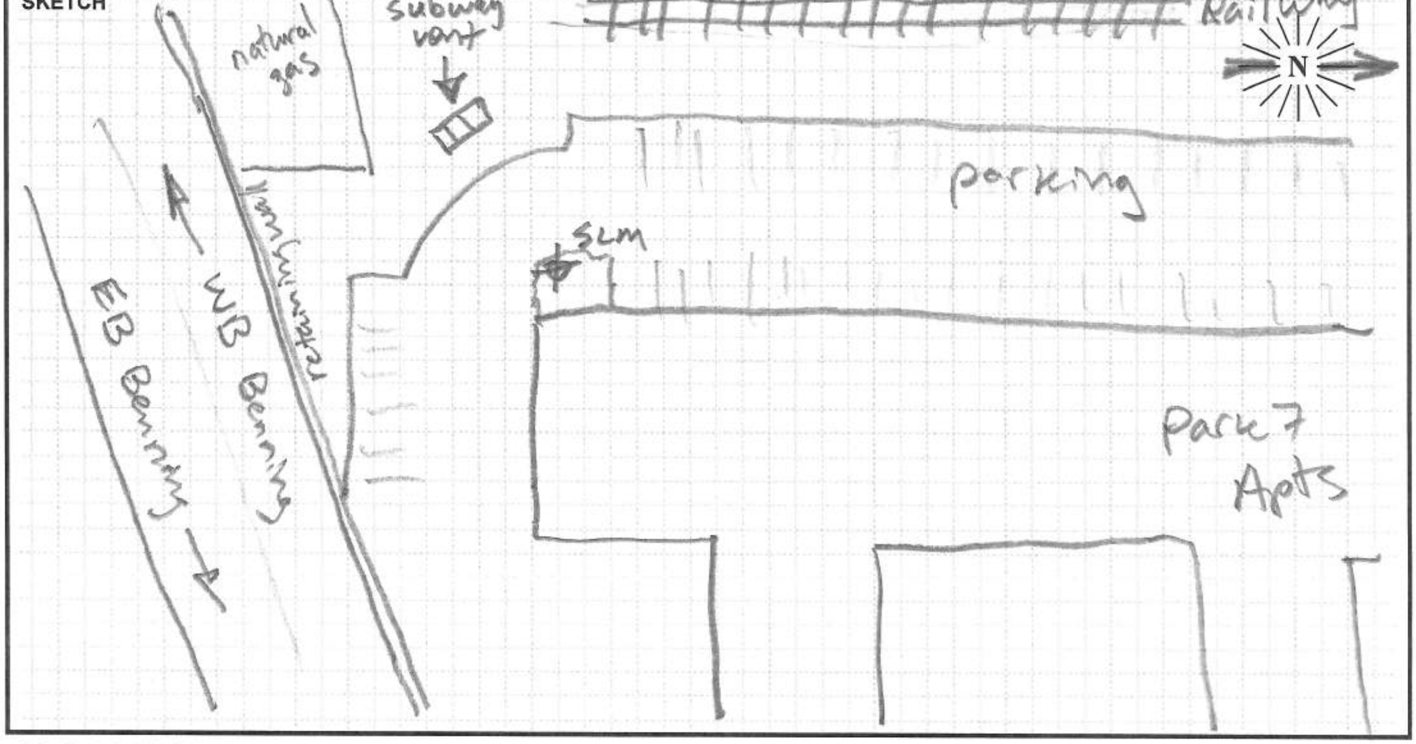
**NOTES:**
SYSTEM PWR: ☑ BAT ☐ AC
(observations during measurement)
TEMP: 78 °F R.H.: 54 %
WIND SPEED: 1-2 MPH
TOWARD (DIR): NW
SKIES: Clear
CAMERA ______
☐ VIDEO ☐ RADAR

**NOTES:**

**MEASUREMENT TYPE:** ☐ Long Term ☑ Short Term

| DATE | START TIME | STOP TIME | $L_{MIN}$ | $L_{99}$ | $L_{90}$ | $L_{50}$ | $L_{25}$ | $L_{10}$ | $L_{01}$ | $L_{MAX}$ | $L_{EQ}$ | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6/24 | 9:57 | 10:06 | 59.9 | 60.0 | 60.4 | 61.5 | 62.6 | 64.0 | 66.1 | 66.6 | 62.1 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

SKETCH




PARSONS

# FIELD SURVEY FORM

| | | | |
|---|---|---|---|
| PROJECT: Benning Road Interchange | | ENGINEER: Ogden | DATE: 6/23/20 |
| MEASUREMENT ADDRESS: 208 Kenilworth Ave NE | CITY: Washington DC | ☐ Single-Family ☑ Multi-Family ☐ School ☐ Recreational ☐ Commercial ☐ Church | SITE NO.: ST3 |

**SOUND LEVEL METER:** ☐ LD-870 ☐ LD-820 ☑ LD-LxT ☐ LD-824 ☐ LD-812 ☐ B&K-2250 ☐ LD-2900 ☐ ______
SERIAL #: 6169

**MICROPHONE:** ☑ NON-POLAR ☐ POLARIZED ☑ 1/2-INCH ☐ FREEFIELD ☐ 1-INCH ☑ RANDOM ☑ WIND SCREEN
SERIAL #: LW135545

**PRE AMP:** ☐ LD-900 ☑ LD-LxT ☐ LD-828 ☐ ZC-0032 ☐ LD-902 ☐ ______
SERIAL #: 46632

**CALIBRATOR:** ☐ LD CA250 ☑ LD CA200 ☐ B&K 4231 ☐ ______
S/N 16684
Freq, Hz.: ☐ 250 ☑ 1000 ☐ 84 ☐ ______

**CALIBRATION RECORD:**
Input, dB / Reading, dB / Offset, dB / Time
Before 114.0, 114.0, —, 9:46
After 114.0, 114.0, +0.06, 11:00

**METER SETTINGS:** ☑ A-WTD ☐ LINEAR ☑ SLOW ☐ 1/1 OCT ☑ INTERVALS 15 - MINUTE ☐ C-WTD ☐ IMPULSE ☐ FAST ☐ 1/3 OCT ☑ $L_N$ PERCENTILE VALUES

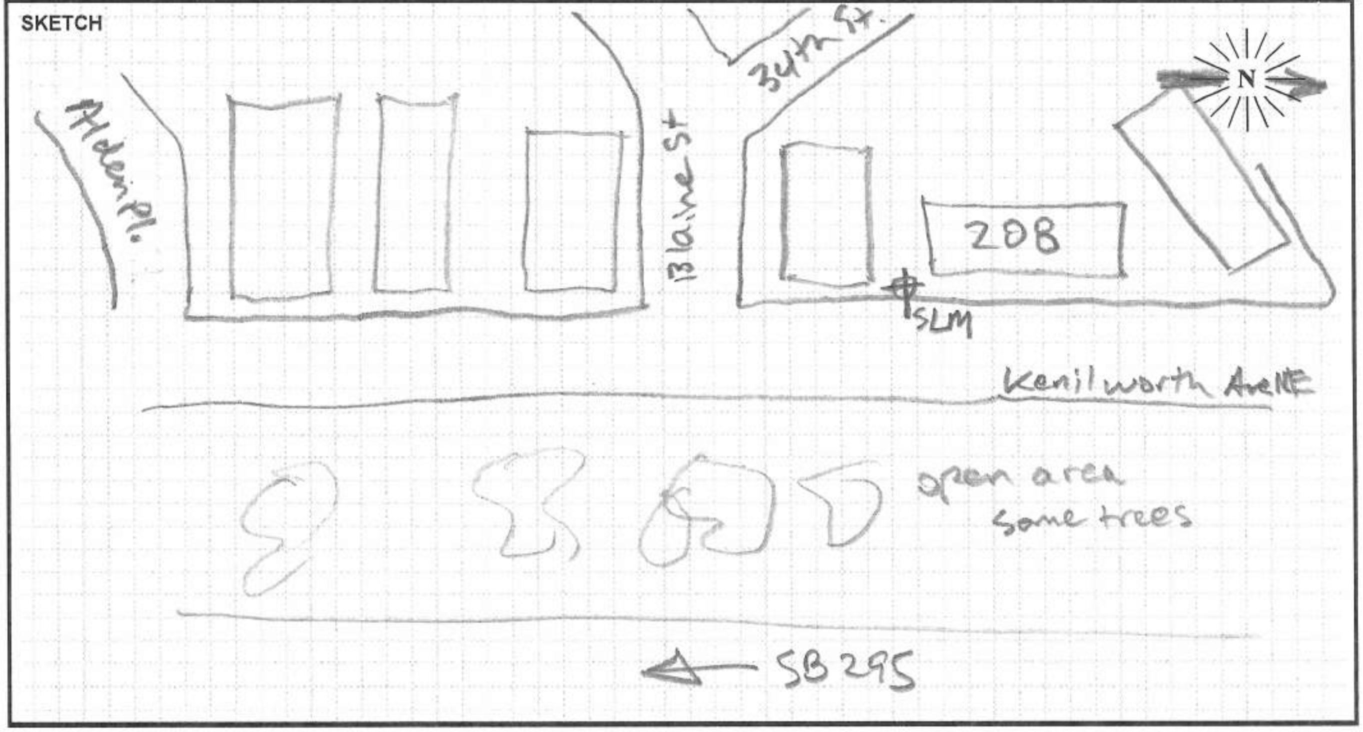
**NOTES:**
SYSTEM PWR: ☑ BAT ☐ AC
(observations during measurement)
TEMP: 93 °F R.H.: 58 %
WIND SPEED: 1.2 MPH
TOWARD (DIR): calm
SKIES: clear
CAMERA ______
☐ VIDEO ☐ RADAR

**NOTES:**

**MEASUREMENT TYPE:** ☐ Long Term ☑ Short Term

| DATE | START TIME | STOP TIME | $L_{MIN}$ | $L_{99}$ | $L_{90}$ | $L_{50}$ | $L_{25}$ | $L_{10}$ | $L_{01}$ | $L_{MAX}$ | $L_{EQ}$ | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6/23 | 10:17 | 10:32 | 61.1 | 61.2 | 61.9 | 63.6 | 64.7 | 65.6 | 67.2 | 67.5 | 64.0 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

SKETCH




PARSONS

# FIELD SURVEY FORM

| PROJECT: | ENGINEER: | DATE: |
|---|---|---|
| Benning Road Interchange | OGDEN | 6/23/20 |

| MEASUREMENT ADDRESS: | CITY: | | SITE NO.: |
|---|---|---|---|
| 140 35th [redacted] Street NE | Washington DC | ☐ Single-Family ☒ Multi-Family ☐ School ☐ Recreational ☐ Commercial ☐ Church | ST4 |

**SOUND LEVEL METER:** ☐ LD-870 ☐ LD-820 ☒ LD-LxT ☐ LD-824 ☐ LD-812 ☐ B&K-2250 ☐ LD-2900 ☐ ______

SERIAL #: 6052

**MICROPHONE:** ☒ NON-POLAR ☐ POLARIZED ☒ 1/2-INCH ☐ FREEFIELD ☐ 1-INCH ☒ RANDOM ☒ WIND SCREEN

SERIAL #: 313579

**PRE AMP:** ☐ LD-900 ☒ LD-LxT ☐ LD-828 ☐ ZC-0032 ☐ LD-902 ☐ ______

SERIAL #: 55886

**CALIBRATOR:** ☐ LD CA250 ☒ LD CA200 ☐ B&K 4231 ☐ ______

S/N 16684

Freq, Hz.: ☐ 250 ☒ 1000 ☐ 84 ☐ ______

**CALIBRATION RECORD:**

Input, dB / Reading, dB / Offset, dB / Time

Before 114.0, 114.2, —, 9:47

After 114.0, 114.3, +0.31, 10:58

**METER SETTINGS:** ☒ A-WTD ☐ LINEAR ☒ SLOW ☐ 1/1 OCT ☒ INTERVALS 15 - MINUTE ☐ C-WTD ☐ IMPULSE ☐ FAST ☐ 1/3 OCT ☒ $L_N$ PERCENTILE VALUES

**NOTES:**

SYSTEM PWR: ☒ BAT ☐ AC

(observations during measurement)

TEMP: 93 °F R.H.: 58 %

WIND SPEED: 1.2 MPH

TOWARD (DIR): Calm

SKIES: Clear

CAMERA ______

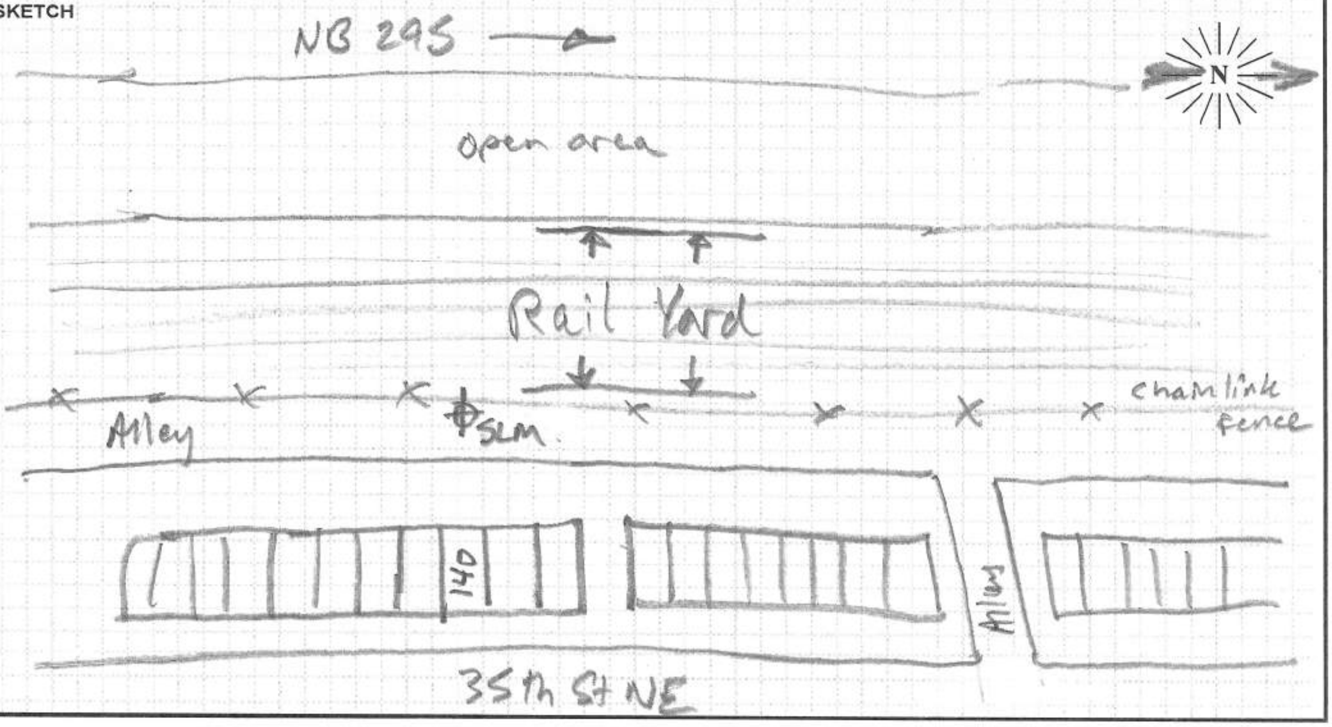
☐ VIDEO ☐ RADAR

**NOTES:**

**MEASUREMENT TYPE:** ☐ Long Term ☒ Short Term

| DATE | START TIME | STOP TIME | $L_{MIN}$ | $L_{99}$ | $L_{90}$ | $L_{50}$ | $L_{25}$ | $L_{10}$ | $L_{01}$ | $L_{MAX}$ | $L_{EQ}$ | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6/23 | 10:17 | 10:32 | 57.9 | 58.0 | 58.5 | 60.7 | 62.2 | 63.5 | 66.6 | 67.6 | 61.4 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

**SKETCH**




**PARSONS**

# FIELD SURVEY FORM

| | | | |
|---|---|---|---|
| PROJECT: Benning Road Interchange | | ENGINEER: OGDEN | DATE: 6/24/20 |
| MEASUREMENT ADDRESS: The Grove @ Parkside 600 Kenilworth Terrace NE | CITY: Washington DC | ☐ Single-Family ☑ Multi-Family ☐ School ☐ Recreational ☐ Commercial ☐ Church | SITE NO.: ST5 |

| SOUND LEVEL METER: | MICROPHONE: | PRE AMP: | NOTES: |
|---|---|---|---|
| ☐ LD-870 ☐ LD-820 ☑ LD-LxT ☐ LD-824 ☐ LD-812 ☐ B&K-2250 ☐ LD-2900 ☐ ______ | ☑ NON-POLAR ☐ POLARIZED ☑ 1/2-INCH ☐ FREEFIELD ☐ 1-INCH ☑ RANDOM ☑ WIND SCREEN | ☐ LD-900 ☑ LD-LxT ☐ LD-828 ☐ ZC-0032 ☐ LD-902 ☐ ______ | SYSTEM PWR: ☑ BAT ☐ AC |
| SERIAL #: 6169 | SERIAL #: LW135545 | SERIAL #: 46632 | (observations during measurement) TEMP: 79 °F R.H.: 52 % |

CALIBRATOR:

☐ LD CA250 ☑ LD CA200 ☐ B&K 4231 ☐ ______

S/N 16684

Freq, Hz.: ☐ 250 ☑ 1000 ☐ 84 ☐ ______

CALIBRATION RECORD:

Input, dB / Reading, dB / Offset, dB / Time

Before 114.0 / 114.0 / -0.02 / 10:46

After 114.0 / 114.0 / +0.02 / 11:33

WIND SPEED: 2-3 MPH

TOWARD (DIR): WNW

SKIES: Clear

CAMERA ______

☐ VIDEO ☐ RADAR

METER SETTINGS:

☑ A-WTD ☐ LINEAR ☑ SLOW ☐ 1/1 OCT ☑ INTERVALS 15 - MINUTE

☐ C-WTD ☐ IMPULSE ☐ FAST ☐ 1/3 OCT ☑ $L_N$ PERCENTILE VALUES

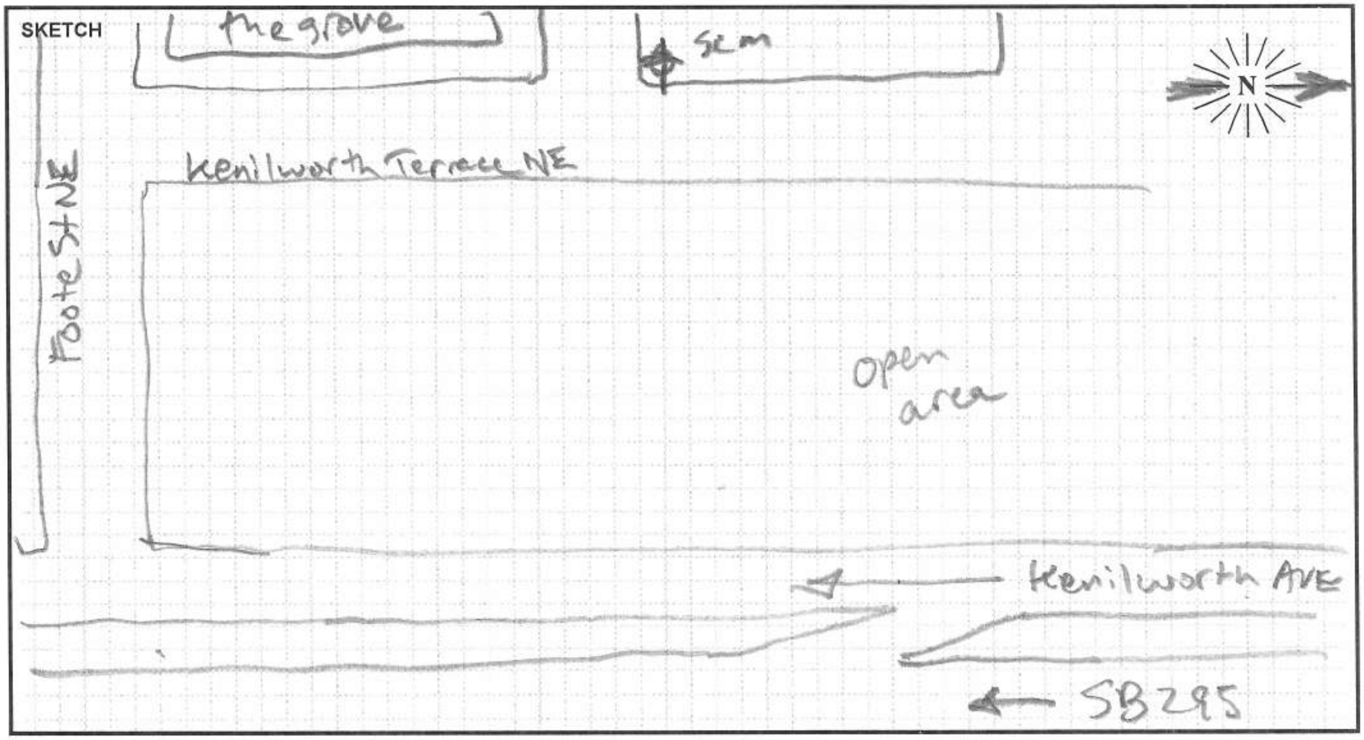
NOTES:

MEASUREMENT TYPE:

☐ Long Term
☑ Short Term

| DATE | START TIME | STOP TIME | $L_{MIN}$ | $L_{99}$ | $L_{90}$ | $L_{50}$ | $L_{25}$ | $L_{10}$ | $L_{01}$ | $L_{MAX}$ | $L_{EQ}$ | NOTES: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6/24 | 11:00 | 11:15 | 54.3 | 54.4 | 54.9 | 56.4 | 59.6 | 62.6 | 66.1 | 66.5 | 59.1 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

SKETCH




PARSONS

## Appendix D: Traffic Volumes

**Existing 2017**

| Description of Traffic Lane | Segment | No. of Lanes | Total Peak Hour Traffic Volumes[1] | Travel Speeds, mph[3] | Volumes by Vehicle Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cars | % Cars | Medium Trucks | % MT[4] | Heavy Trucks | % HT[4] |
| *Benning Road NE* | | | | | | | | | | |
| Eastbound Benning Road - Total | Anacostia Avenue to 34th Street NE | 4 | 1,790 | | 1,740 | 97.20% | 27 | 1.50% | 23 | 1.30% |
| Eastbound - Lane 1 | | 1 | 446 | 35 | 435 | | 6 | | 5 | |
| Eastbound - Lane 2 | | 1 | 448 | 35 | 435 | | 7 | | 6 | |
| Eastbound - Lane 3 | | 1 | 448 | 35 | 435 | | 7 | | 6 | |
| Eastbound - Lane 4 | | 1 | 448 | 35 | 435 | | 7 | | 6 | |
| Westbound Benning Road - Total | | 4 | 955 | | 928 | 97.10% | 14 | 1.50% | 13 | 1.40% |
| Westbound - Lane 1 | | 1 | 238 | 35 | 232 | | 2 | | 4 | |
| Westbound - Lane 2 | | 1 | 239 | 35 | 232 | | 4 | | 3 | |
| Westbound - Lane 3 | | 1 | 239 | 35 | 232 | | 4 | | 3 | |
| Westbound - Lane 4 | | 1 | 239 | 35 | 232 | | 4 | | 3 | |
| Eastbound Benning Road - Total | 34th Street NE to 36th Street NE | 4 | 1,895 | | 1,842 | 97.20% | 28 | 1.50% | 25 | 1.30% |
| Eastbound - Lane 1 | | 1 | 473 | 35 | 459 | | 7 | | 7 | |
| Eastbound - Lane 2 | | 1 | 474 | 35 | 461 | | 7 | | 6 | |
| Eastbound - Lane 3 | | 1 | 474 | 35 | 461 | | 7 | | 6 | |
| Eastbound - Lane 4 | | 1 | 474 | 35 | 461 | | 7 | | 6 | |
| Westbound Benning Road - Total | | 4 | 1,075 | | 1,044 | 97.10% | 16 | 1.50% | 15 | 1.40% |
| Westbound - Lane 1 | | 1 | 268 | 35 | 261 | | 4 | | 3 | |
| Westbound - Lane 2 | | 1 | 269 | 35 | 261 | | 4 | | 4 | |
| Westbound - Lane 3 | | 1 | 269 | 35 | 261 | | 4 | | 4 | |
| Westbound - Lane 4 | | 1 | 269 | 35 | 261 | | 4 | | 4 | |

Notes:

1 - Existing year 2017 PM peak hour volumes used.

2 - Existing volumes exceeded LOS C volumes; therefore, volume was capped at LOS C.

3 - Posted speeds have been used.

4 - Truck percentages provided by Kimley Horn.

**Existing 2017 (continued)**

| Description of Traffic Lane | Segment | No. of Lanes | Total Peak Hour Traffic Volumes[1] | Travel Speeds, mph[3] | Volumes by Vehicle Type: Cars | % Cars | Medium Trucks | % MT[4] | Heavy Trucks | % HT[4] |
|---|---|---|---|---|---|---|---|---|---|---|
| EB Ramp to NB DC 295 | DC 295 | 1 | 700 [2] | 25 | 676 | 96.60% | 13 | 1.80% | 11 | 1.60% |
| EB Ramp to SB DC 295 | DC 295 | 1 | 275 | 25 | 257 | 93.40% | 11 | 4.00% | 7 | 2.60% |
| WB Ramp from NB DC 295 | DC 295 | 1 | 85 | 25 | 82 | 97.20% | 2 | 1.80% | 1 | 1.00% |
| WB Ramp from Kenilworth Avenue | DC 295 | 1 | 620 | 25 | 603 | 97.20% | 11 | 1.80% | 6 | 1.00% |
| Eastbound Benning Road - Total | 36th Street NE to Minnesota Avenue NE | 2 | 1,020 | | 1,003 | 98.30% | 11 | 1.10% | 6 | 0.60% |
| Eastbound - Lane 1 | 36th Street NE to Minnesota Avenue NE | 1 | 510 | 35 | 502 | | 5 | | 3 | |
| Eastbound - Lane 2 | 36th Street NE to Minnesota Avenue NE | 1 | 510 | 35 | 501 | | 6 | | 3 | |
| Westbound Benning Road - Total | 36th Street NE to Minnesota Avenue NE | 2 | 455 | | 446 | 98.00% | 6 | 1.30% | 3 | 0.70% |
| Westbound - Lane 1 | 36th Street NE to Minnesota Avenue NE | 1 | 227 | 35 | 223 | | 3 | | 1 | |
| Westbound - Lane 2 | 36th Street NE to Minnesota Avenue NE | 1 | 228 | 35 | 223 | | 3 | | 2 | |
| Eastbound Benning Road - Total | Minnesota Avenue NE to 39th Street NE | 2 | 630 | | 619 | 98.30% | 7 | 1.10% | 4 | 0.60% |
| Eastbound - Lane 1 | Minnesota Avenue NE to 39th Street NE | 1 | 315 | 35 | 309 | | 4 | | 2 | |
| Eastbound - Lane 2 | Minnesota Avenue NE to 39th Street NE | 1 | 315 | 35 | 310 | | 3 | | 2 | |
| Westbound Benning Road - Total | Minnesota Avenue NE to 39th Street NE | 2 | 355 | | 348 | 98.00% | 5 | 1.30% | 2 | 0.70% |
| Westbound - Lane 1 | Minnesota Avenue NE to 39th Street NE | 1 | 177 | 35 | 173 | | 3 | | 1 | |
| Westbound - Lane 2 | Minnesota Avenue NE to 39th Street NE | 1 | 178 | 35 | 175 | | 2 | | 1 | |
| *Kenilworth Avenue NE* | | | | | | | | | | |
| SB Kenilworth Avenue | Hayes Street NE to Benning Road NE | 2 | 620 | 25 | 595 | 96.10% | 9 | 1.40% | 16 | 2.50% |

Notes:

1 - Existing year 2017 PM peak hour volumes used.

2 - Existing volumes exceeded LOS C volumes; therefore, volume was capped at LOS C.

3 - Posted speeds have been used.

4 - Truck percentages provided by Kimley Horn.

**Existing 2017 (continued)**

| Description of Traffic Lane | Segment | No. of Lanes | Total Peak Hour Traffic Volumes[1] | Travel Speeds, mph[3] | Volumes by Vehicle Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cars | % Cars | Medium Trucks | % MT[4] | Heavy Trucks | % HT[4] |
| *DC 295* | | | | | | | | | | |
| Northbound DC 295 - Total | South of East Capitol Street SE | 2 | 2,380 [2] | | 2,313 | 97.20% | 43 | 1.80% | 24 | 1.00% |
| Northbound - Lane 1 | | 1 | 1,190 | 50 | 1,168 | | 22 | | 0 | |
| Northbound - Lane 2 | | 1 | 1,190 | 50 | 1,145 | | 21 | | 24 | |
| Southbound DC 295 - Total | | 2 | 2,060 [2] | | 1,998 | 97.00% | 31 | 1.50% | 31 | 1.50% |
| Southbound - Lane 1 | | 1 | 1,030 | 50 | 1,014 | | 16 | | 0 | |
| Southbound - Lane 2 | | 1 | 1,030 | 50 | 984 | | 15 | | 31 | |
| NB On-Ramp from EB Capitol Street | East Capitol Street SE | 1 | 700 [2] | 40 | 668 | 95.45% | 13 | 1.80% | 19 | 2.75% |
| SB Off-Ramp to WB Capitol Street | | 1 | 320 | 30 | 310 | 97.00% | 5 | 1.50% | 5 | 1.50% |
| Northbound DC 295 - Total | East Capitol Street SE to Benning Road NE | 3 | 3,570 [2] | | 3,470 | 97.20% | 64 | 1.80% | 36 | 1.00% |
| Northbound - Lane 1 | | 1 | 1,190 | 50 | 1,169 | | 21 | | 0 | |
| Northbound - Lane 2 | | 1 | 1,190 | 50 | 1,151 | | 21 | | 18 | |
| Northbound - Lane 3 | | 1 | 1,190 | 50 | 1,150 | | 22 | | 18 | |
| Southbound DC 295 - Total | | 3 | 3,090 [2] | | 2,998 | 97.00% | 46 | 1.50% | 46 | 1.50% |
| Southbound - Lane 1 | | 1 | 1,030 | 50 | 1,015 | | 15 | | 0 | |
| Southbound - Lane 2 | | 1 | 1,030 | 50 | 992 | | 15 | | 23 | |
| Southbound - Lane 3 | | 1 | 1,030 | 50 | 991 | | 16 | | 23 | |
| NB Off-Ramp to WB Benning Road | South of Benning Road NE | 1 | 95 | 35 | 92 | 97.20% | 2 | 1.80% | 1 | 1.00% |
| SB Off-Ramp to Baker Street | | 1 | 55 | 25 | 54 | 97.40% | 1 | 2.30% | 0 | 0.30% |
| SB On-Ramp from EB Benning Road | | 1 | 275 | 25 | 257 | 93.40% | 11 | 4.00% | 7 | 2.60% |

Notes:

1 - Existing year 2017 PM peak hour volumes used.

2 - Existing volumes exceeded LOS C volumes; therefore, volume was capped at LOS C.

3 - Posted speeds have been used.

4 - Truck percentages provided by Kimley Horn.

**Existing 2017 (continued)**

| Description of Traffic Lane | Segment | No. of Lanes | Total Peak Hour Traffic Volumes[1] | Travel Speeds, mph[3] | Volumes by Vehicle Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cars | % Cars | Medium Trucks | % MT[4] | Heavy Trucks | % HT[4] |
| Northbound DC 295 - Total | Benning Road NE | 3 | 3,490 | | 3,392 | 97.20% | 63 | 1.80% | 35 | 1.00% |
| Northbound - Lane 1 | | 1 | 1,164 | 50 | 1,143 | | 21 | | 0 | |
| Northbound - Lane 2 | | 1 | 1,163 | 50 | 1,124 | | 21 | | 18 | |
| Northbound - Lane 3 | | 1 | 1,163 | 50 | 1,125 | | 21 | | 17 | |
| Southbound DC 295 - Total | | 3 | 3,025 | | 2,935 | 97.00% | 45 | 1.50% | 45 | 1.50% |
| Southbound - Lane 1 | | 1 | 1,009 | 50 | 994 | | 15 | | 0 | |
| Southbound - Lane 2 | | 1 | 1,008 | 50 | 970 | | 15 | | 23 | |
| Southbound - Lane 3 | | 1 | 1,008 | 50 | 971 | | 15 | | 22 | |
| NB On-Ramp from EB Benning Road and SB Kenilworth Avenue | North of Benning Road NE | 1 | 700 [2] | 35 | 680 | 97.20% | 13 | 1.80% | 7 | 1.00% |
| NB On-Ramp from SB Kenilworth Avenue | | 1 | 35 | 35 | 34 | 97.20% | 1 | 1.80% | 0 | 1.00% |
| SB On-Ramp from Kenilworth Avenue | | 1 | 250 | 35 | 246 | 98.50% | 2 | 0.90% | 2 | 0.60% |
| Northbound DC 295 - Total | Benning Road NE to Deane Avenue NE | 3 | 3,570 [2] | | 3,470 | 97.20% | 64 | 1.80% | 36 | 1.00% |
| Northbound - Lane 1 | | 1 | 1,190 | 50 | 1,169 | | 21 | | 0 | |
| Northbound - Lane 2 | | 1 | 1,190 | 50 | 1,151 | | 21 | | 18 | |
| Northbound - Lane 3 | | 1 | 1,190 | 50 | 1,150 | | 22 | | 18 | |
| Southbound DC 295 - Total | | 3 | 2,775 | | 2,691 | 97.00% | 42 | 1.50% | 42 | 1.50% |
| Southbound - Lane 1 | | 1 | 925 | 50 | 911 | | 14 | | 0 | |
| Southbound - Lane 2 | | 1 | 925 | 50 | 890 | | 14 | | 21 | |
| Southbound - Lane 3 | | 1 | 925 | 50 | 890 | | 14 | | 21 | |
| SB Off-Ramp to Kenilworth Avenue | South of Deane Ave NE | 1 | 230 | 35 | 221 | 96.10% | 3 | 1.40% | 6 | 2.50% |

Notes:

1 - Existing year 2017 PM peak hour volumes used.

2 - Existing volumes exceeded LOS C volumes; therefore, volume was capped at LOS C.

3 - Posted speeds have been used.

4 - Truck percentages provided by Kimley Horn.

**No-Build 2045**

| Description of Traffic Lane | Segment | No. of Lanes | Total Peak Hour Traffic Volumes[1] | Travel Speeds, mph[3] | Volumes by Vehicle Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cars | % Cars | Medium Trucks | % MT[4] | Heavy Trucks | % HT[4] |
| *Benning Road NE* | | | | | | | | | | |
| Eastbound Benning Road - Total | Anacostia Avenue to 34th Street NE | 4 | 2,170 | | 2,109 | 97.20% | 33 | 1.50% | 28 | 1.30% |
| Eastbound - Lane 1 | | 1 | 541 | 35 | 525 | | 9 | | 7 | |
| Eastbound - Lane 2 | | 1 | 543 | 35 | 528 | | 8 | | 7 | |
| Eastbound - Lane 3 | | 1 | 543 | 35 | 528 | | 8 | | 7 | |
| Eastbound - Lane 4 | | 1 | 543 | 35 | 528 | | 8 | | 7 | |
| Westbound Benning Road - Total | | 4 | 1,170 | | 1,136 | 97.10% | 18 | 1.50% | 16 | 1.40% |
| Westbound - Lane 1 | | 1 | 291 | 35 | 281 | | 6 | | 4 | |
| Westbound - Lane 2 | | 1 | 293 | 35 | 285 | | 4 | | 4 | |
| Westbound - Lane 3 | | 1 | 293 | 35 | 285 | | 4 | | 4 | |
| Westbound - Lane 4 | | 1 | 293 | 35 | 285 | | 4 | | 4 | |
| Eastbound Benning Road - Total | 34th Street NE to 36th Street NE | 4 | 2,260 | | 2,197 | 97.20% | 34 | 1.50% | 29 | 1.30% |
| Eastbound - Lane 1 | | 1 | 565 | 35 | 547 | | 10 | | 8 | |
| Eastbound - Lane 2 | | 1 | 565 | 35 | 550 | | 8 | | 7 | |
| Eastbound - Lane 3 | | 1 | 565 | 35 | 550 | | 8 | | 7 | |
| Eastbound - Lane 4 | | 1 | 565 | 35 | 550 | | 8 | | 7 | |
| Westbound Benning Road - Total | | 4 | 1,450 | | 1,408 | 97.10% | 22 | 1.50% | 20 | 1.40% |
| Westbound - Lane 1 | | 1 | 361 | 35 | 349 | | 7 | | 5 | |
| Westbound - Lane 2 | | 1 | 363 | 35 | 353 | | 5 | | 5 | |
| Westbound - Lane 3 | | 1 | 363 | 35 | 353 | | 5 | | 5 | |
| Westbound - Lane 4 | | 1 | 363 | 35 | 353 | | 5 | | 5 | |

Notes:

1 - Existing year 2017 PM peak hour volumes used.

2 - Existing volumes exceeded LOS C volumes; therefore, volume was capped at LOS C.

3 - Posted speeds have been used.

4 - Truck percentages provided by Kimley Horn.

**No-Build 2045 (continued)**

| Description of Traffic Lane | Segment | No. of Lanes | Total Peak Hour Traffic Volumes[1] | Travel Speeds, mph[3] | Volumes by Vehicle Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cars | % Cars | Medium Trucks | % MT[4] | Heavy Trucks | % HT[4] |
| EB Ramp to NB DC 295 | DC 295 | 1 | 700 [2] | 25 | 676 | 96.60% | 13 | 1.80% | 11 | 1.60% |
| EB Ramp to SB DC 295 | | 1 | 310 | 25 | 290 | 93.40% | 12 | 4.00% | 8 | 2.60% |
| WB Ramp from NB DC 295 | | 1 | 90 | 25 | 87 | 97.20% | 2 | 1.80% | 1 | 1.00% |
| WB Ramp from Kenilworth Avenue | | 1 | 700 [2] | 25 | 680 | 97.20% | 13 | 1.80% | 7 | 1.00% |
| Eastbound Benning Road - Total | 36th Street NE to Minnesota Avenue NE | 2 | 1,390 | | 1,367 | 98.30% | 15 | 1.10% | 8 | 0.60% |
| Eastbound - Lane 1 | | 1 | 695 | 35 | 684 | | 7 | | 4 | |
| Eastbound - Lane 2 | | 1 | 695 | 35 | 683 | | 8 | | 4 | |
| Westbound Benning Road - Total | | 2 | 745 | | 730 | 98.00% | 10 | 1.30% | 5 | 0.70% |
| Westbound - Lane 1 | | 1 | 372 | 35 | 365 | | 5 | | 2 | |
| Westbound - Lane 2 | | 1 | 373 | 35 | 365 | | 5 | | 3 | |
| Eastbound Benning Road - Total | Minnesota Avenue NE to 39th Street NE | 2 | 985 | | 968 | 98.30% | 11 | 1.10% | 6 | 0.60% |
| Eastbound - Lane 1 | | 1 | 492 | 35 | 483 | | 6 | | 3 | |
| Eastbound - Lane 2 | | 1 | 493 | 35 | 485 | | 5 | | 3 | |
| Westbound Benning Road - Total | | 2 | 450 | | 441 | 98.00% | 6 | 1.30% | 3 | 0.70% |
| Westbound - Lane 1 | | 1 | 225 | 35 | 221 | | 3 | | 1 | |
| Westbound - Lane 2 | | 1 | 225 | 35 | 220 | | 3 | | 2 | |
| *Kenilworth Avenue NE* | | | | | | | | | | |
| SB Kenilworth Avenue | Hayes Street NE to Benning Road NE | 2 | 705 | 25 | 677 | 96.10% | 10 | 1.40% | 18 | 2.50% |

Notes:

1 - Existing year 2017 PM peak hour volumes used.

2 - Existing volumes exceeded LOS C volumes; therefore, volume was capped at LOS C.

3 - Posted speeds have been used.

4 - Truck percentages provided by Kimley Horn.

**No-Build 2045 (continued)**

| Description of Traffic Lane | Segment | No. of Lanes | Total Peak Hour Traffic Volumes[1] | Travel Speeds, mph[3] | Volumes by Vehicle Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cars | % Cars | Medium Trucks | % MT[4] | Heavy Trucks | % HT[4] |
| *DC 295* | | | | | | | | | | |
| Northbound DC 295 - Total | South of East Capitol Street SE | 2 | 2,380 [2] | | 2,313 | 97.20% | 43 | 1.80% | 24 | 1.00% |
| Northbound - Lane 1 | | 1 | 1,190 | 50 | 1,168 | | 22 | | 0 | |
| Northbound - Lane 2 | | 1 | 1,190 | 50 | 1,145 | | 21 | | 24 | |
| Southbound DC 295 - Total | | 2 | 2,060 [2] | | 1,998 | 97.00% | 31 | 1.50% | 31 | 1.50% |
| Southbound - Lane 1 | | 1 | 1,030 | 50 | 1,014 | | 16 | | 0 | |
| Southbound - Lane 2 | | 1 | 1,030 | 50 | 984 | | 15 | | 31 | |
| NB On-Ramp from EB Capitol Street | East Capitol Street SE | 1 | 700 [2] | 40 | 668 | 95.45% | 13 | 1.80% | 19 | 2.75% |
| SB Off-Ramp to WB Capitol Street | | 1 | 420 | 30 | 408 | 97.00% | 6 | 1.50% | 6 | 1.50% |
| Northbound DC 295 - Total | East Capitol Street SE to Benning Road NE | 3 | 3,570 [2] | | 3,470 | 97.20% | 64 | 1.80% | 36 | 1.00% |
| Northbound - Lane 1 | | 1 | 1,190 | 50 | 1,169 | | 21 | | 0 | |
| Northbound - Lane 2 | | 1 | 1,190 | 50 | 1,151 | | 21 | | 18 | |
| Northbound - Lane 3 | | 1 | 1,190 | 50 | 1,150 | | 22 | | 18 | |
| Southbound DC 295 - Total | | 3 | 3,090 [2] | | 2,998 | 97.00% | 46 | 1.50% | 46 | 1.50% |
| Southbound - Lane 1 | | 1 | 1,030 | 50 | 1,015 | | 15 | | 0 | |
| Southbound - Lane 2 | | 1 | 1,030 | 50 | 992 | | 15 | | 23 | |
| Southbound - Lane 3 | | 1 | 1,030 | 50 | 991 | | 16 | | 23 | |
| NB Off-Ramp to WB Benning Road | South of Benning Road NE | 1 | 105 | 35 | 102 | 97.20% | 2 | 1.80% | 1 | 1.00% |
| SB Off-Ramp to Baker Street | | 1 | 65 | 25 | 64 | 97.40% | 1 | 2.30% | 0 | 0.30% |
| SB On-Ramp from EB Benning Road | | 1 | 310 | 25 | 290 | 93.40% | 12 | 4.00% | 8 | 2.60% |

Notes:

1 - Existing year 2017 PM peak hour volumes used.

2 - Existing volumes exceeded LOS C volumes; therefore, volume was capped at LOS C.

3 - Posted speeds have been used.

4 - Truck percentages provided by Kimley Horn.

**No-Build 2045 (continued)**

| Description of Traffic Lane | Segment | No. of Lanes | Total Peak Hour Traffic Volumes[1] | Travel Speeds, mph[3] | Volumes by Vehicle Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cars | % Cars | Medium Trucks | % MT[4] | Heavy Trucks | % HT[4] |
| Northbound DC 295 - Total | Benning Road NE | 3 | 3,570 [2] | | 3,470 | 97.20% | 64 | 1.80% | 36 | 1.00% |
| Northbound - Lane 1 | | 1 | 1,190 | 50 | 1,169 | | 21 | | 0 | |
| Northbound - Lane 2 | | 1 | 1,190 | 50 | 1,151 | | 21 | | 18 | |
| Northbound - Lane 3 | | 1 | 1,190 | 50 | 1,150 | | 22 | | 18 | |
| Southbound DC 295 - Total | | 3 | 3,090 [2] | | 2,998 | 97.00% | 46 | 1.50% | 46 | 1.50% |
| Southbound - Lane 1 | | 1 | 1,030 | 50 | 1,015 | | 15 | | 0 | |
| Southbound - Lane 2 | | 1 | 1,030 | 50 | 992 | | 15 | | 23 | |
| Southbound - Lane 3 | | 1 | 1,030 | 50 | 991 | | 16 | | 23 | |
| NB On-Ramp from EB Benning Road and SB Kenilworth Avenue | North of Benning Road NE | 1 | 700 [2] | 35 | 680 | 97.20% | 13 | 1.80% | 7 | 1.00% |
| NB On-Ramp from SB Kenilworth Avenue | | 1 | 65 | 35 | 63 | 97.20% | 1 | 1.80% | 1 | 1.00% |
| SB On-Ramp from Kenilworth Avenue | | 1 | 295 | 35 | 290 | 98.50% | 3 | 0.90% | 2 | 0.60% |
| Northbound DC 295 - Total | Benning Road NE to Deane Avenue NE | 3 | 3,570 [2] | | 3,470 | 97.20% | 64 | 1.80% | 36 | 1.00% |
| Northbound - Lane 1 | | 1 | 1,190 | 50 | 1,169 | | 21 | | 0 | |
| Northbound - Lane 2 | | 1 | 1,190 | 50 | 1,151 | | 21 | | 18 | |
| Northbound - Lane 3 | | 1 | 1,190 | 50 | 1,150 | | 22 | | 18 | |
| Southbound DC 295 - Total | | 3 | 2,805 | | 2,721 | 97.00% | 42 | 1.50% | 42 | 1.50% |
| Southbound - Lane 1 | | 1 | 935 | 50 | 921 | | 14 | | 0 | |
| Southbound - Lane 2 | | 1 | 935 | 50 | 900 | | 14 | | 21 | |
| Southbound - Lane 3 | | 1 | 935 | 50 | 900 | | 14 | | 21 | |
| SB Off-Ramp to Kenilworth Avenue | South of Deane Ave NE | 1 | 210 | 35 | 202 | 96.10% | 3 | 1.40% | 5 | 2.50% |

Notes:

1 - Existing year 2017 PM peak hour volumes used.

2 - Existing volumes exceeded LOS C volumes; therefore, volume was capped at LOS C.

3 - Posted speeds have been used.

4 - Truck percentages provided by Kimley Horn.

**Build 2045**

| Description of Traffic Lane | Segment | No. of Lanes | Total Peak Hour Traffic Volumes[1] | Travel Speeds, mph[3] | Volumes by Vehicle Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cars | % Cars | Medium Trucks | % MT[4] | Heavy Trucks | % HT[4] |
| *Benning Road NE* | | | | | | | | | | |
| Eastbound Benning Road - Total | Anacostia Avenue to 34th Street NE | 3 | 1,950 [2] | | 1,896 | 97.20% | 29 | 1.50% | 25 | 1.30% |
| Eastbound - Lane 1 | | 1 | 650 | 35 | 632 | | 9 | | 9 | |
| Eastbound - Lane 2 | | 1 | 650 | 35 | 632 | | 10 | | 8 | |
| Eastbound - Lane 3 | | 1 | 650 | 35 | 632 | | 10 | | 8 | |
| Westbound Benning Road - Total | | 3 | 1,155 | | 1,122 | 97.10% | 17 | 1.50% | 16 | 1.40% |
| Westbound - Lane 1 | | 1 | 385 | 35 | 374 | | 5 | | 6 | |
| Westbound - Lane 2 | | 1 | 385 | 35 | 374 | | 6 | | 5 | |
| Westbound - Lane 3 | | 1 | 385 | 35 | 374 | | 6 | | 5 | |
| Eastbound Benning Road - Total | 34th Street NE to 36th Street NE | 3 | 1,950 [2] | | 1,896 | 97.20% | 29 | 1.50% | 25 | 1.30% |
| Eastbound - Lane 1 | | 1 | 650 | 35 | 632 | | 9 | | 9 | |
| Eastbound - Lane 2 | | 1 | 650 | 35 | 632 | | 10 | | 8 | |
| Eastbound - Lane 3 | | 1 | 650 | 35 | 632 | | 10 | | 8 | |
| Westbound Benning Road - Total | | 3 | 1,415 | | 1,374 | 97.10% | 21 | 1.50% | 20 | 1.40% |
| Westbound - Lane 1 | | 1 | 471 | 35 | 458 | | 7 | | 6 | |
| Westbound - Lane 2 | | 1 | 472 | 35 | 458 | | 7 | | 7 | |
| Westbound - Lane 3 | | 1 | 472 | 35 | 458 | | 7 | | 7 | |
| EB Ramp to NB DC 295 | DC 295 Ramps at 36th Street | 1 | 700 [2] | 25 | 676 | 96.60% | 13 | 1.80% | 11 | 1.60% |
| EB Ramp to SB DC 295 | | 1 | 290 | 25 | 270 | 93.40% | 12 | 4.00% | 8 | 2.60% |
| WB Ramp from Kenilworth Avenue | | 1 | 700 [2] | 25 | 680 | 97.20% | 13 | 1.80% | 7 | 1.00% |

Notes:

1 - Existing year 2017 PM peak hour volumes used.

2 - Existing volumes exceeded LOS C volumes; therefore, volume was capped at LOS C.

3 - Posted speeds have been used.

4 - Truck percentages provided by Kimley Horn.

**Build 2045 (continued)**

| Description of Traffic Lane | Segment | No. of Lanes | Total Peak Hour Traffic Volumes[1] | Travel Speeds, mph[3] | Volumes by Vehicle Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cars | % Cars | Medium Trucks | % MT[4] | Heavy Trucks | % HT[4] |
| Eastbound Benning Road - Total | 36th Street NE to DC 295 | 2 | 1,300 [2] | | 1,278 | 98.30% | 14 | 1.10% | 8 | 0.60% |
| Eastbound - Lane 1 | | 1 | 650 | 35 | 639 | | 7 | | 4 | |
| Eastbound - Lane 2 | | 1 | 650 | 35 | 639 | | 7 | | 4 | |
| Westbound Benning Road - Total | | 2 | 635 | | 623 | 98.00% | 8 | 1.30% | 4 | 0.70% |
| Westbound - Lane 1 | | 1 | 317 | 35 | 311 | | 4 | | 2 | |
| Westbound - Lane 2 | | 1 | 318 | 35 | 312 | | 4 | | 2 | |
| WB Ramp to SB DC 295 | DC 295 Ramps at DC 295 Overcrossing | 1 | 300 [2] | 25 | 295 | 98.40% | 3 | 1.10% | 2 | 0.50% |
| EB/WB Ramp from NB DC 295 | | 1 | 275 | 25 | 266 | 96.90% | 7 | 2.50% | 2 | 0.60% |
| WB Ramp to NB DC 295 | | 1 | 185 | 25 | 182 | 98.40% | 2 | 1.10% | 1 | 0.50% |
| Eastbound Benning Road - Total | DC 295 to Minnesota Avenue NE | 2 | 1,300 [2] | | 1,278 | 98.30% | 14 | 1.10% | 8 | 0.60% |
| Eastbound - Lane 1 | | 1 | 650 | 35 | 639 | | 7 | | 4 | |
| Eastbound - Lane 2 | | 1 | 650 | 35 | 639 | | 7 | | 4 | |
| Westbound Benning Road - Total | | 2 | 1,015 | | 995 | 98.00% | 13 | 1.30% | 7 | 0.70% |
| Westbound - Lane 1 | | 1 | 507 | 35 | 498 | | 6 | | 3 | |
| Westbound - Lane 2 | | 1 | 508 | 35 | 497 | | 7 | | 4 | |
| Eastbound Benning Road - Total | Minnesota Avenue NE to 39th Street NE | 2 | 1,045 | | 1,028 | 98.30% | 11 | 1.10% | 6 | 0.60% |
| Eastbound - Lane 1 | | 1 | 522 | 35 | 514 | | 5 | | 3 | |
| Eastbound - Lane 2 | | 1 | 523 | 35 | 514 | | 6 | | 3 | |
| Westbound Benning Road - Total | | 2 | 565 | | 554 | 98.00% | 7 | 1.30% | 4 | 0.70% |
| Westbound - Lane 1 | | 1 | 282 | 35 | 277 | | 3 | | 2 | |
| Westbound - Lane 2 | | 1 | 283 | 35 | 277 | | 4 | | 2 | |

Notes:

1 - Existing year 2017 PM peak hour volumes used.

2 - Existing volumes exceeded LOS C volumes; therefore, volume was capped at LOS C.

3 - Posted speeds have been used.

4 - Truck percentages provided by Kimley Horn.

**Build 2045 (continued)**

| Description of Traffic Lane | Segment | No. of Lanes | Total Peak Hour Traffic Volumes[1] | Travel Speeds, mph[3] | Volumes by Vehicle Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cars | % Cars | Medium Trucks | % MT[4] | Heavy Trucks | % HT[4] |
| *DC 295* | | | | | | | | | | |
| Northbound DC 295 - Total | South of East Capitol Street SE | 2 | 2,630 [2] | | 2,557 | 97.20% | 47 | 1.80% | 26 | 1.00% |
| Northbound - Lane 1 | | 1 | 1,315 | 50 | 1,291 | | 24 | | 0 | |
| Northbound - Lane 2 | | 1 | 1,315 | 50 | 1,266 | | 23 | | 26 | |
| Southbound DC 295 - Total | | 2 | 2,265 [2] | | 2,197 | 97.00% | 34 | 1.50% | 34 | 1.50% |
| Southbound - Lane 1 | | 1 | 1,132 | 50 | 1,115 | | 17 | | 0 | |
| Southbound - Lane 2 | | 1 | 1,133 | 50 | 1,082 | | 17 | | 34 | |
| NB On-Ramp from EB Capitol Street | East Capitol Street SE | 1 | 700 [2] | 40 | 668 | 95.45% | 13 | 1.80% | 19 | 2.75% |
| SB Off-Ramp to WB Capitol Street | | 1 | 410 | 30 | 398 | 97.00% | 6 | 1.50% | 6 | 1.50% |
| Northbound DC 295 - Total | East Capitol Street SE to Benning Road NE | 3 | 3,570 [2] | | 3,470 | 97.20% | 64 | 1.80% | 36 | 1.00% |
| Northbound - Lane 1 | | 1 | 1,190 | 50 | 1,169 | | 21 | | 0 | |
| Northbound - Lane 2 | | 1 | 1,190 | 50 | 1,151 | | 21 | | 18 | |
| Northbound - Lane 3 | | 1 | 1,190 | 50 | 1,150 | | 22 | | 18 | |
| Southbound DC 295 - Total | | 3 | 3,375 | | 3,273 | 97.00% | 51 | 1.50% | 51 | 1.50% |
| Southbound - Lane 1 | | 1 | 1,125 | 50 | 1,108 | | 17 | | 0 | |
| Southbound - Lane 2 | | 1 | 1,125 | 50 | 1,082 | | 17 | | 26 | |
| Southbound - Lane 3 | | 1 | 1,125 | 50 | 1,083 | | 17 | | 25 | |
| NB Off-Ramp to Benning Road | South of Benning Road NE | 1 | 275 | 35 | 266 | 96.90% | 7 | 2.50% | 2 | 0.60% |
| SB Off-Ramp to Alden Place | | 1 | 65 | 25 | 64 | 97.40% | 1 | 2.30% | 0 | 0.30% |
| SB On-Ramp from EB Benning Road | | 1 | 290 | 25 | 270 | 93.40% | 12 | 4.00% | 8 | 2.60% |

Notes:

1 - Existing year 2017 PM peak hour volumes used.

2 - Existing volumes exceeded LOS C volumes; therefore, volume was capped at LOS C.

3 - Posted speeds have been used.

4 - Truck percentages provided by Kimley Horn.

**Build 2045 (continued)**

| Description of Traffic Lane | Segment | No. of Lanes | Total Peak Hour Traffic Volumes[1] | Travel Speeds, mph[3] | Volumes by Vehicle Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cars | % Cars | Medium Trucks | % MT[4] | Heavy Trucks | % HT[4] |
| Northbound DC 295 - Total | Benning Road NE | 2 | 2,630 [2] | | 2,557 | 97.20% | 47 | 1.80% | 26 | 1.00% |
| Northbound - Lane 1 | | 1 | 1,315 | 50 | 1,291 | | 24 | | 0 | |
| Northbound - Lane 2 | | 1 | 1,315 | 50 | 1,278 | | 24 | | 13 | |
| Southbound DC 295 - Total | | 3 | 2,850 | | 2,764 | 97.00% | 43 | 1.50% | 43 | 1.50% |
| Southbound - Lane 1 | | 1 | 950 | 50 | 936 | | 14 | | 0 | |
| Southbound - Lane 2 | | 1 | 950 | 50 | 914 | | 14 | | 22 | |
| Southbound - Lane 3 | | 1 | 950 | 50 | 914 | | 15 | | 21 | |
| NB On-Ramp from EB Benning Road | North of Benning Road NE | 1 | 700 | 35 | 680 | 97.20% | 13 | 1.80% | 7 | 1.00% |
| NB On-Ramp from WB Benning Raod | | 1 | 185 | 35 | 182 | 98.40% | 2 | 1.10% | 1 | 0.50% |
| SB On-Ramp from Kenilworth Avenue | | 1 | 225 | 35 | 222 | 98.50% | 2 | 0.90% | 1 | 0.60% |
| Northbound DC 295 - Total | Benning Road NE to Deane Avenue NE | 3 | 3,945 [2] | | 3,835 | 97.20% | 71 | 1.80% | 39 | 1.00% |
| Northbound - Lane 1 | | 1 | 1,315 | 50 | 1,291 | | 24 | | 0 | |
| Northbound - Lane 2 | | 1 | 1,315 | 50 | 1,271 | | 24 | | 20 | |
| Northbound - Lane 3 | | 1 | 1,315 | 50 | 1,273 | | 23 | | 19 | |
| Southbound DC 295 - Total | | 3 | 2,870 | | 2,784 | 97.00% | 43 | 1.50% | 43 | 1.50% |
| Southbound - Lane 1 | | 1 | 956 | 50 | 942 | | 14 | | 0 | |
| Southbound - Lane 2 | | 1 | 957 | 50 | 921 | | 14 | | 22 | |
| Southbound - Lane 3 | | 1 | 957 | 50 | 921 | | 15 | | 21 | |
| SB Off-Ramp to Kenilworth Avenue | South of Deane Ave NE | 1 | 245 | 35 | 236 | 96.10% | 3 | 1.40% | 6 | 2.50% |

Notes:

1 - Existing year 2017 PM peak hour volumes used.

2 - Existing volumes exceeded LOS C volumes; therefore, volume was capped at LOS C.

3 - Posted speeds have been used.

4 - Truck percentages provided by Kimley Horn.

**Build 2045 (continued)**

| Description of Traffic Lane | Segment | No. of Lanes | Total Peak Hour Traffic Volumes[1] | Travel Speeds, mph[3] | Volumes by Vehicle Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cars | % Cars | Medium Trucks | % MT[4] | Heavy Trucks | % HT[4] |
| *Kenilworth Avenue NE* | | | | | | | | | | |
| SB Kenilworth Avenue | Hayes Street NE to Benning Road NE | 2 | 780 | 25 | 749 | 96.10% | 11 | 1.40% | 20 | 2.50% |

Notes:

1 - Existing year 2017 PM peak hour volumes used.

2 - Existing volumes exceeded LOS C volumes; therefore, volume was capped at LOS C.

3 - Posted speeds have been used.

4 - Truck percentages provided by Kimley Horn.

**Noise Model Validations**

| Description of Traffic Lane | Number of Lanes | Total Traffic Volumes | Travel Speeds, mph | Volumes by Vehicle Type | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Cars | Medium Trucks | Heavy Trucks | Bus | Motorcycle |
| *Hourly Traffic Counts for Measurements ST3 & ST4 dated 6/23/2020 from 10:17 to 10:32* | | | | | | | | |
| *Benning Road NE* | | | | | | | | |
| Eastbound | 2 | 540 | | 488 | 36 | 4 | 8 | 4 |
| Eastbound - Lane 1 | 1 | 270 | 35 | 252 | 18 | 0 | 4 | 2 |
| Eastbound - Lane 2 | 1 | 270 | 35 | 248 | 18 | 4 | 4 | 2 |
| EB Ramp to SB DC 295 | 1 | 132 | 35 | 120 | 6 | 6 | 0 | 0 |
| EB Ramp to NB DC 295 | 1 | 102 | 35 | 99 | 3 | 0 | 0 | 0 |
| Westbound | 2 | 532 | | 480 | 16 | 20 | 16 | 0 |
| Westbound - Lane 1 | 1 | 266 | 35 | 258 | 8 | 0 | 8 | 0 |
| Westbound - Lane 2 | 1 | 266 | 35 | 238 | 8 | 20 | 8 | 0 |
| WB Ramp from NB DC 295 | 1 | 324 | 35 | 312 | 8 | 4 | 0 | 0 |
| WB Ramp from Kenilworth Avenue | 1 | 192 | 35 | 180 | 8 | 4 | 0 | 0 |
| *DC 295* | | | | | | | | |
| Northbound DC 295 - Total | 3 | 2,752 | | 2,492 | 124 | 120 | 8 | 8 |
| Northbound - Lane 1 | 1 | 918 | 50 | 877 | 41 | 0 | 3 | 0 |
| Northbound - Lane 2 | 1 | 917 | 50 | 816 | 41 | 60 | 3 | 4 |
| Northbound - Lane 3 | 1 | 917 | 50 | 815 | 42 | 60 | 2 | 4 |
| Southbound DC 295 - Total | 3 | 3,036 | | 2,848 | 84 | 84 | 20 | 0 |
| Southbound - Lane 1 | 1 | 1,012 | 50 | 984 | 28 | 0 | 7 | 0 |
| Southbound - Lane 2 | 1 | 1,012 | 50 | 942 | 28 | 42 | 7 | 0 |
| Southbound - Lane 3 | 1 | 1,012 | 50 | 942 | 28 | 42 | 6 | 0 |
| NB Off-Ramp to WB Benning Road | 1 | 324 | 35 | 312 | 8 | 4 | 0 | 0 |
| SB On-Ramp from EB Benning Road | 1 | 176 | 30 | 160 | 8 | 8 | 0 | 0 |
| SB Off-Ramp to Kenilworth Avenue | 1 | 72 | 25 | 72 | 0 | 0 | 0 | 0 |

| Description of Traffic Lane | Number of Lanes | Total Traffic Volumes | Travel Speeds, mph | Volumes by Vehicle Type | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Cars | Medium Trucks | Heavy Trucks | Bus | Motorcycle |
| *Hourly Traffic Counts for Measurements ST2 dated 6/24/2020 from 9:51 to 10:06* | | | | | | | | |
| *Benning Road NE* | | | | | | | | |
| Eastbound | 2 | 540 | | 508 | 16 | 8 | 8 | 0 |
| Eastbound - Lane 1 | 1 | 270 | 35 | 262 | 8 | 0 | 4 | 0 |
| Eastbound - Lane 2 | 1 | 270 | 35 | 254 | 8 | 8 | 4 | 0 |
| EB Ramp to SB DC 295 | 1 | 144 | 30 | 120 | 4 | 20 | 0 | 0 |
| EB Ramp to NB DC 295 | 1 | 100 | 30 | 100 | 0 | 0 | 0 | 0 |
| Westbound | 2 | 600 | | 552 | 8 | 16 | 20 | 4 |
| Westbound - Lane 1 | 1 | 300 | 35 | 296 | 4 | 0 | 10 | 2 |
| Westbound - Lane 2 | 1 | 300 | 35 | 280 | 4 | 16 | 10 | 2 |
| WB Ramp from NB DC 295 | 1 | 240 | 35 | 220 | 12 | 8 | 0 | 0 |
| WB Ramp from Kenilworth Avenue | 1 | 276 | 35 | 252 | 24 | 0 | 0 | 0 |
| *DC 295* | | | | | | | | |
| Northbound DC 295 - Total | 3 | 3,032 | | 2,864 | 80 | 64 | 16 | 8 |
| Northbound - Lane 1 | 1 | 1,010 | 50 | 983 | 27 | 0 | 5 | 0 |
| Northbound - Lane 2 | 1 | 1,011 | 50 | 952 | 27 | 32 | 5 | 4 |
| Northbound - Lane 3 | 1 | 1,011 | 50 | 953 | 26 | 32 | 6 | 4 |
| Southbound DC 295 - Total | 3 | 3,200 | | 2,976 | 104 | 120 | 0 | 0 |
| Southbound - Lane 1 | 1 | 1,066 | 50 | 1,031 | 35 | 0 | 0 | 0 |
| Southbound - Lane 2 | 1 | 1,067 | 50 | 972 | 35 | 60 | 0 | 0 |
| Southbound - Lane 3 | 1 | 1,067 | 50 | 973 | 34 | 60 | 0 | 0 |
| NB Off-Ramp to WB Benning Road | 1 | 244 | 35 | 220 | 12 | 12 | 0 | 0 |
| SB On-Ramp from EB Benning Road | 1 | 144 | 30 | 120 | 4 | 20 | 0 | 0 |
| SB Off-Ramp to Kenilworth Avenue | 1 | 84 | 25 | 84 | 0 | 0 | 0 | 0 |

| Description of Traffic Lane | Number of Lanes | Total Traffic Volumes | Travel Speeds, mph | Volumes by Vehicle Type | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Cars | Medium Trucks | Heavy Trucks | Bus | Motorcycle |
| *Hourly Traffic Counts for Measurements ST1 dated 6/24/2020 from 12:00 to 12:15* | | | | | | | | |
| *Benning Road NE* | | | | | | | | |
| Eastbound | 2 | 804 | | 768 | 24 | 0 | 8 | 4 |
| Eastbound - Lane 1 | 1 | 402 | 35 | 390 | 12 | 0 | 4 | 2 |
| Eastbound - Lane 2 | 1 | 402 | 35 | 390 | 12 | 0 | 4 | 2 |
| EB Ramp to SB DC 295 | 1 | 176 | 30 | 152 | 0 | 24 | 0 | 0 |
| EB Ramp to NB DC 295 | 1 | 196 | 30 | 192 | 4 | 0 | 0 | 0 |
| Westbound | 2 | 572 | | 540 | 20 | 4 | 8 | 0 |
| Westbound - Lane 1 | 1 | 286 | 35 | 276 | 10 | 0 | 4 | 0 |
| Westbound - Lane 2 | 1 | 286 | 35 | 272 | 10 | 4 | 4 | 0 |
| WB Ramp from NB DC 295 | 1 | 200 | 35 | 192 | 4 | 4 | 0 | 0 |
| WB Ramp from Kenilworth Avenue | 1 | 300 | 35 | 284 | 12 | 4 | 0 | 0 |
| *DC 295* | | | | | | | | |
| Northbound DC 295 - Total | 3 | 3,604 | | 3,324 | 144 | 120 | 4 | 12 |
| Northbound - Lane 1 | 1 | 1,202 | 45 | 1,154 | 48 | 0 | 1 | 0 |
| Northbound - Lane 2 | 1 | 1,201 | 45 | 1,093 | 48 | 60 | 1 | 6 |
| Northbound - Lane 3 | 1 | 1,201 | 45 | 1,093 | 48 | 60 | 2 | 6 |
| Southbound DC 295 - Total | 3 | 3,240 | | 3,068 | 60 | 104 | 0 | 8 |
| Southbound - Lane 1 | 1 | 1,080 | 20 | 1,060 | 20 | 0 | 0 | 0 |
| Southbound - Lane 2 | 1 | 1,080 | 20 | 1,008 | 20 | 52 | 0 | 4 |
| Southbound - Lane 3 | 1 | 1,080 | 20 | 1,008 | 20 | 52 | 0 | 4 |
| NB Off-Ramp to WB Benning Road | 1 | 200 | 35 | 192 | 4 | 4 | 0 | 0 |
| SB On-Ramp from EB Benning Road | 1 | 176 | 30 | 152 | 0 | 24 | 0 | 0 |
| SB Off-Ramp to Kenilworth Avenue | 1 | 64 | 25 | 64 | 0 | 0 | 0 | 0 |

| Description of Traffic Lane | Number of Lanes | Total Traffic Volumes | Travel Speeds, mph | Volumes by Vehicle Type | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Cars | Medium Trucks | Heavy Trucks | Bus | Motorcycle |
| *Hourly Traffic Counts for Measurements ST5 dated 6/24/2020 from 11:00 to 11:15* | | | | | | | | |
| *DC 295* | | | | | | | | |
| Northbound DC 295 - Total | 3 | 3,648 | | 3,440 | 100 | 104 | 0 | 4 |
| Northbound - Lane 1 | 1 | 1,216 | 45 | 1,183 | 33 | 0 | 0 | 0 |
| Northbound - Lane 2 | 1 | 1,216 | 45 | 1,131 | 33 | 52 | 0 | 2 |
| Northbound - Lane 3 | 1 | 1,216 | 45 | 1,130 | 34 | 52 | 0 | 2 |
| Southbound DC 295 - Total | 3 | 2,900 | | 2,656 | 88 | 148 | 0 | 8 |
| Southbound - Lane 1 | 1 | 966 | 40 | 937 | 29 | 0 | 0 | 0 |
| Southbound - Lane 2 | 1 | 967 | 40 | 864 | 29 | 74 | 0 | 4 |
| Southbound - Lane 3 | 1 | 967 | 40 | 863 | 30 | 74 | 0 | 4 |
| SB On-Ramp from Kenilworth Avenue | 1 | 183 | 35 | 177 | 6 | 0 | 0 | 0 |
| *Kenilworth Avenue NE* | | | | | | | | |
| SB Kenilworth Avenue | | 624 | 30 | 604 | 16 | 4 | 0 | 0 |

# N COMMUNITY RESOURCES TECHNICAL MEMORANDUM

The study area for community impacts was defined as those census tract block groups (CTBGs) adjacent to the project. These block groups include (see Figure 1):

- Tract 009602 – Block Groups 1 and 2
- Tract 007803 – Block Group 1
- Tract 009603 – Block Groups 2 and 3
- Tract 009604 – Block Group 2

## COMMUNITY COHESION

The project is surrounded by communities along the east bank of the Anacostia River in Northeast DC. This project would not have an adverse impact on community cohesion. It does not introduce a new highway or bisect existing communities. It will improve bicycle and pedestrian movements and improve access to DC-295 from the communities east of the interchange.

## PUBLIC FACILITIES AND SERVICES

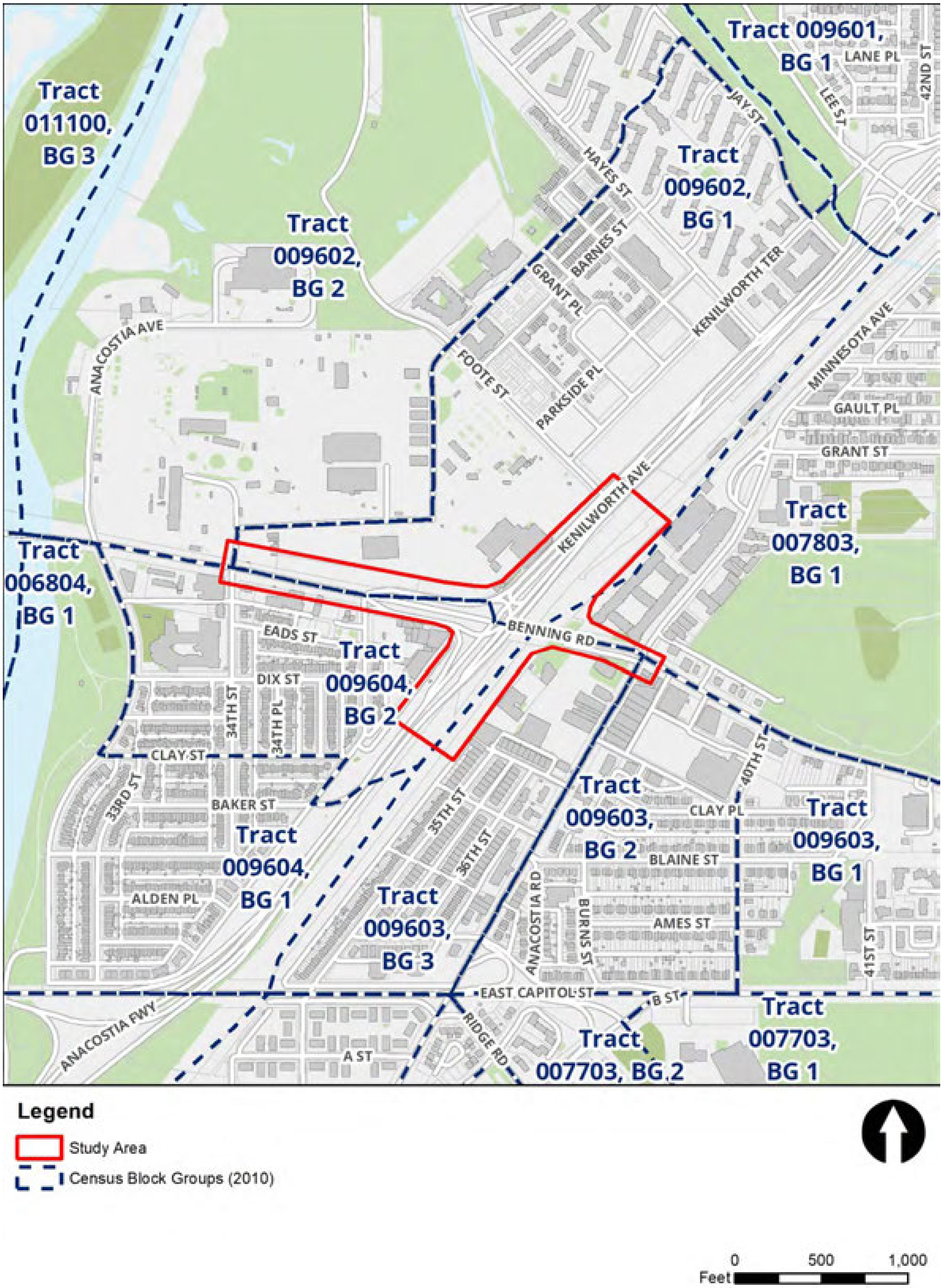
As a densely developed section of Washington DC, the study area contains numerous public facilities and services. The proposed project will not have substantial impacts on health and educational facilities, public utilities, fire, police, emergency services, religious institutions, public transportation, or pedestrian and bicycle facilities. The project requires no additional right-of-way and does not involve any relocations. Access for emergency services will be improved by increasing the available movements associated with the interchange. Public transportation, bicycle and pedestrian facilities are also improved as part of the project.

## ENVIRONMENTAL JUSTICE

Total population, minority population, persons with limited English, and median household income in the study area are presented in Table 1. Data from the 2018 American Community Survey (ACS) Five-Year Estimates were used at the Census Tract Block Group (CTBG) level.

The CTBG with the highest population is 96.02-1. The other CTBG with a high population is CTBG 96.02-2; however, only a small portion of the actual BG is within the study area (**Figure 1**).

**Figure 1. Census Tract Block Groups in Study Area**



Census geographies (tracts and block groups) can have data that vary widely from other tracts based on their unique locations. High populations in group quarters such as college dormitories, retirement communities, and correctional facilities, can affect data. For example, the Mayfair Mansions Apartments are split between two block groups, with the larger portion in CTBG 96.02-1. Some of the CTBG boundaries are along existing roadways (i.e., sides of the same street are in separate census tracts); therefore, they may not give the most accurate picture of a community. These boundaries include Benning Road NE, Anacostia Avenue NE, and Clay Street NE.

**Table 1 | Demographic and Income Data in 2018**

| Geographic Area | Total Population | Minorities | Percent Minority | LEP Persons* | Percent LEP Persons | Median Household Income |
|---|---|---|---|---|---|---|
| District of Columbia | 684,498 | 436,441 | 63.76% | 36,568 | 5.72% | $82,604 |
| Block Group 1, Census Tract 78.03 | 1,184 | 1,124 | 94.93% | -- | 3.09% | $30,813 |
| Block Group 1, Census Tract 96.02 | 1,942 | 1,924 | 99.07% | -- | 0.64% | $28,814 |
| Block Group 2, Census Tract 96.02 | 1,763 | 1,763 | 100.00% | -- | 2.90% | $19,929 |
| Block Group 2, Census Tract 96.03 | 929 | 929 | 100.00% | 55 | 6.19% | $79,063 |
| Block Group 3, Census Tract 96.03 | 1,002 | 992 | 99.00% | -- | 3.45% | $21,635 |
| Block Group 2, Census Tract 96.04 | 984 | 969 | 98.48% | 74 | 7.93% | $83,056 |

Source: US Census, 2018 ACS. Note: --Totals less than 50 persons not shown in accordance with US Census Bureau privacy guidelines. *For the Population Aged 5 Years and Over

The minority percentage of the population in the CTBGs is higher than the minority percentage in the District and all are over 50% of the population. Therefore, all of the CTBGs are considered environmental justice CTBGs for minorities. The percentage of LEP persons in the study area is lower than in the District in four of the CTBGs. Two have a percentage higher than the District. In both of these CTBGs, the languages spoken are not Spanish, but identified by the Census Bureau as Other Indo-European Language and Some Other Language. Median household income in the CTBGs ranges from $19,929 to $83,056. Low-income persons are defined as those whose median household income is below the United States Department of Health and Human Services (HHS) poverty guidelines. The poverty guidelines for a household of three, which applies to these CTBGs, is $20,780. Therefore, CTBG 96.02-2 is considered an environmental justice CTBG for low-income persons.

The project will not adversely affect community cohesion. The project will not adversely affect public facilities and services. The project has no right-of-way acquisition nor relocations. There are Environmental Justice populations within the study area, however, the project will not result in adversely high or disproportionate impacts to these populations.

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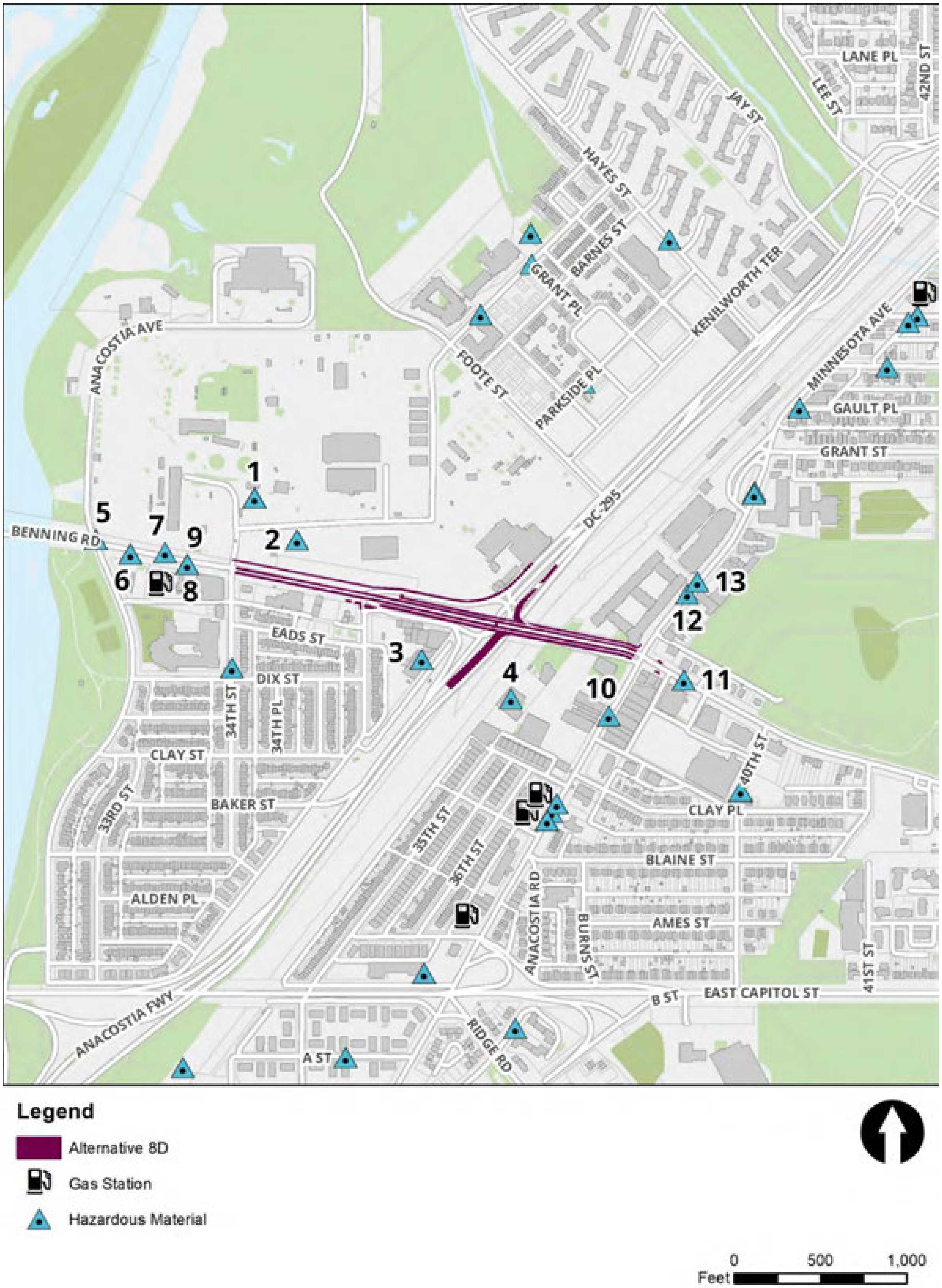
# O HAZARDOUS MATERIALS AND REGULATED SUBSTANCES TECHNICAL MEMORANDUM

The Preferred Alternative does not require the acquisition of additional right-of-way and a Phase I Environmental Site Assessment (ESA) was not performed as part of the CE Level II Assessment. As part of a densely-built urban area, the properties surrounding the project are likely to contain some hazardous material sites. This Memorandum identifies known hazardous waste sites in the immediate vicinity of the project area that may pose a potential health or safety risk during the construction of the proposed project. The assessment is based entirely on existing information; no field investigations or sampling/testing were performed as a part of this analysis. Information on known hazardous waste sites, landfills, previous releases of hazardous materials, hazardous waste generators, and storage tanks (underground storage tanks (USTs)/above ground storage tanks (ASTs)) were collected through a database search. No sites of concern are present within the project itself. Thirteen parcels in the surrounding area were identified in the database search. These are listed below, and their locations shown in Figure 1:

1. Potomac Power Resources – Benning Generating Station; 3400 Benning Road NE.
2. Pepco Benning Road Storage Tank and Fueling and Kenilworth Fueling; 3400 Benning Road NE.
3. Dynasty Auto Body (now Quality Bus and Limo); 3621 Benning Road NE.
4. Rick's Auto Clinic (now CTS Hardline LLC); 3705 Benning Road NE.
5. Kenilworth Maintenance Yard; 3200 Benning Road NE.
6. Sunoco Service Station/Auto Care; 3341 Benning Road NE.
7. Benning Service Center; 3300 Benning Road NE.
8. Dag Petroleum/Lee's Automotive; 3355 Benning Road NE.
9. Transco; 3399 Benning Road NE.
10. Supertrak; 3925 Minnesota Avenue NE.
11. East River Park Limited Partnership; 3919 Benning Road NE.
12. Autozone; 4045 Minnesota Avenue NE.
13. Gill's Valet; 4051 Minnesota Avenue NE.

As stated previously, right-of-way acquisition will not occur under the Preferred Alternative. Implementation of the Preferred Alternative will not preclude any continued compliance with federal, state, and local regulations and will not preclude any future site remediation of any adjacent parcels to be performed by others.

**Figure 1. Parcels with Potential Hazardous Materials and Regulated Substances**



Any hazardous material sites discovered during construction will be removed and disposed of in compliance with all applicable federal, District, and local regulations. During construction, all applicable federal, District, and local regulations will be complied with by the contractor.

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# P MAINTENANCE OF TRAFFIC REPORT

The Maintenance of Traffic section of the CE includes a summary of the following report. Specific detailed Maintenance of Traffic plans will be developed in the final design plans.

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# MEMORANDUM

To: Robyn Jackson, P.E., PMP
District Department of Transportation (DDOT)

From: Kimley-Horn

Date: July 13, 2020

Subject: DRAFT - Benning Road Reconstruction and Streetcar Project
Maintenance of Traffic (MOT) Analysis

## Introduction

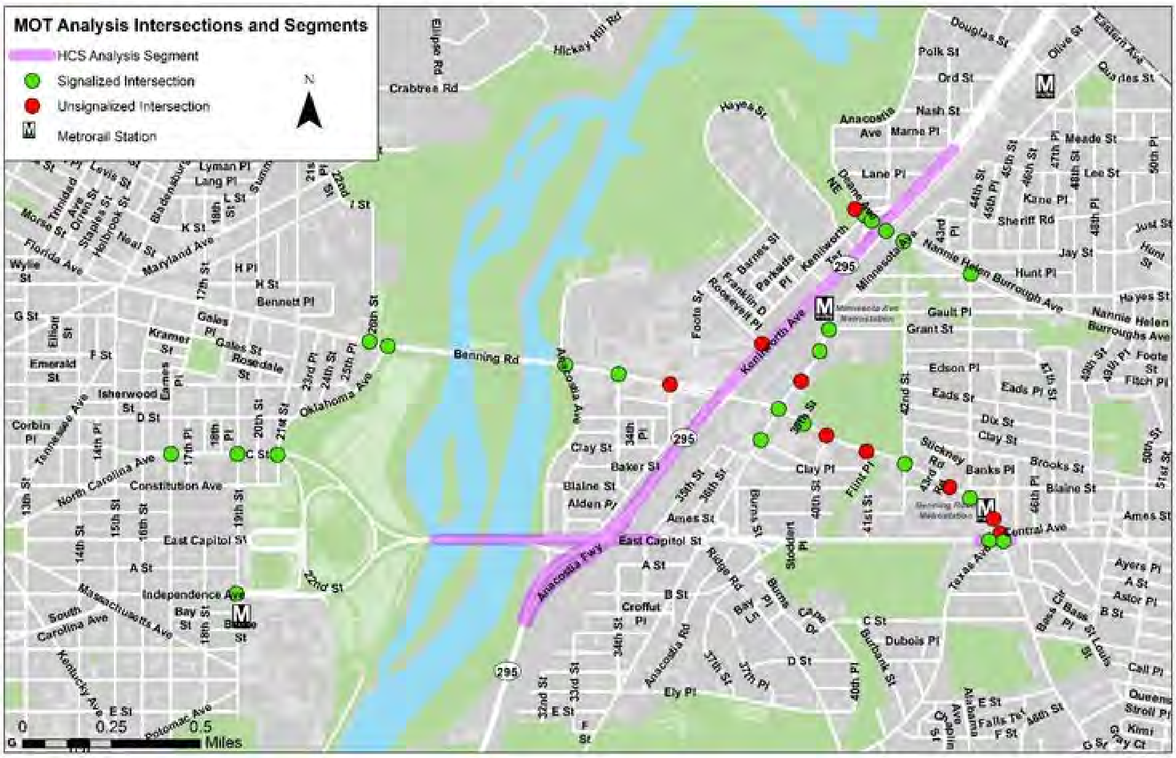
This memorandum summarizes the change in vehicle travel patterns due to construction, impacts to traffic during construction, and the proposed mitigation measures necessary in order maintain satisfactory traffic operations throughout the study area. In addition, this memorandum identifies the alternative routes vehicles may divert to during construction. Detour routes are also described based on the proposed Maintenance of Traffic (MOT) phasing plan. The traffic analysis was completed using both HCS and Synchro.

### MOT STUDY AREA

The MOT traffic analysis study area discussed and agreed upon by DDOT, shown in **Figure 1**, consists of Benning Road NE corridor study intersections, Benning Road NE and DC-295 Interchange Modification Report (IMR) study intersections and roadway segments, and the following intersections that are anticipated to be affected by the planned construction activities:

- C Street NE/17th Street NE
- C Street NE/19th Street NE
- C Street NE/21st Street NE
- Independence Avenue SE/19th Street SE

**Figure 1 – MOT Analysis Study Area**




## MOT Construction Closures

The construction assumptions are shown below in **Table 1**. The duration of construction shown below of 36 months is conservative and will most likely be shorter and no construction phasing was assumed. **Figure 2** illustrates the construction segments.

| Construction Location | Construction Impact to Existing Street Network | Duration of Impact |
|---|---|---|
| Benning Road (26th Street to 36th Street) | 6/8 lanes to 4 lanes | Full duration (36 months) |
| Benning Road (36th Street to Minnesota Avenue) | 4 lanes to 2 lanes | Full duration (36 months) |
| Benning Road (Minnesota Avenue to East Capitol Street) | 4 lanes to 2 lanes | Full duration (36 months) |
| Northbound DC-295 (East Capitol Street interchange to Nannie Helen Burroughs Avenue interchange)* | 3 lanes to 2 lanes | Full duration (36 months) |
| Southbound DC-295 (Nannie Helen Burroughs Avenue interchange to East Capitol Street interchange) | Remain 3 lanes | Full duration (36 months) |

| Construction Location | Construction Impact to Existing Street Network | Duration of Impact |
|---|---|---|
| Ramp from Northbound DC-295 to westbound Benning Road | Closed | Full duration (36 months) |
| Ramp from Southbound Kenilworth Avenue to Northbound DC-295 | Closed | Full duration (36 months) |
| Ramp from Eastbound Benning Road to Northbound DC-295 | Remains 1 lane with short-term closure | Short-term (4-6 weeks) |
| Ramp from Eastbound Benning Road to Southbound DC-295 | Remains 1 lane with short-term closure | Short-term (4-6 weeks) |

* The lane reduction on northbound DC-295 is required for reconstructing the Lorraine H. Whitlock Memorial Bridge (#503) and the exact limits of lane closure will be determined in the design phase of the project. The assumption for the MOT traffic analysis represents a conservative approach.

**Figure 2 – Benning Road Reconstruction and Streetcar Project Construction Segments**


## MOT Volumes and Alternative and Detour Routes

The MOT volumes were developed using the MWCOG travel demand model (version 2.3.75), the same version used for the Interchange Modification Report (IMR). The MWCOG model was modified to include the lane reductions and closures provided in **Table 1**. The construction locations listed as full duration lane closures were modified in the MWCOG model accordingly. It was assumed the short-term lane closures were too minor to show in the MWCOG model and specific detailed MOT plans will be developed in the 65% and final design plans for these short-term closures. MOT volumes were developed from the 2025 No-Build balanced volumes as a conservative estimate of travel demand through the study area. The MOT volume shifts from 2025 No-Build could not be derived directly from the MWCOG model due to known limitations of a large regional model's ability to accurately redistribute and assign volumes at both intersection and link level. Therefore, the MWCOG MOT volumes were adjusted accordingly using an iterative process using both Synchro and HCS. Ultimately, peak hour traffic balanced volumes under anticipated MOT lane closures throughout the study network were developed; these volumes are referred to as "MOT" volumes herein. The MOT traffic volumes were discussed and agreed upon by DDOT. The most prevalent alternate routes for traffic diversion are summarized in **Attachment A**. The detour routes as a result of the Benning Road NE and DC-295 interchange ramp closure are summarized in **Attachment B**. The travel pattern shifts resulting from these network adjustments provided basis for understanding the possible alternate routes motorists may choose as a result of the construction activities. The resulting MOT traffic volumes are provided in **Attachment C**.

## MOT Traffic Analysis

Highway Capacity Software (HCS7) was used to analyze traffic conditions on freeways, ramps, and limited access arterial facilities, and Synchro 10 was used to analyze arterial intersection traffic operations. This section presents the traffic analysis that consists of three scenarios: 1) 2025 No-Build, 2) 2025 MOT Pre-Mitigation, and 3) 2025 MOT Post-Mitigation, and the proposed mitigations to address Streetcar and interchange construction-related impact. MOT analysis results are compared with the 2025 No-Build traffic analysis in each respective software (i.e., HCS and Synchro), as shown in **Attachment D** and **Attachment E**.

### HCS ANALYSIS

Traffic analyses were conducted using the Freeway Facilities methodology found in the 6th Edition of the *Highway Capacity Manual (HCM)* for both directions of DC-295 between East Capitol Street and Nannie Helen Burroughs Avenue NE and the segment of East Capitol Street between C Street NE/Independence Avenue SE and Minnesota Avenue NE. It should be noted that since HCS is a deterministic tool, actual observed construction impacts are likely to be variable.

#### East Capitol Street

The segment of East Capitol Street just east and west of the interchange with DC-295 was assumed to operate as a limited access facility for the purposes of the MOT comparative analysis.

The off-peak directions of East Capitol Street (eastbound and westbound during the AM and PM peak periods, respectively) operate at LOS A under 2025 No-Build and MOT volumes. The peak directions of East Capitol Street (westbound and eastbound during the AM and PM peak periods, respectively) operate at LOS D or better and differ minimally when comparing 2025 No-Build (without construction) and 2025 MOT volumes (with construction). As such, impacts to operations on East Capitol Street during construction are likely to be driven by delay and queueing at signalized intersections. Detailed HCS outputs for East Capitol Street are included in **Attachment D: HCS Analysis Results.**

#### Southbound DC-295

***AM and PM Peak***

Traffic volumes on southbound DC-295 are forecasted to increase by fewer than 100 vehicles on all segments during the AM peak hour and decrease by up to 150 vehicles between Benning Road NE and East Capitol Street during the PM peak hour due to travel pattern shifts associated with construction impact. For example, lane reduction on Benning Road NE is projected to divert traffic away from Benning Road NE west of DC-295 in the westbound and eastbound direction during AM and PM peak, respectively. Accordingly, speed and density differ minimally under 2025 No-Build and MOT volumes. As such, impacts to operations on southbound DC-295 during construction are likely to be negligible. Detailed HCS outputs for southbound DC-295 are included in **Attachment D: HCS Analysis Results.**

## Northbound DC-295

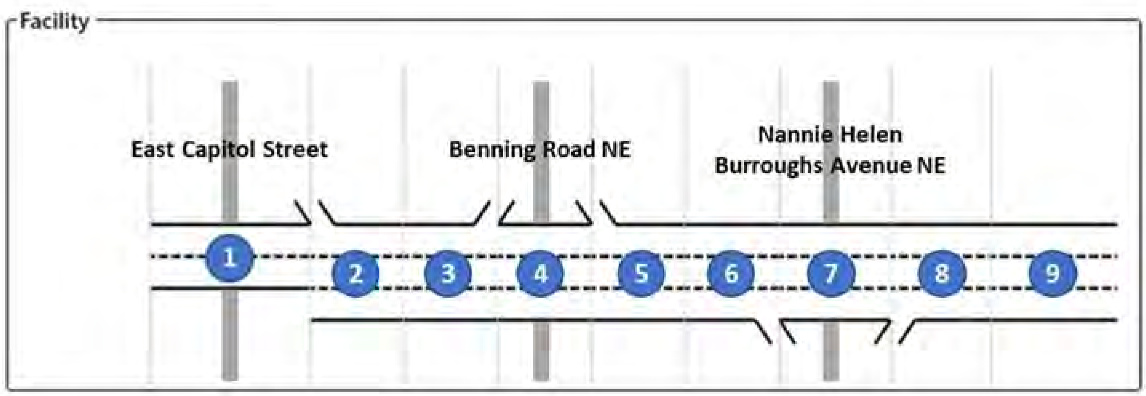
***AM Peak***

Traffic volumes on northbound DC-295 are forecasted to decrease by nearly 200 vehicles south of the Benning Road NE interchange during the AM peak hour due to travel pattern shifts associated with construction impacts (e.g., lane reduction on Benning Road NE and closure of the northbound DC-295 off-ramp to Benning Road NE). However, with the closure of the northbound DC-295 off-ramp to westbound Benning Road NE, traffic volumes north of the interchange are expected to increase by up to 100 vehicles as a result of diverted trips. The HCS analysis area for northbound DC-295 is summarized in **Table 4** and **Figure 3.**

**Table 4: Northbound DC-295 HCS Analysis Segment Key**

| Segment ID | Description |
|---|---|
| 1 | Northbound DC-295 South of East Capitol Street |
| 2 | On-Ramp from East Capitol Street to NB DC-295 |
| 3 | Off-Ramp from NB DC-295 to Benning Road NE |
| 4 | Between Ramps |
| 5 | On-Ramp from Benning Road NE to NB DC-295 |
| 6 | Off-Ramp from NB DC-295 to Nannie Helen Burroughs Avenue NE |
| 7 | Between Ramps |
| 8 | On-Ramp from Kenilworth Avenue NE to NB DC-295 |
| 9 | NB DC-295 north of Kenilworth Avenue NE |

**Northbound Baseline**




**Northbound MOT**

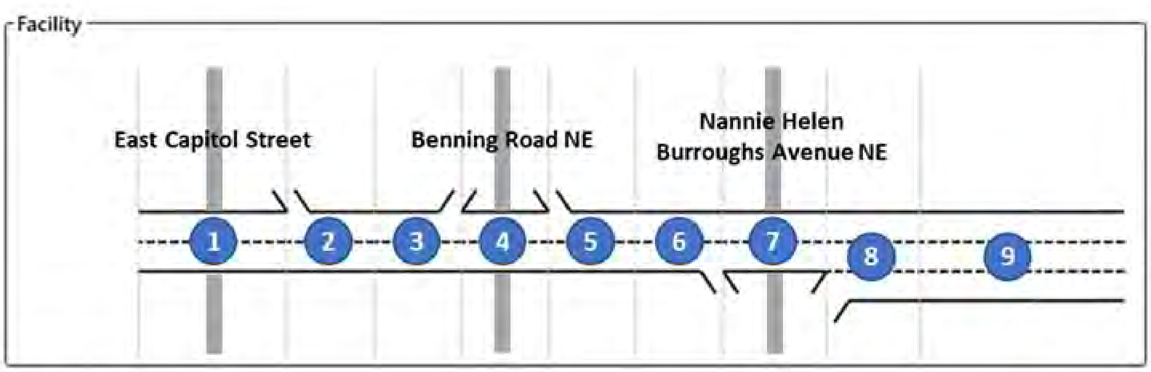



**Figure 3: HCS Analysis Segment Map**

Nonetheless, given the closure of one northbound through lane on DC-295, operations are expected to deteriorate within and upstream of the two-lane section between East Capitol Street and Benning Road NE. Specifically, the merge area associated with the on-ramp from Benning Road NE (segment #5 in **Figure 3**) is likely to produce more turbulence in the traffic stream under the proposed lane closure configuration. Where the freeway currently operates at LOS C with near free flow speeds during the AM peak hour, speeds are expected to decrease to less than 30 mph with densities of approximately 55 passenger cars per mile per lane. The HCS software estimates that these congested conditions may extend upstream of the East Capitol Street interchange. Average speeds and densities on northbound DC-295 during the AM Peak period under No-Build and MOT conditions are summarized in **Table 5** and **Table 6.** Both **Tables 5** and **6** assume that traffic entering onto northbound DC-295 will have to merge with the two through lanes. It should be noted that the limits of NB DC-295 lane closure (from three lanes to two lanes) will be determined in the 65% and final design phase of the project; the limits of lane closures assumed in the MOT analysis is conservative and the segment impacts could be shorter (e.g., just upstream and downstream of Benning Road NE and DC-295 interchange).

**Table 5: Northbound DC-295 (Average Speed [mph]) – AM Peak (Merge Scenario)**

| Scenario/Segment ID* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| **AM Peak** | | | | | | | | | |
| 2025 No-Build (without construction) | 48.6 | 55.0 | 53.0 | 46.2 | 51.2 | 53.0 | 48.2 | 51.2 | 48.6 |
| 2025 MOT (with construction) | 32.6 | 31.3 | 30.0 | 28.4 | 48.9 | 50.5 | 47.8 | 52.2 | 48.6 |

** Refer to **Figure 3** for corresponding Segment ID location*

**Table 6: Northbound DC-295 (Average Density [pc/mi/ln]) – AM Peak (Merge Scenario)**

| Scenario/Segment ID* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| **AM Peak** | | | | | | | | | |
| 2025 No-Build (without construction) | 31.2 | 20.5 | 21.3 | 22.3 | 22.8 | 22.0 | 20.3 | 22.7 | 24.2 |
| 2025 MOT (with construction) | 55.4 | 53.9 | 56.7 | 57.6 | 33.9 | 33.3 | 29.3 | 20.4 | 22.0 |

** Refer to **Figure 3** for corresponding Segment ID location*

The measures of effectiveness noted above assumes that the merge from eastbound Benning Road NE to northbound DC-295 will occur within a two-lane section of the freeway. If feasible, the proposed freeway lane closure should provide enough merge distance to meet design standards. Alternatively, the northbound freeway lane schematics can be set up in a way such that this merge becomes an add-lane to mitigate impacts upstream of the Benning Road NE interchange. An analysis was conducted to investigate the benefit of providing such configuration as an add-lane, which may be accommodated after the completion of eastbound Lorraine H. Whitlock Memorial Bridge (#503). Average speeds and densities on northbound DC-295 during the AM Peak period under these conditions are summarized in **Table 7** and **Table 8.** Average speed and density results from the "add-lane" MOT scenario show improvement when compared to the "merge" MOT scenario from East Capitol Street Interchange to the Benning Road NE merge with northbound DC-295.

**Table 7: Northbound DC-295 (Average Speed [mph]) – AM Peak (Add-Lane Configuration)**

| Scenario/Segment ID* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| **AM Peak** | | | | | | | | | |
| 2025 No-Build (without construction) | 48.6 | 55.0 | 53.0 | 46.2 | 51.2 | 53.0 | 48.2 | 51.2 | 48.6 |
| 2025 MOT (with construction) | 48.6 | 50.8 | 51.1 | 43.0 | 52.6 | 52.9 | 48.2 | 51.1 | 48.6 |

** Refer to **Figure 3** for corresponding Segment ID location*

**Table 8: Northbound DC-295 (Average Density [pc/mi/ln]) – AM Peak (Add-Lane Configuration)**

| Scenario/Segment ID* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| **AM Peak** | | | | | | | | | |
| 2025 No-Build (without construction) | 31.2 | 20.5 | 21.3 | 22.3 | 22.8 | 22.0 | 20.3 | 22.7 | 24.2 |
| 2025 MOT (with construction) | 29.4 | 31.4 | 31.3 | 37.3 | 21.5 | 22.2 | 20.4 | 22.8 | 24.4 |

** Refer to **Figure 3** for corresponding Segment ID location*

***PM Peak***

Traffic volumes on northbound DC-295 are expected to decrease by 400-500 vehicles across all segments during the PM peak hour, primarily driven by diverted trips to alternative routes, as shown in **Attachment A**.

Despite this large decrease in volume, operations under 2025 MOT conditions within and upstream of the proposed freeway lane closure are likely to be impacted substantially. On segments where the freeway currently operates with speeds less than 15 mph and densities greater than 100 passenger cars per mile per lane—largely due to downstream oversaturated conditions—both measures (i.e., speed and density) are expected to improve slightly over the 2025 No-Build conditions. However, the increase in speeds and decrease in density north of the Benning Road interchange are a result of metered traffic flow through the work zone; the formation of a new bottleneck at the freeway lane closure is expected to propagate congestion upstream of the East Capitol Street interchange. Average speeds and densities on northbound DC-295 during the PM Peak period under No-Build and MOT conditions are summarized in **Table 9** and **Table 10.**

**Table 9: Northbound DC-295 (Average Speed [mph]) – PM Peak (Merge Scenario)**

| Scenario/Segment ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| **PM Peak** | | | | | | | | | |
| 2025 No-Build (without construction) | 21.8 | 13.4 | 11.8 | 11.4 | 13.1 | 13.1 | 9.5 | 11.0 | 19.3 |
| 2025 MOT (with construction) | 16.1 | 22.9 | 23.1 | 23.8 | 47.8 | 50.1 | 42.7 | 12.4 | 19.3 |

** Refer to **Figure 3** for corresponding Segment ID location*

**Table 10: Northbound DC-295 (Average Density [pc/mi/ln]) – PM Peak (Merge Scenario)**

| Scenario/Segment ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| **PM Peak** | | | | | | | | | |
| 2025 No-Build (without construction) | 78.9 | 93.3 | 105.4 | 106.2 | 101.6 | 102.5 | 116.7 | 111.2 | 64.3 |
| 2025 MOT (with construction) | 93.1 | 76.8 | 76.1 | 74.1 | 41.4 | 39.9 | 41.4 | 99.8 | 64.2 |

** Refer to **Figure 3** for corresponding Segment ID location*

The measures of effectiveness noted above assumes that the merge from eastbound Benning Road NE to northbound DC-295 will occur within a two-lane section of the freeway. If feasible, the proposed freeway lane closure should end such that this merge becomes an add-lane to mitigate impacts upstream of the Benning Road NE interchange. Average speeds and densities on northbound DC-295 during the PM Peak period under these conditions are summarized in **Table 11** and **Table 12**. The “add-lane” MOT scenario results in further improvements in average speeds and densities over the “merge” MOT scenario although it also causes more congestion downstream of the Benning Road NE interchange because the bottleneck is relieved relative to the “merge” MOT scenario.

**Table 11: Northbound DC-295 (Average Speed [mph]) – PM Peak (Add-Lane Configuration)**

| Scenario/Segment ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| **PM Peak** | | | | | | | | | |
| 2025 No-Build (without construction) | 21.8 | 13.4 | 11.8 | 11.4 | 13.1 | 13.1 | 9.5 | 11.0 | 19.3 |
| 2025 MOT (with construction) | 28.4 | 33.7 | 33.9 | 38.4 | 27.2 | 13.6 | 9.5 | 11.1 | 19.3 |

** Refer to **Figure 3** for corresponding Segment ID location*

**Table 12: Northbound DC-295 (Average Density [pc/mi/ln]) – PM Peak (Add-Lane Configuration)**

| Scenario/Segment ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| **PM Peak** | | | | | | | | | |
| 2025 No-Build (without construction) | 78.9 | 93.3 | 105.4 | 106.2 | 101.6 | 102.5 | 116.7 | 111.2 | 64.3 |
| 2025 MOT (with construction) | 66.0 | 58.1 | 58.0 | 48.8 | 61.9 | 99.6 | 116.3 | 110.8 | 64.2 |

** Refer to **Figure 3** for corresponding Segment ID location*

Full HCS outputs for northbound DC-295 are included in **Attachment D: HCS Analysis Results**.

## SYNCHRO ANALYSIS

Traffic analyses were conducted using Synchro 10 to evaluate the anticipated construction impacts and proposed mitigations to the arterial network within MOT influence area. For the purposes of this analysis, the Synchro results for 30 signalized and unsignalized intersections were evaluated; these intersections are located along the following road segments:

- Benning Road NE (26th St NE to East Capitol St)
- Minnesota Avenue NE (Dix St NE to Nannie Helen Burroughs Ave NE)
- Nannie Helen Burroughs Ave NE/Deane Avenue NE (Lee St NE to 44th St NE)
- Kenilworth Avenue NE (Deane Ave NE to Foote St NE)
- Oklahoma Avenue NE (Benning Rd NE to C St NE)
- C Street NE (17th St NE to 21st St NE)
- East Capitol Street (19th St NE to 22nd St NE and Texas Ave SE to Benning Rd NE)
- 19th Street NE (Independence Ave SE to C St NE)
- 22nd Street NE (East Capitol St to C St NE)

**Table 13** and **Table 14** show the change in Synchro intersection delay between the 2025 No-Build and MOT Pre-Mitigation conditions for the AM and PM peak hours, respectively. These tables illustrate the construction impacts before the implementation of the proposed geometric mitigations. As shown, the reduction of one lane on Benning Road NE results in significant delay and congestion compared to the 2025 No-Build conditions. **Table 15** and **Table 16** show the change in Synchro intersection delay between the 2025 No-Build and MOT Post-Mitigation conditions for the AM and PM peak hours, respectively. These tables illustrate the potential improvements to the arterial network during construction if the proposed mitigations are implemented. The discussion following the tables highlight areas with the most significant delays and introduces the proposed mitigation strategies for counteracting that impact. Full Synchro outputs for each scenario are included in **Attachment E: Synchro Analysis Results**.

**Table 13: 2025 No-Build vs. MOT Pre-Mitigation (Synchro Intersection Delay Difference [sec]) – AM Peak**

| Intersection Name | Approach | | | | Intersection |
|---|---|---|---|---|---|
| | NB | SB | EB | WB | |
| 26th Street NE at Benning Road NE | | 75 | -5 | 6 | 7 |
| Oklahoma Avenue NE at Benning Road NE | -4 | | 1 | 0 | 1 |
| Anacostia Avenue NE at Benning Road NE | 19 | 7 | 2 | 83 | 56 |
| 34th Street NE at Benning Road NE | 17 | 41 | 6 | 39 | 27 |
| Minnesota Avenue NE at Benning Road NE | 22 | -3 | -11 | -35 | -6 |
| 39th Street NE/Driveway at Benning Road NE | 0 | 0 | 1 | 1 | 2 |
| 40th Street NE at Benning Road NE | 2 | | 0 | 0 | |
| 41st Street NE at Benning Road NE | 2 | | 0 | -1 | |
| 42nd Street NE at Benning Road NE | 0 | -52 | 47 | 91 | 38 |
| Blaine Street NE at Benning Road NE | 1 | | 0 | -1 | |
| 44th Street NE at Benning Road NE | | -3 | 516 | 92 | 171 |
| 45th Street NE at Benning Road NE | | 9 | 0 | 0 | |
| Central Avenue NE at Benning Road NE | | 19 | 0 | 0 | |
| East Capitol Street at Benning Road NE | 5 | -5 | 177 | 36 | 31 |
| East Capitol Street at Texas Avenue SE | 4 | 2 | | -3 | 1 |
| Minnesota Avenue NE at Dix Street NE | 0 | -1 | 0 | -3 | -1 |
| Minnesota Avenue NE at DOES Parking Garage Driveway | -1 | -6 | | | |
| Minnesota Avenue NE at Bus Exit South | 9 | 0 | 0 | | 3 |
| Minnesota Avenue NE at Grant Street NE and Bus Entrance North | -1 | 1 | 0 | -1 | 0 |
| Kenilworth Terrace NE at Deane Avenue NE | 0 | 100 | 0 | 0 | 40 |
| Kenilworth Avenue NE at Deane Avenue NE | 0 | 0 | 1 | 2 | 1 |
| Kenilworth Avenue NE and DC-295 U-Turns at Nannie Helen Burroughs Avenue NE | 0 | 0 | 2 | -3 | -1 |
| Minnesota Avenue NE at Nannie Helen Burroughs Avenue NE | -19 | 0 | 7 | 5 | 0 |
| 44th Street NE and Hunt Place NE at Nannie Helen Burroughs Avenue NE | -19 | -6 | 1 | | -2 |
| Kenilworth Avenue NE at Foote Street NE | | 0 | -4 | | |
| 17th Street NE at C Street NE | 0 | 0 | 0 | 34 | 25 |
| 19th Street NE at C Street NE | 0 | 0 | 0 | 3 | 1 |
| 21st Street NE, 22nd Street NE, C Street NE | 0 | 4 | 1 | 3 | -3 |
| 19th Street SE at Independence Avenue SE | 0 | 0 | 0 | 0 | 0 |

**Table 14: 2025 No-Build vs. MOT Pre-Mitigation (Synchro Intersection Delay Difference [sec]) – PM Peak**

| Intersection Name | Approach | | | | Intersection |
|---|---|---|---|---|---|
| | NB | SB | EB | WB | |
| 26th Street NE at Benning Road NE | | -1 | -2 | 0 | -1 |
| Oklahoma Avenue NE at Benning Road NE | 6 | | 4 | 0 | 2 |
| Anacostia Avenue NE at Benning Road NE | 5 | 0 | 3 | 2 | 3 |
| 34th Street NE at Benning Road NE | 17 | 20 | -12 | -9 | -9 |
| Minnesota Avenue NE at Benning Road NE | 1 | 7 | 60 | 0 | 21 |
| 39th Street NE/Driveway at Benning Road NE | 0 | 0 | 0 | 0 | 3 |
| 40th Street NE at Benning Road NE | -76 | | 0 | -1 | |
| 41st Street NE at Benning Road NE | 2 | | 0 | -1 | |
| 42nd Street NE at Benning Road NE | 0 | 2 | 190 | 6 | 83 |
| Blaine Street NE at Benning Road NE | 1 | | 0 | 0 | |
| 44th Street NE at Benning Road NE | | 2 | 33 | 16 | 22 |
| 45th Street NE at Benning Road NE | | 4 | 0 | 0 | |
| Central Avenue NE at Benning Road NE | | 3 | 0 | 0 | |
| East Capitol Street at Benning Road NE | -3 | -2 | 310 | 10 | 50 |
| East Capitol Street at Texas Avenue SE | -7 | -19 | | 3 | -8 |
| Minnesota Avenue NE at Dix Street NE | 2 | 3 | 0 | 0 | 1 |
| Minnesota Avenue NE at DOES Parking Garage Driveway | 3 | 0 | | | |
| Minnesota Avenue NE at Bus Exit South | 2 | 0 | 0 | | 2 |
| Minnesota Avenue NE at Grant Street NE and Bus Entrance North | 10 | 0 | 0 | 0 | 6 |
| Kenilworth Terrace NE at Deane Avenue NE | 0 | 18 | 0 | 0 | 5 |
| Kenilworth Avenue NE at Deane Avenue NE | 0 | 0 | 1 | -1 | -1 |
| Kenilworth Avenue NE and DC-295 U-Turns at Nannie Helen Burroughs Avenue NE | -36 | 0 | 2 | 4 | -8 |
| Minnesota Avenue NE at Nannie Helen Burroughs Avenue NE | -25 | 12 | 26 | 8 | 4 |
| 44th Street NE and Hunt Place NE at Nannie Helen Burroughs Avenue NE | -75 | -3 | 7 | | -15 |
| Kenilworth Avenue NE at Foote Street NE | | 0 | 0 | | |
| 17th Street NE at C Street NE | 0 | 1 | 0 | 0 | 1 |
| 19th Street NE at C Street NE | 0 | 0 | 1 | 0 | 0 |
| 21st Street NE, 22nd Street NE, C Street NE | 0 | 2 | -2 | 0 | -1 |
| 19th Street SE at Independence Avenue SE | 0 | 0 | 33 | 0 | 23 |

**Table 15: 2025 No-Build vs. MOT Post-Mitigation (Synchro Intersection Delay Difference [sec]) – AM Peak**

| Intersection Name | Approach | | | | Intersection |
|---|---|---|---|---|---|
| | NB | SB | EB | WB | |
| 26th Street NE at Benning Road NE | | 75 | -5 | 6 | 7 |
| Oklahoma Avenue NE at Benning Road NE | -4 | | 1 | 0 | 1 |
| Anacostia Avenue NE at Benning Road NE | 19 | 7 | 0 | 48 | 33 |
| 34th Street NE at Benning Road NE | 17 | 41 | 4 | 39 | 27 |
| Minnesota Avenue NE at Benning Road NE | 22 | -4 | -11 | -35 | -7 |
| 39th Street NE/Driveway at Benning Road NE | 0 | 0 | 1 | 1 | 2 |
| 40th Street NE at Benning Road NE | 1 | | 0 | 0 | |
| 41st Street NE at Benning Road NE | 2 | | 0 | -1 | |
| 42nd Street NE at Benning Road NE | 0 | -52 | 30 | 85 | 31 |
| Blaine Street NE at Benning Road NE | 1 | | 0 | -1 | |
| 44th Street NE at Benning Road NE | | -3 | 58 | 92 | 63 |
| 45th Street NE at Benning Road NE | | 9 | 0 | 0 | |
| Central Avenue NE at Benning Road NE | | 19 | 0 | 0 | |
| East Capitol Street at Benning Road NE | 5 | -5 | -12 | 36 | 5 |
| East Capitol Street at Texas Avenue SE | 4 | 2 | | -3 | 1 |
| Minnesota Avenue NE at Dix Street NE | 0 | -1 | 0 | -3 | -1 |
| Minnesota Avenue NE at DOES Parking Garage Driveway | 0 | -5 | | | |
| Minnesota Avenue NE at Bus Exit South | 9 | 0 | 0 | | 3 |
| Minnesota Avenue NE at Grant Street NE and Bus Entrance North | -1 | 1 | 0 | -1 | 0 |
| Kenilworth Terrace NE at Deane Avenue NE | 0 | 100 | 0 | 0 | 40 |
| Kenilworth Avenue NE at Deane Avenue NE | 0 | 0 | 1 | 2 | 1 |
| Kenilworth Avenue NE and DC-295 U-Turns at Nannie Helen Burroughs Avenue NE | -13 | 0 | -12 | -3 | -8 |
| Minnesota Avenue NE at Nannie Helen Burroughs Avenue NE | -19 | 0 | 13 | 5 | 2 |
| 44th Street NE and Hunt Place NE at Nannie Helen Burroughs Avenue NE | -19 | -6 | 1 | | -2 |
| Kenilworth Avenue NE at Foote Street NE | | 0 | -4 | | |
| 17th Street NE at C Street NE | 0 | 0 | 0 | 34 | 25 |
| 19th Street NE at C Street NE | 0 | 0 | 0 | 3 | 1 |
| 21st Street NE, 22nd Street NE, C Street NE | 0 | 4 | 1 | 3 | -3 |
| 19th Street SE at Independence Avenue SE | 0 | 0 | 0 | 0 | 0 |

**Table 16: 2025 No-Build vs. MOT Post-Mitigation (Synchro Intersection Delay Difference [sec]) – PM Peak**

| Intersection Name | Approach | | | | Intersection |
|---|---|---|---|---|---|
| | NB | SB | EB | WB | |
| 26th Street NE at Benning Road NE | | -1 | -2 | 0 | -1 |
| Oklahoma Avenue NE at Benning Road NE | 6 | | 4 | 0 | 2 |
| Anacostia Avenue NE at Benning Road NE | 5 | 0 | 3 | 2 | 2 |
| 34th Street NE at Benning Road NE | 17 | 20 | -12 | -9 | -9 |
| Minnesota Avenue NE at Benning Road NE | 1 | 7 | 60 | 0 | 21 |
| 39th Street NE/Driveway at Benning Road NE | 0 | 0 | 0 | 0 | 3 |
| 40th Street NE at Benning Road NE | -80 | | 0 | -1 | |
| 41st Street NE at Benning Road NE | 2 | | 0 | -1 | |
| 42nd Street NE at Benning Road NE | 0 | 2 | -172 | 6 | -101 |
| Blaine Street NE at Benning Road NE | 1 | | 0 | 0 | |
| 44th Street NE at Benning Road NE | | 2 | 2 | 16 | 8 |
| 45th Street NE at Benning Road NE | | 4 | 0 | 0 | |
| Central Avenue NE at Benning Road NE | | 3 | 0 | 0 | |
| East Capitol Street at Benning Road NE | -3 | -2 | 22 | 10 | 2 |
| East Capitol Street at Texas Avenue SE | -7 | -14 | | 3 | -7 |
| Minnesota Avenue NE at Dix Street NE | 2 | 3 | 0 | 0 | 1 |
| Minnesota Avenue NE at DOES Parking Garage Driveway | 3 | 0 | | | |
| Minnesota Avenue NE at Bus Exit South | 2 | 0 | 0 | | 2 |
| Minnesota Avenue NE at Grant Street NE and Bus Entrance North | 10 | 0 | 0 | 0 | 6 |
| Kenilworth Terrace NE at Deane Avenue NE | 0 | 18 | 0 | 0 | 5 |
| Kenilworth Avenue NE at Deane Avenue NE | 0 | 0 | 1 | -1 | -1 |
| Kenilworth Avenue NE and DC-295 U-Turns at Nannie Helen Burroughs Avenue NE | -43 | 0 | 2 | 4 | -9 |
| Minnesota Avenue NE at Nannie Helen Burroughs Avenue NE | -25 | 12 | 28 | 8 | 4 |
| 44th Street NE and Hunt Place NE at Nannie Helen Burroughs Avenue NE | -75 | -3 | 7 | | -15 |
| Kenilworth Avenue NE at Foote Street NE | | 0 | 0 | | |
| 17th Street NE at C Street NE | 0 | 1 | 0 | 0 | 1 |
| 19th Street NE at C Street NE | 0 | 0 | 1 | 0 | 0 |
| 21st Street NE, 22nd Street NE, C Street NE | 0 | 2 | -2 | 0 | -1 |
| 19th Street SE at Independence Avenue SE | 0 | 0 | 33 | 0 | 23 |

### MOT Arterial Mitigations

**Table 17** shows intersections that experience increased delay of more than 20 seconds from the 2025 No-Build to MOT Pre-Mitigation conditions and to MOT Post-Mitigation conditions based on Synchro traffic analysis.

**Table 17: Intersections with Significant Change in Synchro Intersection Delay [sec]**

| Intersection | Change in Intersection Delay [sec] Relative to 2025 No-Build | | | |
|---|---|---|---|---|
| | AM | | PM | |
| | Pre-Mitigation | Post-Mitigation | Pre-Mitigation | Post-Mitigation |
| Anacostia Avenue NE at Benning Road NE | +56 | +33 | -- | -- |
| 34th Street NE at Benning Road NE | +27 | +27 | -- | -- |
| Minnesota Avenue NE at Benning Road NE | -- | -- | +21 | +21 |
| 42nd Street NE at Benning Road NE | +38 | +31 | +83 | -101 |
| 44th Street NE at Benning Road NE | +171 | +63 | +22 | +8 |
| East Capitol Street at Benning Road NE | +31 | +5 | +50 | +2 |
| Kenilworth Terrace NE at Deane Avenue NE | +40 | +40 | -- | -- |
| 17th Street NE at C Street NE | +25 | +25 | -- | -- |
| 19th Street NE at Independence Avenue SE | -- | -- | +23 | +23 |

** Positive change in delay indicates delay worsens from 2025 No-Build compared to MOT.*
** Negative change in delay indicates delay improves from 2025 No-Build compared to MOT.*

The mitigations considered in the Post-Mitigation scenario consist of adding temporary turn lanes, restriping lane configurations, and signal timing adjustments at the intersections for Benning Road NE and other local facilities within the MOT study area. Many of these mitigation strategies were developed to directly address intersections shown in **Table 17** experiencing the greatest increase in delay. The following section details the intersection delay increases greater than 20 seconds between the 2025 No-Build and MOT Pre-Mitigation scenarios as well as the mitigations proposed for the MOT Post-Mitigation scenario. Not every mitigation is directly tied to an intersection with an intersection delay increase greater than 20 seconds; however, the suite of proposed mitigations improves the overall project corridor. Additional mitigations such as the deployment of a traffic control officer (TCO) may be necessary for intersections where delay increase significantly in the MOT Pre-Mitigation conditions. Further adjustment of signal timings may be necessary across the corridor at the start of and during construction.

- Anacostia Avenue NE at Benning Road NE
  - In the AM peak, intersection delay increases by 56 seconds in MOT Pre-Mitigation due to the MOT traffic demand at the westbound approach (i.e., WBT: 2255 vph, WBR: 10 vph, WBL: 15 vph) and reduced capacity from four travel lanes (one left-through, two through, one through-right) to two travel lanes (one left-through, one through-right) during construction.

- To mitigate this, dedicated eastbound and westbound left-turn bays were recommended during construction, which resulted in a reduction of 23 seconds of delay during the AM peak compared to the Pre-Mitigation scenario.

- 34th Street NE at Benning Road NE
  - In the AM peak, intersection delay increases by 27 seconds in MOT Pre-Mitigation due to the MOT traffic demand at the westbound approach (i.e., WBT: 2220 vph, WBR: 50 vph, WBL: 200 vph) and reduced capacity from four travel lanes (three through, one through-right) with a dedicated left-turn bay to two travel lanes (one through, one through-right) with a dedicated left-turn bay during construction.
  - To mitigate this, existing eastbound and westbound left-turn bays were maintained, and signal operations could be improved as part of Benning Road NE corridor-wide signal timing adjustment during construction.

- Minnesota Avenue NE at Benning Road NE
  - In the PM peak, intersection delay increases by 21 seconds in MOT Pre-Mitigation due to the MOT traffic demand at the eastbound approach (i.e., EBT: 360 vph, EBR: 325 vph, EBL: 285 vph) and reduced capacity from two travel lanes (one through, one through-right) with a dedicated left-turn bay to one through-right travel lane with a dedicated left-turn bay during construction.
  - The eastbound dedicated left-turn bay should be maintained during MOT to serve the turning volumes, including Metrobuses that destinated for the Bus Depo at the Minnesota Avenue Metrorail station. The deployment of TCO will play a critical role at this intersection due to the high volumes of vehicular traffic and pedestrian and bicycle activities. Signal timing improvement could be implemented as part of the Benning Road NE corridor-wide signal timing adjustment during construction.

- 42nd Street NE at Benning Road NE
  - Intersection delay increases by 38 seconds and 83 seconds during the AM peak and PM peak, respectively, in MOT Pre-Mitigation. This is due to the MOT traffic demand as follows and reduced capacity from two travel lanes (one left-through, one through-right) to one shared left-through-right travel lane in each direction during construction.
    - AM peak: westbound approach (i.e., WBT: 650 vph, WBR: 35 vph, WBL: 5 vph)
    - PM peak: eastbound approach (i.e., EBT: 550 vph, EBR: 50 vph, EBL: 270 vph); eastbound left-turn volume under MOT is reduced from No-Build due to anticipated volume shift from eastbound Benning Road NE at 42nd Street NE to alternative routes, such as eastbound New York Avenue NE (Route 50) and northbound Minnesota Avenue NE, as shown in **Attachment A-7** and **A-8**, respectively.
  - To mitigate this, dedicated eastbound and westbound left-turn bays were recommended, which resulted in a reduction of 7 seconds and 184 seconds of delay during the AM peak and PM peak, respectively, compared to the Pre-Mitigation scenario.

    - It should be noted that in the PM peak the intersection experienced a reduction of 101 seconds of delay (reduction of 172 seconds of delay in eastbound direction) compared to the 2025 No-Build scenario. This suggests that a dedicated eastbound left-turn bay is warranted for this intersection. The improvement is also attributable to the anticipated volume shift described above.

- 44th Street NE at Benning Road NE
    - Intersection delay increases by 171 seconds and 22 seconds during the AM peak and PM peak, respectively, in MOT Pre-Mitigation. This is due to the projected competing traffic demand as follows (e.g., eastbound left-turn versus opposing westbound through) and reduced capacity from two eastbound travel lanes (one left-through, one through) to one shared left-through travel lane, and from two westbound travel lanes (one through and one through-right) to one shared through-right travel lane during construction.
        - AM peak: eastbound approach (i.e., EBT: 285 vph, EBL: 95 vph), westbound approach (i.e., WBT: 705 vph, WBR: 185 vph); westbound right-turn volume under MOT is increased from No-Build due to anticipated diversion to alternative route of New York Avenue (Route 50) from westbound Benning Road NE, as shown in **Attachment A-3.**
        - PM peak: eastbound approach (i.e., EBT: 500 vph, EBL: 105 vph), westbound approach (i.e., WBT: 285 vph, WBR: 95 vph)
    - To mitigate this, a dedicated eastbound left-turn bay was recommended, which resulted in a reduction of 108 seconds and 14 seconds of delay during the AM peak and PM peak, respectively, compared to the Pre-Mitigation scenario.

- East Capitol Street at Benning Road NE
    - Intersection delay increases by 31 seconds and 50 seconds during the AM peak and PM peak, respectively, in MOT Pre-Mitigation. This is due to the MOT traffic demand as follows and reduced capacity from two travel lanes (one through, one through-right) with a dedicated left-turn bay to one shared left-through-right travel lane during construction.
        - AM peak: eastbound approach (i.e., EBT: 265 vph, EBR: 80 vph, EBL: 110 vph)
        - PM peak: eastbound approach (i.e., EBT: 285 vph, EBR: 220 vph, EBL: 145 vph)
        - The eastbound MOT volumes in both peak periods represent a reduction from No-Build conditions due to the anticipated diversion to East Capitol Street from Benning Road NE, as shown in **Attachment A-4**.
    - To mitigate this, a dedicated eastbound Benning Road left-turn bay was recommended, which resulted in a reduction of 26 seconds and 48 seconds of delay during the AM peak and PM peak, respectively, compared to the Pre-Mitigation scenario.

- Kenilworth Terrace NE at Deane Avenue NE

- In the AM peak, intersection delay increases by 40 seconds in MOT Pre-Mitigation due to the MOT traffic demand as follows.
  - Southbound approach (i.e., SBT: 145 vph, SBR: 25 vph, SBL: 565 vph) does not have any traffic diversion
  - Northbound approach (i.e., NBL: 10 vph, NBR: 305 vph); northbound right-turn volume under MOT is increased from No-Build due to the detour traffic resulting from the closure of Kenilworth Avenue NE ramp to northbound DC-295, as shown in **Attachment B-2**.
- To mitigate this, southbound approach lane designations could be modified from one left-through-right lane, one left-turn lane to one through lane, one right-turn lane to direct the southbound left-turn movement to go through instead to access southbound DC-295. The deployment of TCO will play a critical role at this intersection because the geometric constraint. Signal timing adjustment would have limited effect due to oversaturated conditions along Deane Ave NE and Nannie Helen Burroughs Avenue NE corridors.
- It should be noted that the lane designation modification was not analyzed in Synchro due to potential impact to the community at Park Place and further analysis would be conducted during next phase of MOT design and upon agreement from DDOT.

- 17th Street NE at C Street NE
  - In the AM peak, intersection delay increases by 25 seconds in MOT Pre-Mitigation due to the MOT traffic demand at the westbound approach (i.e., WBT: 1764 vph, WBL: 134 vph) caused by traffic diversion to westbound East Capitol Street from Benning Road NE.
  - To mitigate this, signal operations could be improved as part of Benning Road NE and C Street NE corridor-wide signal timing adjustment during construction. The deployment of TCO will play a critical role at this intersection because of the high delay (e.g., 127 seconds of delay per vehicle for westbound through movement) experienced in No-Build conditions.
- 19th Street NE at Independence Avenue SE
  - In the PM peak, intersection delay increases by 23 seconds in MOT Pre-Mitigation due to the traffic demand at the eastbound approach (i.e., EBT: 1706 vph, EBL: 64 vph) caused by re-routing along East Capitol Street due to construction along Benning Road NE.
  - To mitigate this, signal operations could be improved as part of Benning Road NE and C Street NE corridor-wide signal timing adjustment during construction.
- Oklahoma Avenue NE at Benning Road NE
  - This intersection does not experience intersection delay greater than 20 seconds in MOT Pre-Mitigation. Existing storage for the westbound left-turn bay should be maintained to serve the anticipated large volume of left-turn traffic and support

corridor-level traffic operations and prevent upstream queuing along Benning Road NE.

- 40th Street NE at Benning Road NE
  - This intersection does not experience intersection delay greater than 20 seconds in MOT pre-mitigation. A westbound left-turn bay was recommended because the intersection is identified as an alternative route for traffic to divert to East Capitol Street from Benning Road NE, as shown in **Attachment A-2**.
- Kenilworth Avenue NE at Nannie Helen Burroughs Avenue NE (DC-295 northbound off-ramp)
  - This intersection does not experience intersection delay greater than 20 seconds in MOT pre-mitigation. The northbound approach lane designation was modified from one left-through lane, one right-turn lane to one left-through-right lane and a right-turn lane to mitigate queuing impacts from the ramp signal to the freeway mainline. This would help alleviate the detour traffic resulting from the closure of northbound DC-295 off-ramp to westbound Benning Road NE, as shown in **Attachment B-1**.

## SUMMARY OF CONSTRUCTION IMPACTS AND MITIGATIONS

This section provides a summary of the anticipated construction impact to traffic operations and the corresponding mitigations. The construction impact to traffic operations is primarily attributable to the reduction of capacity on both directions of Benning Road NE corridor and along northbound DC-295 and the ramp closure at the Benning Road NE and DC-295 interchange. As result, it is projected that the alternative routes, as shown in **Attachment A**, would be used by traffic to avoid the congested sections of Benning Road NE and DC-295 corridors. Traffic impacted by the ramp closure will have to use detour routes, as shown in **Attachment B**, to arrive at their destinations.

The impact of such diverted and detoured traffic along with the traffic that would remain on Benning Road NE on intersections operations in the local network, including East Capitol Street, C Street NE, Nannie Helen Burroughs Avenue NE, Deane Avenue NE, and Minnesota Avenue NE, was analyzed and the following recommendations were made.

- East Capitol Street and Benning Road NE: provide a dedicated eastbound left-turn lane
- 44th Street NE and Benning Road NE: provide a dedicated eastbound left-turn lane
- 42nd Street NE and Benning Road NE: provide dedicated eastbound and westbound left-turn lanes
- 40th Street NE and Benning Road NE: provide a dedicated westbound left-turn lane
- Minnesota Avenue NE and Benning Road NE: maintain current eastbound left-turn lane; improve signal operations as part of a corridor-wide signal timing adjustment
- 34th Street NE and Benning Road: maintain current eastbound / westbound left-turn lanes; improve signal operations as part of a corridor-wide signal timing adjustment
- Anacostia Avenue NE and Benning Road NE: provide dedicated eastbound and westbound left-turn lanes

- Oklahoma Avenue NE and Benning Road NE: maintain existing storage for westbound left-turn lane
- Kenilworth Avenue NE at Nannie Helen Burroughs Avenue NE (DC-295 northbound off-ramp): restripe the northbound approach to be a shared left-turn/through/right-turn lane and a right-turn lane
- Kenilworth Terrace NE at Deane Avenue NE: potential lane designation change on southbound approach
- 17th Street NE at C Street NE: improve signal operations as part of a corridor-wide signal timing adjustment

In addition to the above recommendations, the deployment of a TCO will be necessary at the intersections above and signal timing adjustment may be necessary on a corridor-wide basis for Benning Road NE, East Capitol Street, C Street NE, and Minnesota Avenue NE during the construction.

For DC-295, it is recommended that at the minimum the merge from eastbound Benning Road NE on-ramp to northbound DC-295 be extended to meet AASHTO design standard. To further mitigate the impact to northbound DC-295 traffic during MOT, the freeway lane schematics can be temporarily laid out in a way that the merge from Benning Road NE on-ramp becomes an add-lane to join the two-lane northbound DC-295 mainline. This may be implemented after the completion of construction phasing of the Lorraine H. Whitlock Memorial Bridge.

## Attachment A: Alternate Route Diagrams

- Graphics illustrating the most prominent alternate routes resulting from the construction activities

## Attachment B: Detour Route Diagrams

- Graphics illustrating the detour routes resulting from the ramp closure at Benning Road NE and DC-295 interchange

## Attachment C: MOT Volumes

- 2025 MOT Volumes compared to 2025 No-Build Volumes

## Attachment D: HCS Analysis Results

- HCS Outputs DC-295 Northbound and Southbound
- HCS Outputs East Capital Street at the DC-295 Interchange

## Attachment E: Synchro Analysis Results

- 2025 No-Build Synchro Results (LOS and Delay)
- 2025 MOT Pre-Mitigation Synchro Results (LOS and Delay)
- 2025 MOT Post-Mitigation Synchro Results (LOS and Delay)
- 2025 No-Build vs. 2025 MOT Pre-Mitigation Synchro Results (Change in Intersection Delay)
- 2025 No-Build vs. 2025 MOT Post-Mitigation Synchro Results (Change in Intersection Delay)

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# Attachment A

## Alternate Routes

The origins and destinations shown in the map are a general representation of where travelers may start and end their trips.

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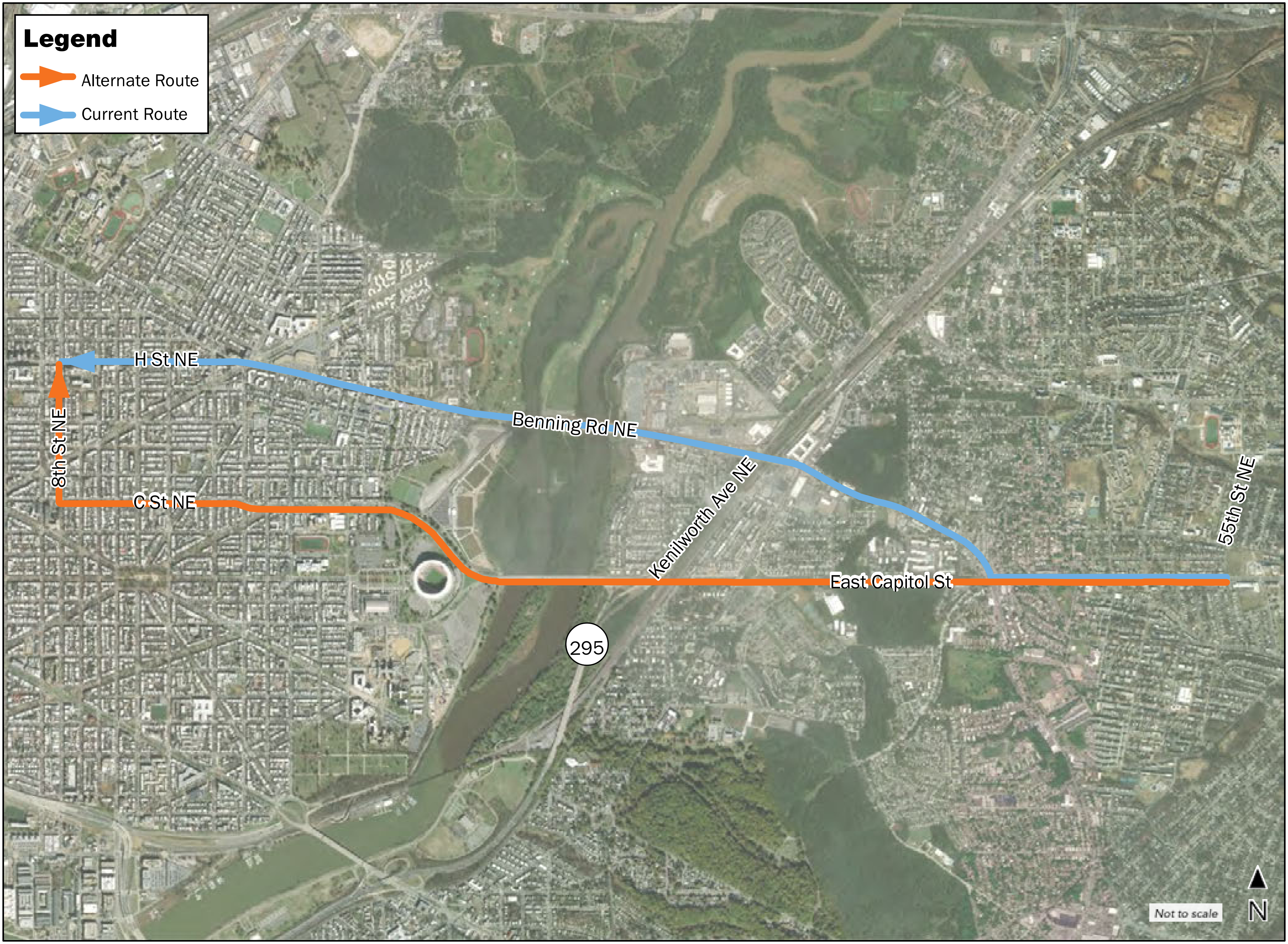
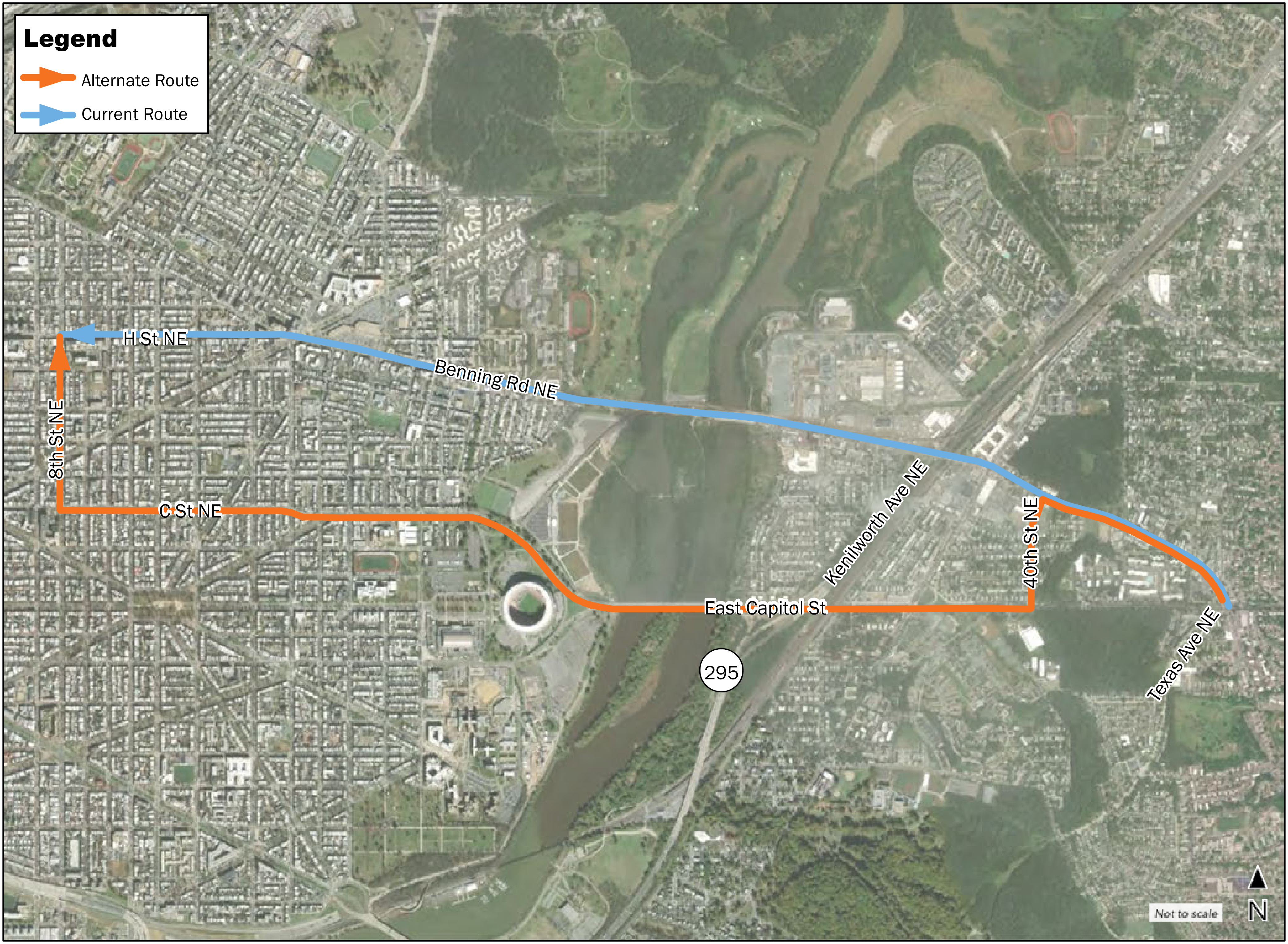
Attachment A. Alternate Routes

Figure A-1: AM-1



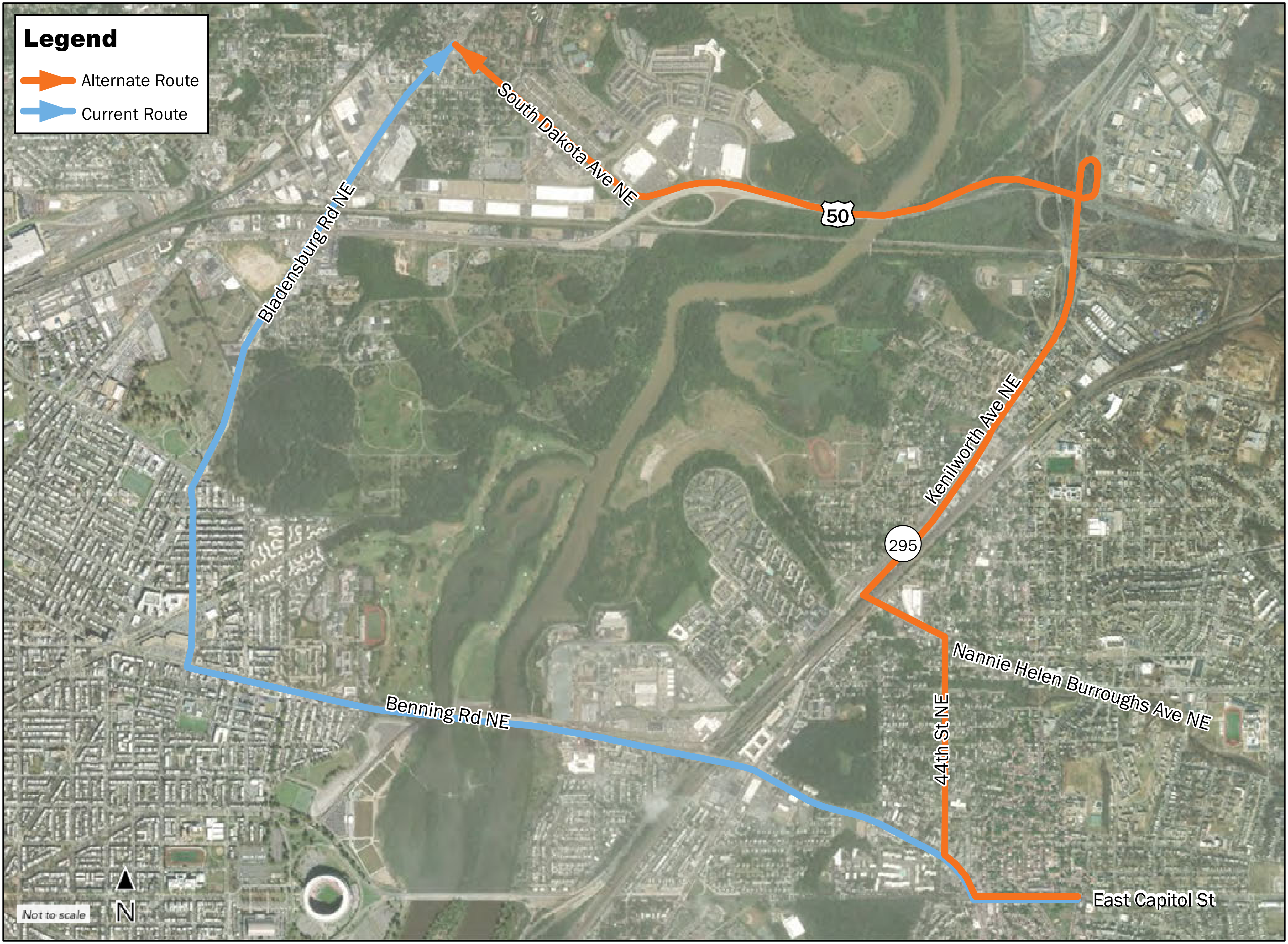
Attachment A. Alternate Routes

Figure A-2: AM-2



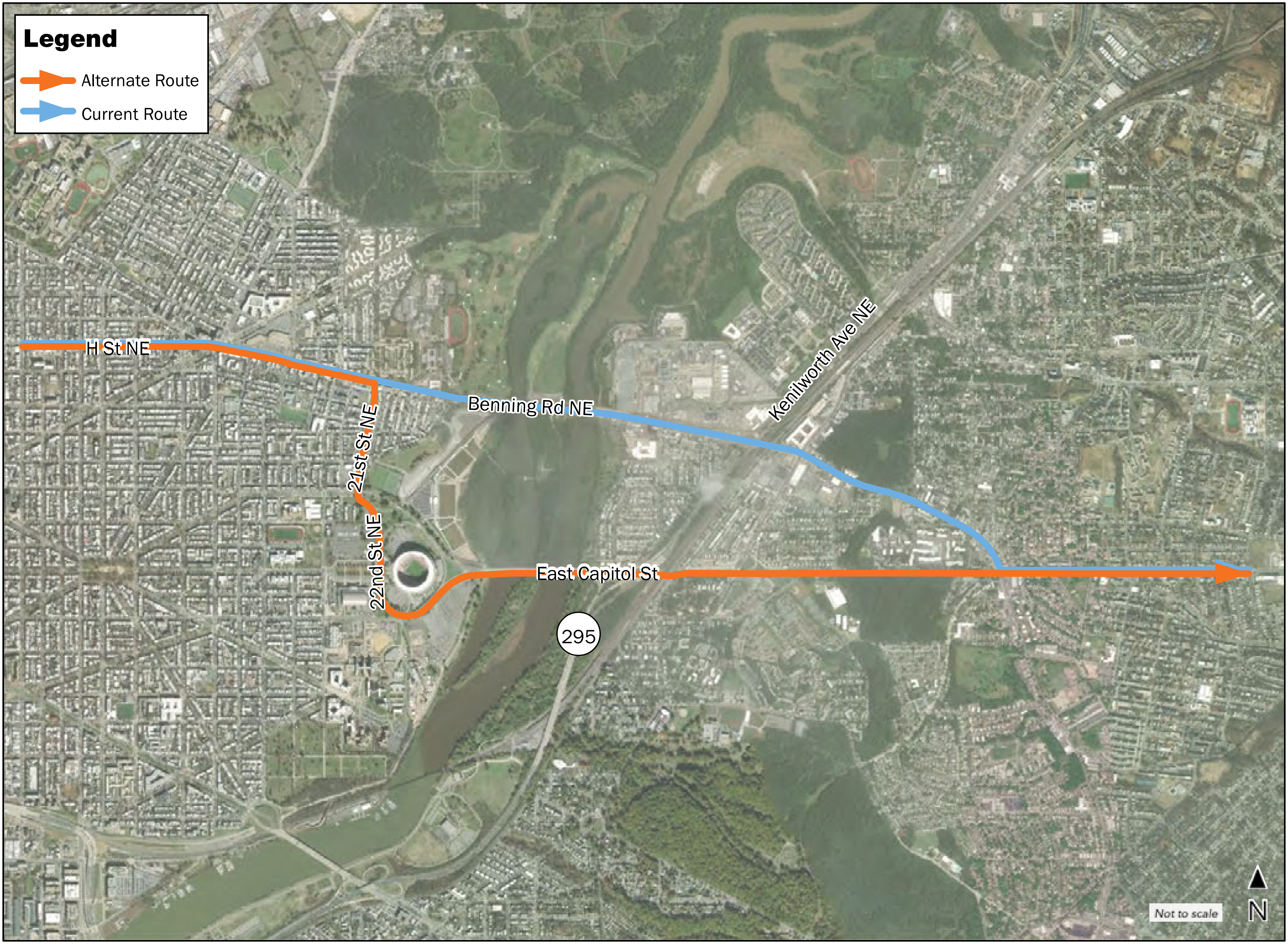
Attachment A. Alternate Routes

Figure A-3: AM-3



Attachment A. Alternate Routes

Figure A-4: PM-1



Attachment A. Alternate Routes

Figure A-5: PM-2

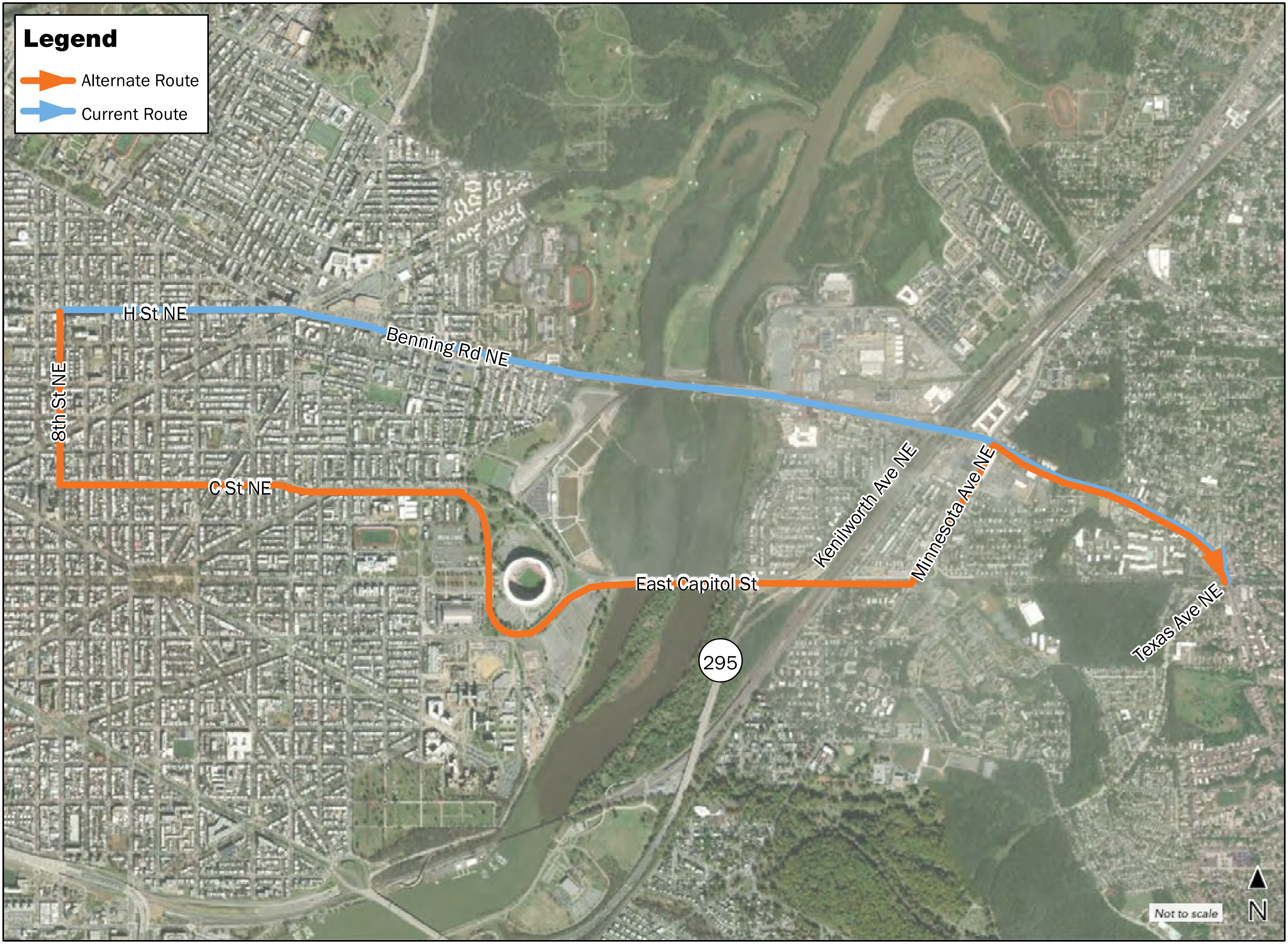


Figure A-6: PM-3

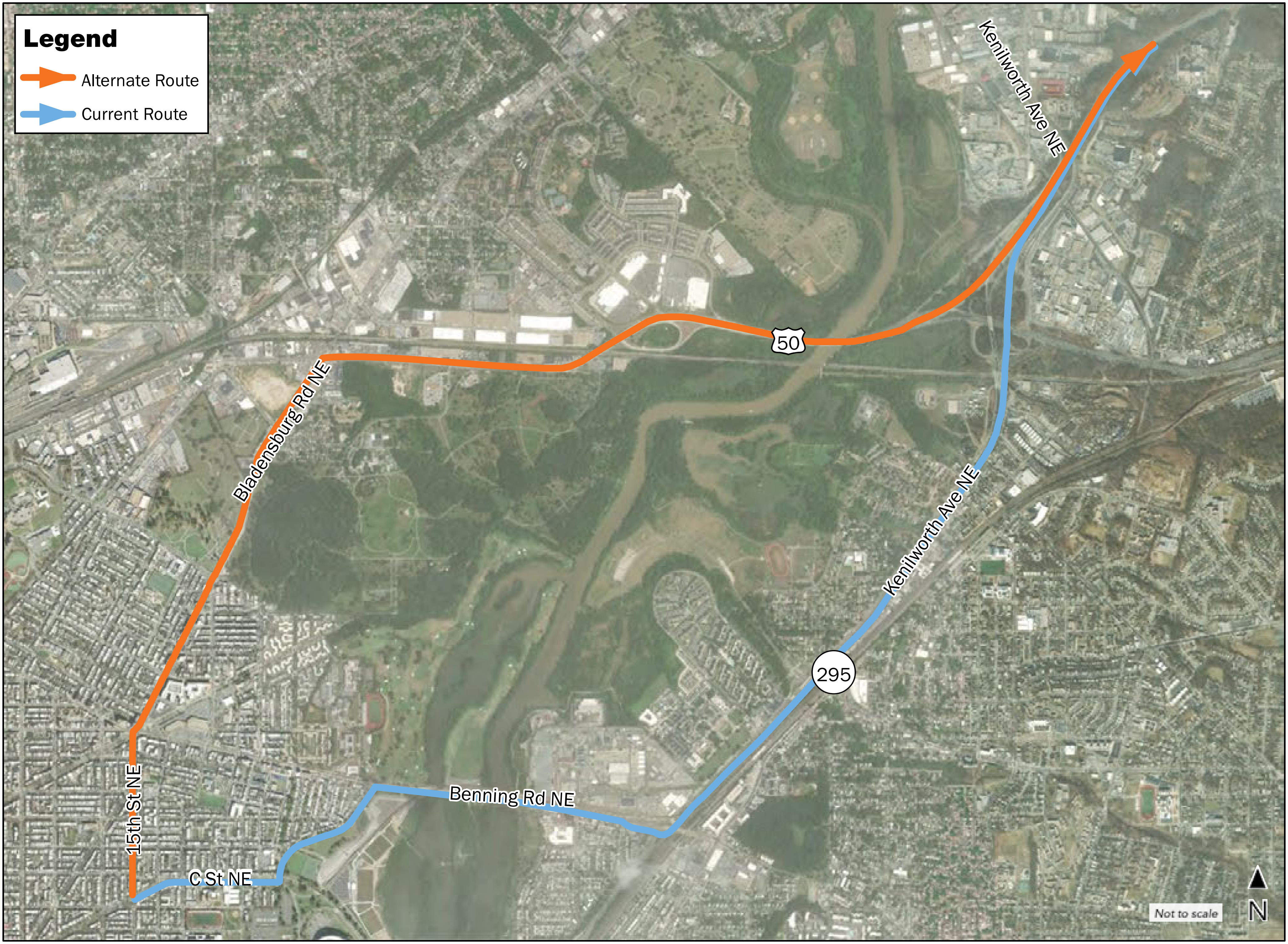
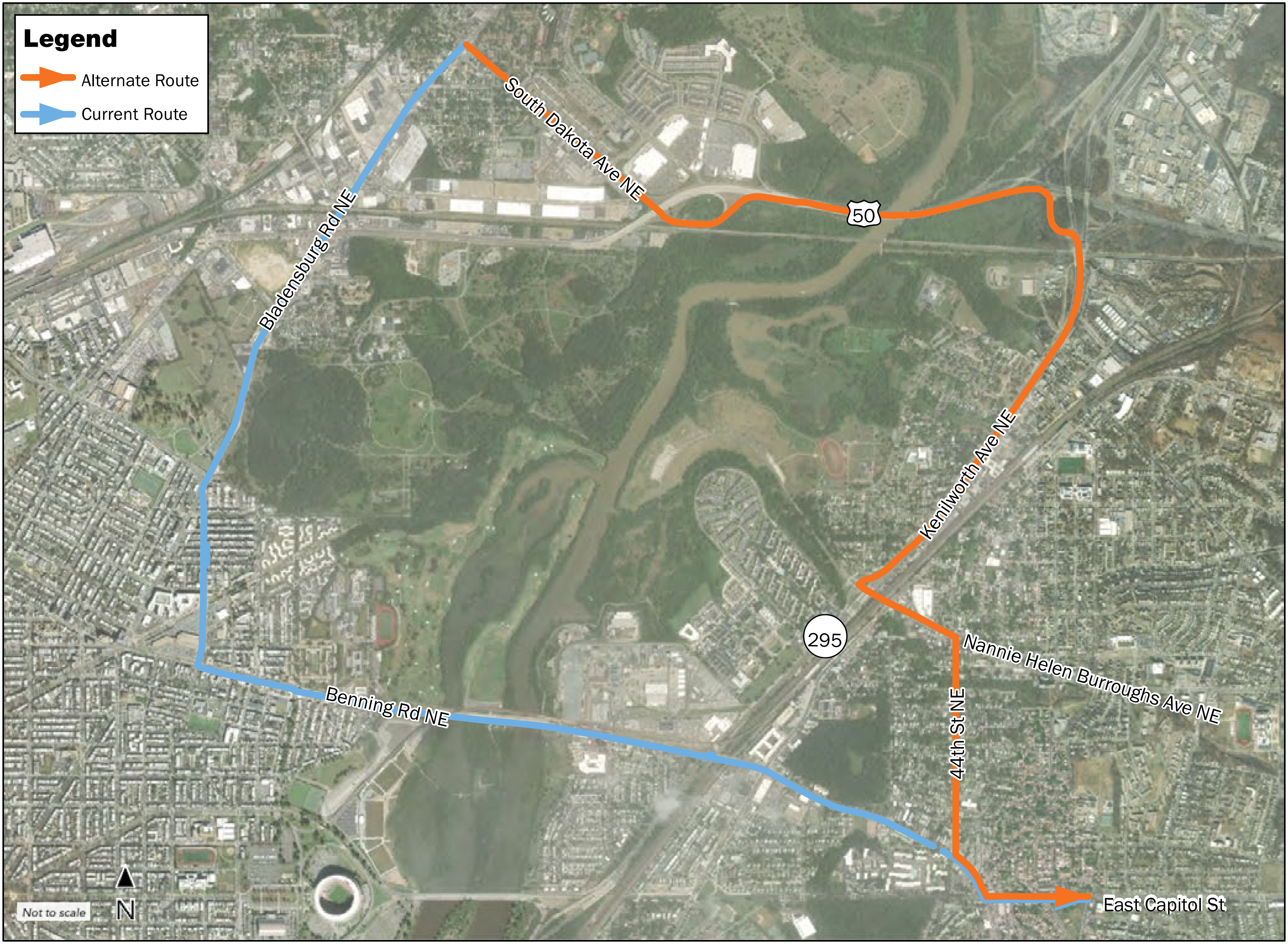


Figure A-7: PM-4



Attachment A. Alternate Routes

Figure A-8: PM-5

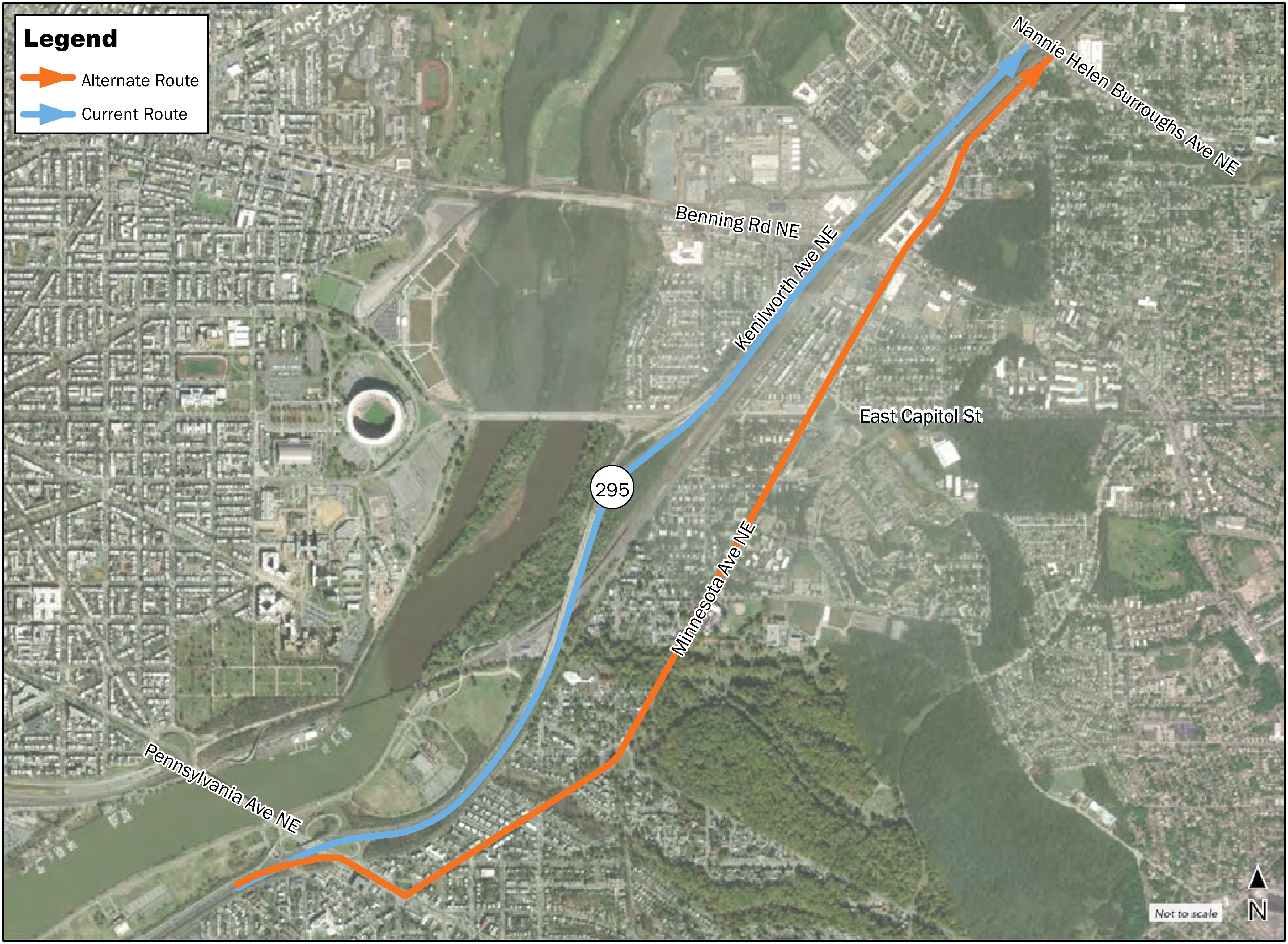
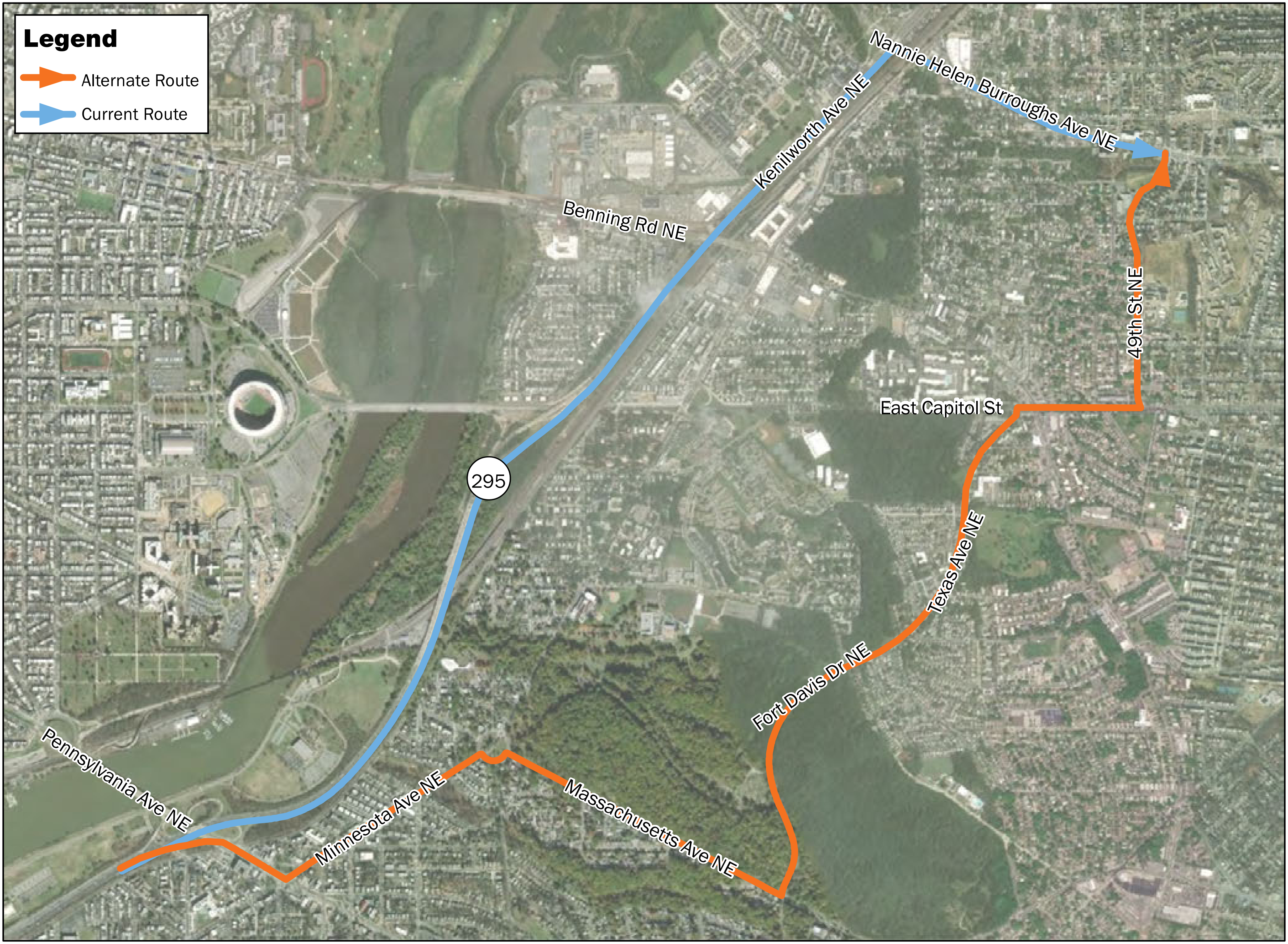


Figure A-9: PM-6



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# Attachment B

## Detour Routes

The origins and destinations shown in the map are a general representation of where travelers may start and end their trips.

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# Attachment B. Detour Routes

Figure B-1: Detour Route 1

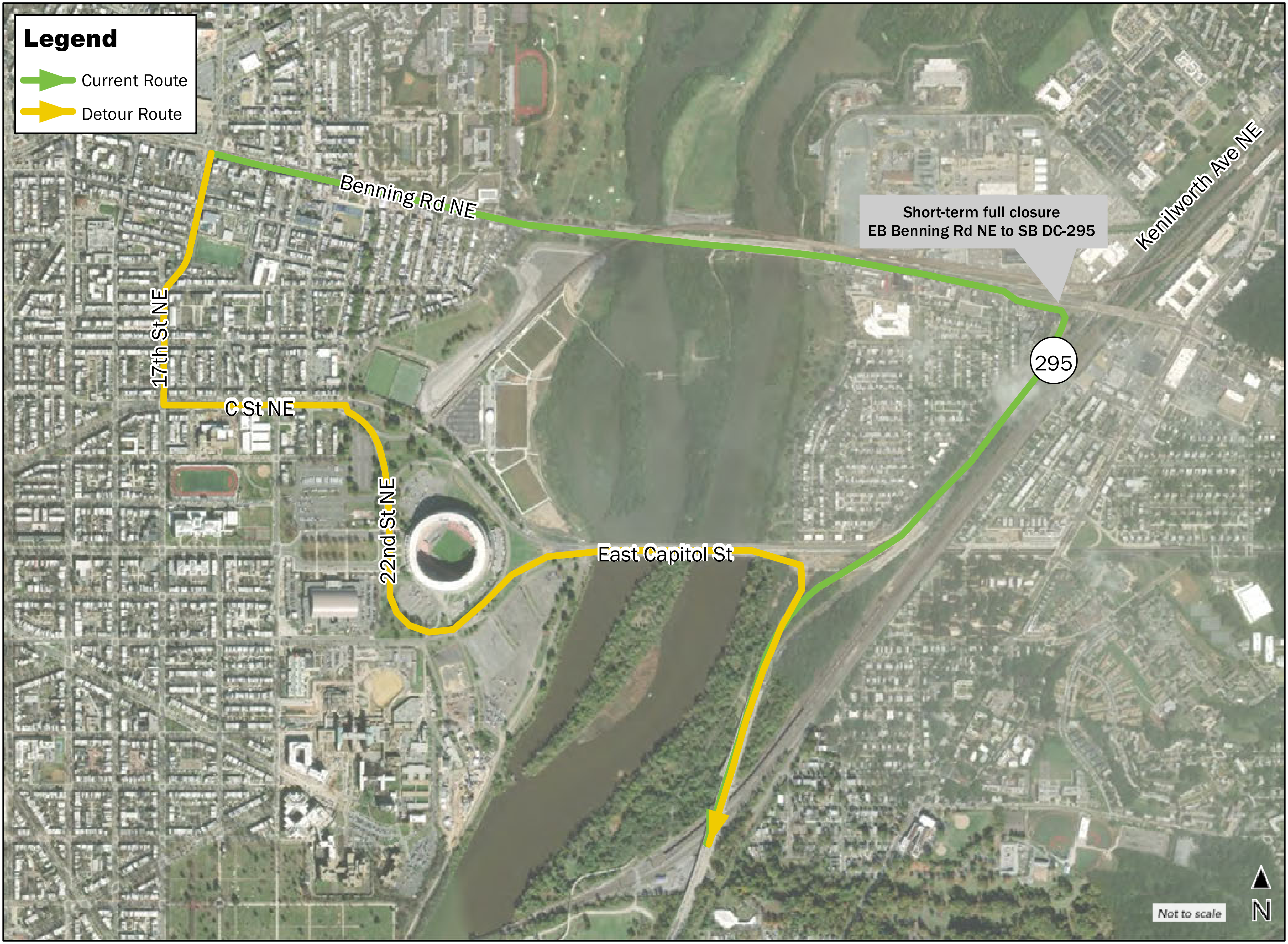
# Attachment B. Detour Routes

Figure B-2: Detour Route 2

Figure B-3: Detour Route 3

Attachment B. Detour Routes

Figure B-4: Detour Route 4



# Attachment C

## MOT Volumes

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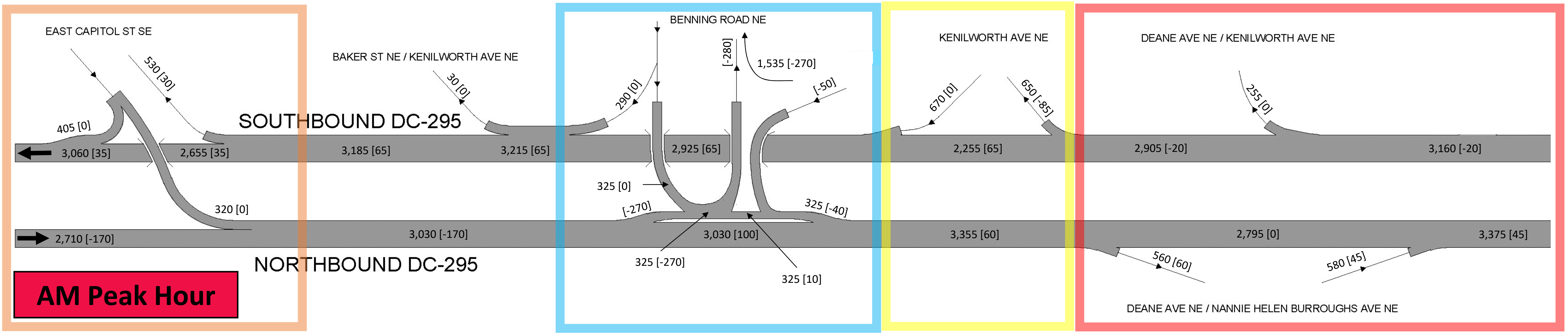
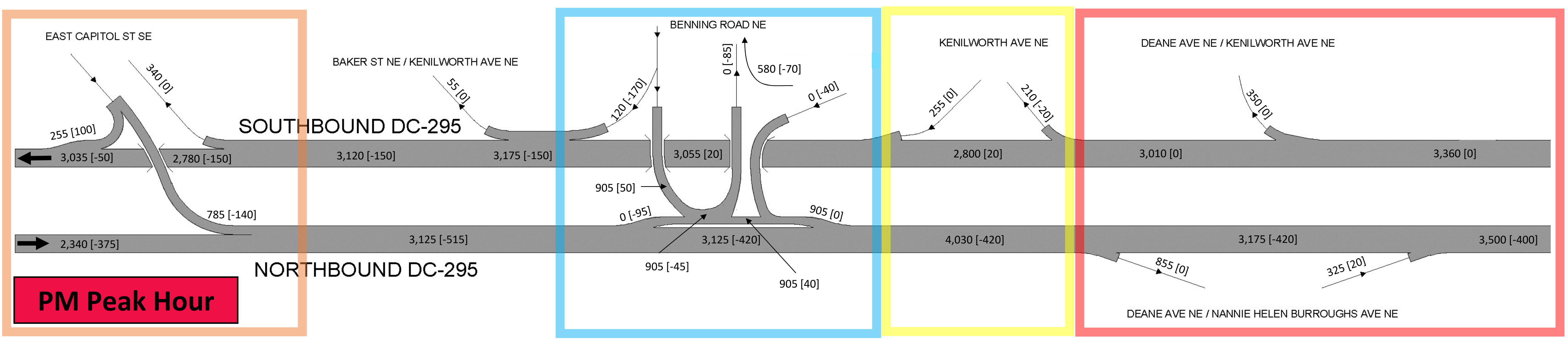
*** Numbers on Figures denote: Forecasted Volumes [Vehicle difference from 2025 No-Build without Streetcar and Interchange (Scenario 5)]**




AM Peak Hour: 7:45-8:45AM
PM Peak Hour: 5:00-6:00PM

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| | | |
|---|---|---|
| | % Difference Greater Than | 10% |
| | % Difference Between | -10%, 10% |
| | % Difference Less Than | -10% |

**AM DC-295 Volumes | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Location | Index | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | % Difference |
|---|---|---|---|---|---|
| NB DC-295 between SB ramps to/from Kenilworth Avenue NE (C-D Road) | M-1a | 3,295 | 3,355 | 60 | 1.8% |
| SB DC-295 between SB ramps to/from Kenilworth Avenue NE (C-D Road) | M-1b | 2,190 | 2,255 | 65 | 3.0% |
| SB off-ramp from DC-295 to Deane Avenue (before junction to Nannie Helen Burroughs Avenue NE and Kenilworth Terrace NE) | R-1 | 255 | 255 | 0 | 0.0% |
| NB on-ramp from Nannie Helen Burroughs Avenue NE to DC-295 (after junction to Kenilworth Avenue NE frontage Road) | R-2 | 535 | 580 | 45 | 8.4% |
| NB off-ramp from DC-295 to Nannie Helen Burroughs Avenue NE | R-3 | 500 | 560 | 60 | 12.0% |
| SB off-ramp from DC-295 to Kenilworth Avenue NE (C-D Road)/Benning Road | R-4 | 735 | 650 | -85 | -11.6% |
| SB on-ramp from Kenilworth Avenue NE (C-D Road) to DC-295 | R-5 | 670 | 670 | 0 | 0.0% |
| NB on-ramp (left-side) from Benning Road to DC-295 | R-6 | 365 | 325 | -40 | -11.0% |
| U-turn from SB Kenilworth Avenue NE to NB on-ramp to DC-295 | R-7 | 50 | 0 | -50 | -100.0% |
| NB off-ramp from DC 295 to WB Benning Road | R-8 | 270 | 0 | -270 | -100.0% |
| SB on-ramp from EB Benning Road to DC 295 | R-9 | 290 | 290 | 0 | 0.0% |
| EB Ramp from EB Benning Road to NB DC 295 or WB Benning Road (U-turns) | R-10 | 325 | 325 | 0 | 0.0% |
| SB off-ramp from DC-295 to Baker Street NE (River Terrace) | R-11 | 30 | 30 | 0 | 0.0% |
| SB off-ramp from DC-295 to East Capitol Street SE | R-12 | 500 | 530 | 30 | 6.0% |
| NB on-ramp (left-side) from East Capitol Street SE to DC-295 | R-13 | 320 | 320 | 0 | 0.0% |
| SB on-ramp from East Capitol Street SE to DC-295 | R-14 | 405 | 405 | 0 | 0.0% |
| WB Benning Road Ramp | R-15 | 280 | 0 | -280 | -100.0% |
| Northbound Route 295 south of East Capitol Street | F-1 | 2,880 | 2,710 | -170 | -5.9% |
| Northbound Route 295 north of East Capitol Street | F-2 | 3,200 | 3,030 | -170 | -5.3% |
| Northbound Route 295 north of Benning Road | F-3 | 2,930 | 3,030 | 100 | 3.4% |
| Northbound Route 295 between Deane Avenue NE/Nannie Helen Burroughs Avenue NE ramps | F-4 | 2,795 | 2,795 | 0 | 0.0% |
| Northbound Route 295 north of Deane Avenue NE/Nannie Helen Burroughs Avenue NE | F-5 | 3,330 | 3,375 | 45 | 1.4% |
| Southbound Route 295 north of Deane Avenue NE | F-6 | 3,180 | 3,160 | -20 | -0.6% |
| Southbound Route 295 south of Deane Avenue NE | F-7 | 2,925 | 2,905 | -20 | -0.7% |
| Southbound Route 295 south of Benning Road | F-8 | 2,860 | 2,925 | 65 | 2.3% |
| Southbound Route 295 south of Baker St NE | F-9 | 3,150 | 3,215 | 65 | 2.1% |
| Southbound Route 295 north of East Capitol Street SE | F-10 | 3,120 | 3,185 | 65 | 2.1% |
| Southbound Route 295 between East Capitol Street SE ramps | F-11 | 2,620 | 2,655 | 35 | 1.3% |
| Southbound Route 295 south of East Capitol Street SE | F-12 | 3,025 | 3,060 | 35 | 1.2% |
| Northbound Route 295 Benning Road off-ramp weaving area between Ramps 10 and 15 | F-13 | 595 | 325 | -270 | -45.4% |
| Northbound Route 295 Benning Road off-ramp weaving area between Ramps 15 and 7 | F-14 | 315 | 325 | 10 | 3.2% |



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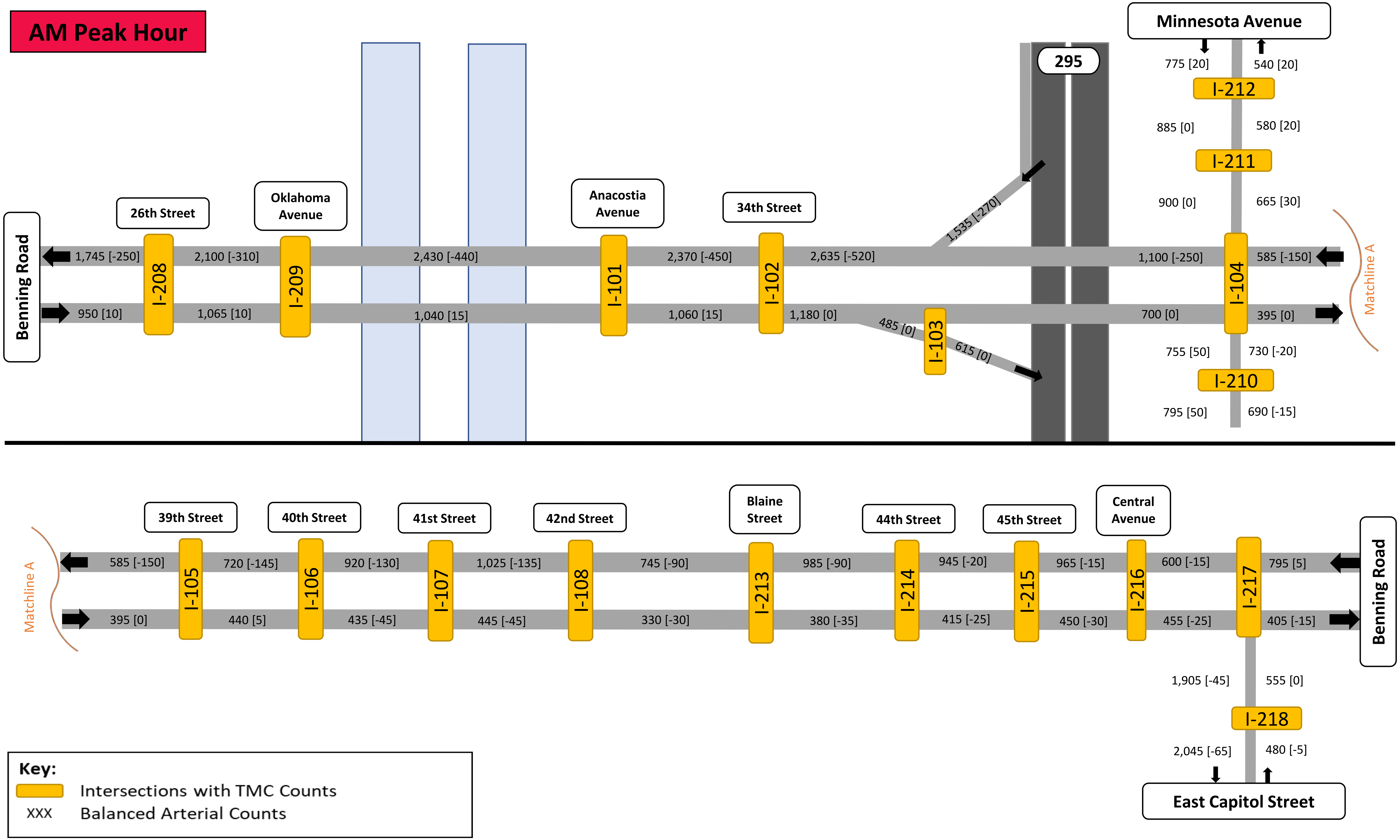
| | % Difference Greater Than | 10% |
|---|---|---|
| | % Difference Between | -10%, 10% |
| | % Difference Less Than | -10% |

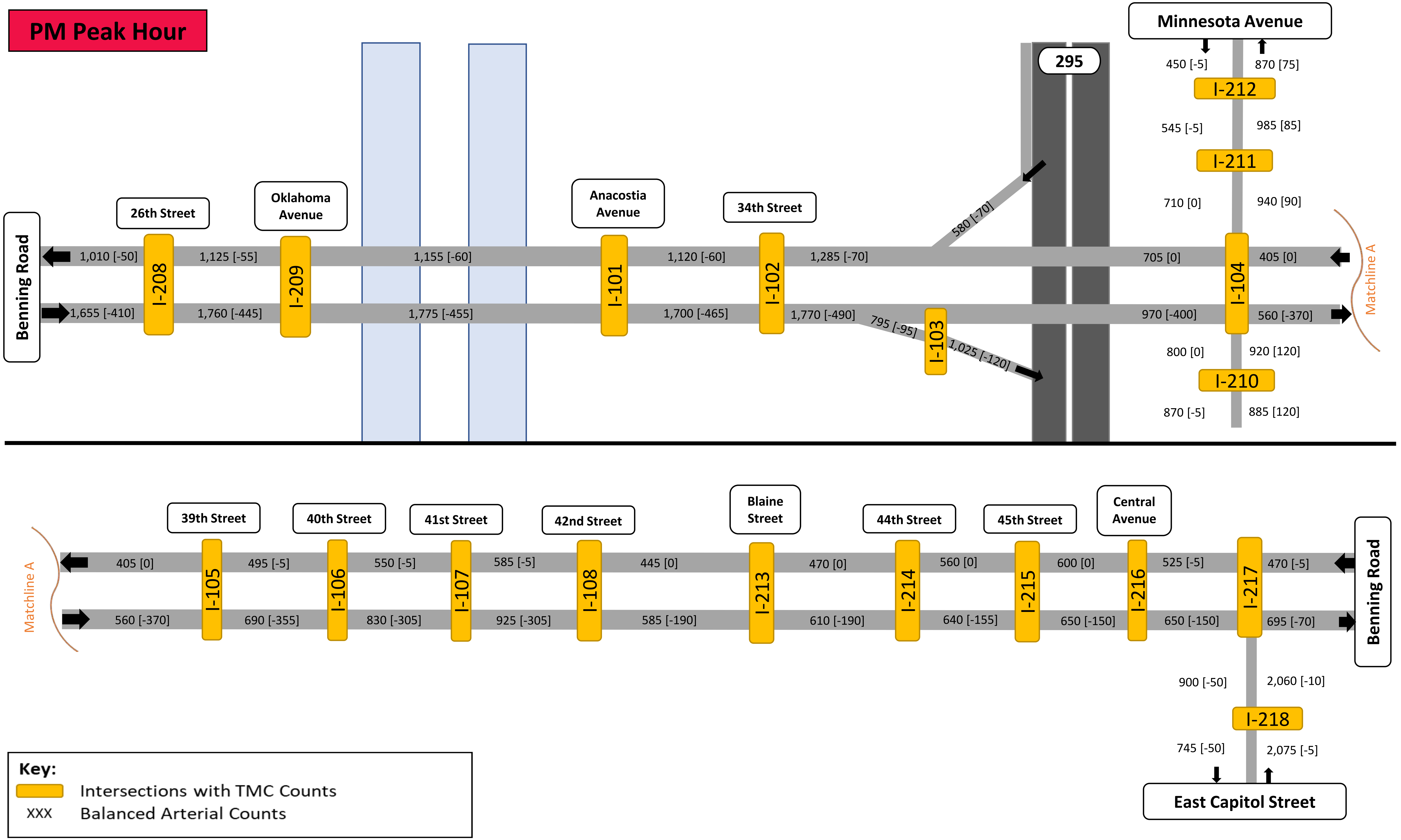
| PM DC-295 Volumes \| 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5) | | | | | |
|---|---|---|---|---|---|
| **Location** | **Index** | **2025 No-Build Volumes** | **2025 MOT Volumes** | **Vehicle Difference** | **% Difference** |
| NB DC-295 between SB ramps to/from Kenilworth Avenue NE (C-D Road) | M-1a | 4,450 | 4,030 | -420 | -9.4% |
| SB DC-295 between SB ramps to/from Kenilworth Avenue NE (C-D Road) | M-1b | 2,780 | 2,800 | 20 | 0.7% |
| SB off-ramp from DC-295 to Deane Avenue (before junction to Nannie Helen Burroughs Avenue NE and Kenilworth Terrace NE) | R-1 | 350 | 350 | 0 | 0.0% |
| NB on-ramp from Nannie Helen Burroughs Avenue NE to DC-295 (after junction to Kenilworth Avenue NE frontage Road) | R-2 | 305 | 325 | 20 | 6.6% |
| NB off-ramp from DC-295 to Nannie Helen Burroughs Avenue NE | R-3 | 855 | 855 | 0 | 0.0% |
| SB off-ramp from DC-295 to Kenilworth Avenue NE (C-D Road)/Benning Road | R-4 | 230 | 210 | -20 | -8.7% |
| SB on-ramp from Kenilworth Avenue NE (C-D Road) to DC-295 | R-5 | 255 | 255 | 0 | 0.0% |
| NB on-ramp (left-side) from Benning Road to DC-295 | R-6 | 905 | 905 | 0 | 0.0% |
| U-turn from SB Kenilworth Avenue NE to NB on-ramp to DC-295 | R-7 | 40 | 0 | -40 | -100.0% |
| NB off-ramp from DC 295 to WB Benning Road | R-8 | 95 | 0 | -95 | -100.0% |
| SB on-ramp from EB Benning Road to DC 295 | R-9 | 290 | 120 | -170 | -58.6% |
| EB Ramp from EB Benning Road to NB DC 295 or WB Benning Road (U-turns) | R-10 | 855 | 905 | 50 | 5.8% |
| SB off-ramp from DC-295 to Baker Street NE (River Terrace) | R-11 | 55 | 55 | 0 | 0.0% |
| SB off-ramp from DC-295 to East Capitol Street SE | R-12 | 340 | 340 | 0 | 0.0% |
| NB on-ramp (left-side) from East Capitol Street SE to DC-295 | R-13 | 925 | 785 | -140 | -15.1% |
| SB on-ramp from East Capitol Street SE to DC-295 | R-14 | 155 | 255 | 100 | 64.5% |
| WB Benning Road Ramp | R-15 | 85 | 0 | -85 | -100.0% |
| Northbound Route 295 south of East Capitol Street | F-1 | 2,715 | 2,340 | -375 | -13.8% |
| Northbound Route 295 north of East Capitol Street | F-2 | 3,640 | 3,125 | -515 | -14.1% |
| Northbound Route 295 north of Benning Road | F-3 | 3,545 | 3,125 | -420 | -11.8% |
| Northbound Route 295 between Deane Avenue NE/Nannie Helen Burroughs Avenue NE ramps | F-4 | 3,595 | 3,175 | -420 | -11.7% |
| Northbound Route 295 north of Deane Avenue NE/Nannie Helen Burroughs Avenue NE | F-5 | 3,900 | 3,500 | -400 | -10.3% |
| Southbound Route 295 north of Deane Avenue NE | F-6 | 3,360 | 3,360 | 0 | 0.0% |
| Southbound Route 295 south of Deane Avenue NE | F-7 | 3,010 | 3,010 | 0 | 0.0% |
| Southbound Route 295 south of Benning Road | F-8 | 3,035 | 3,055 | 20 | 0.7% |
| Southbound Route 295 south of Baker St NE | F-9 | 3,325 | 3,175 | -150 | -4.5% |
| Southbound Route 295 north of East Capitol Street SE | F-10 | 3,270 | 3,120 | -150 | -4.6% |
| Southbound Route 295 between East Capitol Street SE ramps | F-11 | 2,930 | 2,780 | -150 | -5.1% |
| Southbound Route 295 south of East Capitol Street SE | F-12 | 3,085 | 3,035 | -50 | -1.6% |
| Northbound Route 295 Benning Road off-ramp weaving area between Ramps 10 and 15 | F-13 | 950 | 905 | -45 | -4.7% |
| Northbound Route 295 Benning Road off-ramp weaving area between Ramps 15 and 7 | F-14 | 865 | 905 | 40 | 4.6% |

## Scenario 8: 2025 Maintenance of Traffic (MOT) Volumes





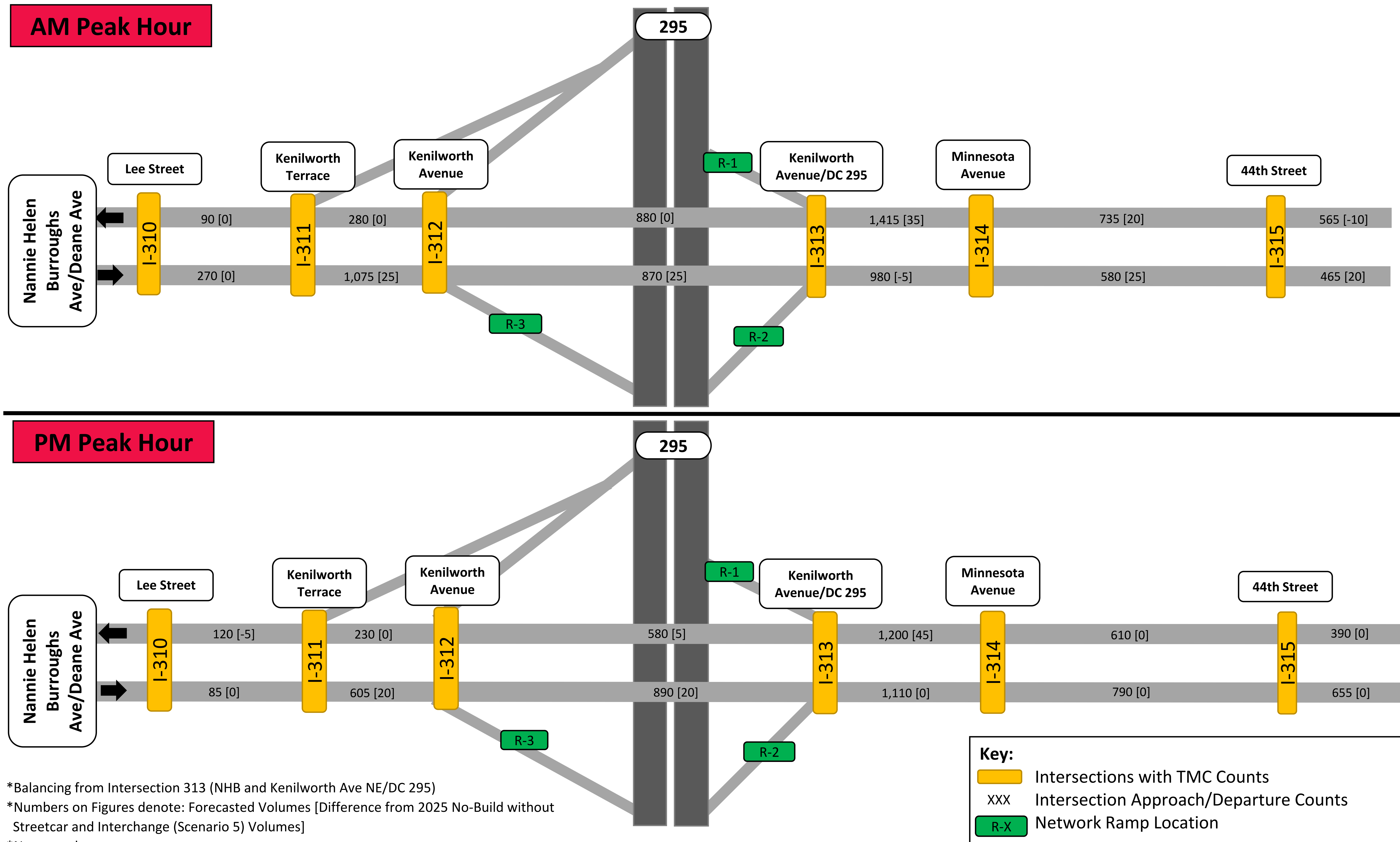

*Balancing from Intersection 104 (Benning Road and Minnesota Ave)
*Numbers on Figures denote: Forecasted Volumes [Difference from 2025 No-Build without Streetcar and Interchange (Scenario 5) Volumes]
*Not to scale




*Balancing from Intersection 104 (Benning Road and Minnesota Ave)

*Numbers on Figures denote: Forecasted Volumes [Difference from 2025 No-Build without Streetcar and Interchange (Scenario 5) Volumes]

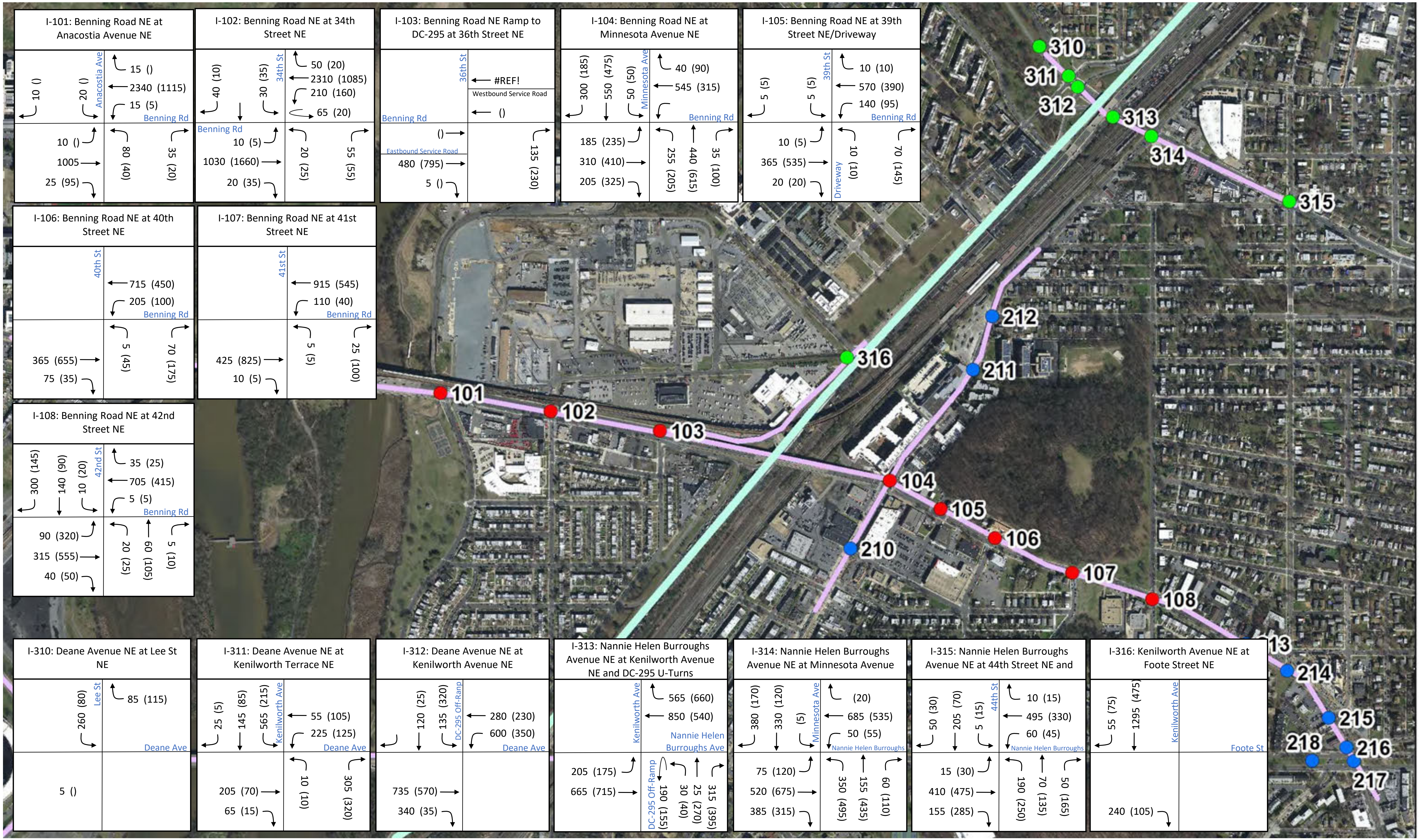
*Not to scale




*Balancing from Intersection 313 (NHB and Kenilworth Ave NE/DC 295)
*Numbers on Figures denote: Forecasted Volumes [Difference from 2025 No-Build without Streetcar and Interchange (Scenario 5) Volumes]
*Not to scale

AM Peak Hour (7:45-8:45AM)
PM Peak Hour (5:00-6:00PM)


AM Peak Hour Volumes (PM Peak Hour Volumes)
7:45AM-8:45AM (5:00PM-6:00PM)




AM Peak Hour Volumes (PM Peak Hour Volumes)
7:45AM-8:45AM (5:00PM-6:00PM)



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| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**AM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 101 | Benning Road NE at Anacostia Avenue NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 80 | 80 | 0 | 0% |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 35 | 35 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 20 | 20 | 0 | 0% |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 10 | 10 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 10 | 10 | 0 | 0% |
| | | EBT | 990 | 1005 | 15 | 2% |
| | | EBR | 25 | 25 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 20 | 15 | -5 | -25% |
| | | WBT | 2785 | 2340 | -445 | -16% |
| | | WBR | 15 | 15 | 0 | 0% |
| | | NB Approach | 115 | 115 | 0 | 0% |
| | | SB Approach | 30 | 30 | 0 | 0% |
| | | EB Approach | 1025 | 1040 | 15 | 1% |
| | | WB Approach | 2820 | 2370 | -450 | -16% |
| | | NB Departure | 25 | 25 | 0 | 0% |
| | | SB Departure | 45 | 40 | -5 | -11% |
| | | EB Departure | 1045 | 1060 | 15 | 1% |
| | | WB Departure | 2875 | 2430 | -445 | -15% |
| | | Total Approach | 3990 | 3555 | -435 | -11% |
| | | Total Depart | 3990 | 3555 | -435 | -11% |
| 102 | Benning Road NE at 34th Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 20 | 20 | 0 | 0% |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 55 | 55 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 30 | 30 | 0 | 0% |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 40 | 40 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 10 | 10 | 0 | 0% |
| | | EBT | 1015 | 1030 | 15 | 1% |
| | | EBR | 20 | 20 | 0 | 0% |
| | | WBU | 80 | 65 | -15 | -19% |
| | | WBL | 250 | 210 | -40 | -16% |
| | | WBT | 2765 | 2310 | -455 | -16% |
| | | WBR | 60 | 50 | -10 | -17% |
| | | NB Approach | 75 | 75 | 0 | 0% |
| | | SB Approach | 70 | 70 | 0 | 0% |
| | | EB Approach | 1045 | 1060 | 15 | 1% |
| | | WB Approach | 3155 | 2635 | -520 | -16% |
| | | NB Departure | 70 | 60 | -10 | -14% |
| | | SB Departure | 270 | 230 | -40 | -15% |
| | | EB Departure | 1180 | 1180 | 0 | 0% |
| | | WB Departure | 2825 | 2370 | -455 | -16% |
| | | Total Approach | 4345 | 3840 | -505 | -12% |
| | | Total Depart | 4345 | 3840 | -505 | -12% |

| | % Difference Greater Than | 20% |
|---|---|---|
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**AM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 103 | Benning Road NE Ramp to DC-295 at 36th Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 135 | 135 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 480 | 480 | 0 | 0% |
| | | EBR | 5 | 5 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 0 | 0 | 0 | -- |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 135 | 135 | 0 | 0% |
| | | SB Approach | 0 | 0 | 0 | -- |
| | | EB Approach | 485 | 485 | 0 | 0% |
| | | WB Approach | 0 | 0 | 0 | -- |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 5 | 5 | 0 | 0% |
| | | EB Departure | 615 | 615 | 0 | 0% |
| | | WB Departure | 0 | 0 | 0 | -- |
| | | Total Approach | 620 | 620 | 0 | 0% |
| | | Total Depart | 620 | 620 | 0 | 0% |
| 104 | Benning Road NE at Minnesota Avenue NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 305 | 255 | -50 | -16% |
| | | NBT | 410 | 440 | 30 | 7% |
| | | NBR | 35 | 35 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 50 | 50 | 0 | 0% |
| | | SBT | 500 | 550 | 50 | 10% |
| | | SBR | 350 | 300 | -50 | -14% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 185 | 185 | 0 | 0% |
| | | EBT | 310 | 310 | 0 | 0% |
| | | EBR | 205 | 205 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 695 | 545 | -150 | -22% |
| | | WBR | 40 | 40 | 0 | 0% |
| | | NB Approach | 750 | 730 | -20 | -3% |
| | | SB Approach | 900 | 900 | 0 | 0% |
| | | EB Approach | 700 | 700 | 0 | 0% |
| | | WB Approach | 735 | 585 | -150 | -20% |
| | | NB Departure | 635 | 665 | 30 | 5% |
| | | SB Departure | 705 | 755 | 50 | 7% |
| | | EB Departure | 395 | 395 | 0 | 0% |
| | | WB Departure | 1350 | 1100 | -250 | -19% |
| | | Total Approach | 3085 | 2915 | -170 | -6% |
| | | Total Depart | 3085 | 2915 | -170 | -6% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**AM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 105 | Benning Road NB at 39th Street NE/Driveway | NBU | 0 | 0 | 0 | -- |
| | | NBL | 15 | 10 | -5 | -33% |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 70 | 70 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 5 | 5 | 0 | 0% |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 5 | 5 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 10 | 10 | 0 | 0% |
| | | EBT | 365 | 365 | 0 | 0% |
| | | EBR | 20 | 20 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 140 | 140 | 0 | 0% |
| | | WBT | 715 | 570 | -145 | -20% |
| | | WBR | 10 | 10 | 0 | 0% |
| | | NB Approach | 85 | 80 | -5 | -6% |
| | | SB Approach | 10 | 10 | 0 | 0% |
| | | EB Approach | 395 | 395 | 0 | 0% |
| | | WB Approach | 865 | 720 | -145 | -17% |
| | | NB Departure | 20 | 20 | 0 | 0% |
| | | SB Departure | 160 | 160 | 0 | 0% |
| | | EB Departure | 440 | 440 | 0 | 0% |
| | | WB Departure | 735 | 585 | -150 | -20% |
| | | Total Approach | 1355 | 1205 | -150 | -11% |
| | | Total Depart | 1355 | 1205 | -150 | -11% |
| 106 | Benning Road NE at 40th Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 5 | 5 | 0 | 0% |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 70 | 70 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 410 | 365 | -45 | -11% |
| | | EBR | 25 | 75 | 50 | 200% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 190 | 205 | 15 | 8% |
| | | WBT | 860 | 715 | -145 | -17% |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 75 | 75 | 0 | 0% |
| | | SB Approach | 0 | 0 | 0 | -- |
| | | EB Approach | 435 | 440 | 5 | 1% |
| | | WB Approach | 1050 | 920 | -130 | -12% |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 215 | 280 | 65 | 30% |
| | | EB Departure | 480 | 435 | -45 | -9% |
| | | WB Departure | 865 | 720 | -145 | -17% |
| | | Total Approach | 1560 | 1435 | -125 | -8% |
| | | Total Depart | 1560 | 1435 | -125 | -8% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**AM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 107 | Benning Road NE at 41st Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 5 | 5 | 0 | 0% |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 25 | 25 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 470 | 425 | -45 | -10% |
| | | EBR | 10 | 10 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 110 | 110 | 0 | 0% |
| | | WBT | 1050 | 915 | -135 | -13% |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 30 | 30 | 0 | 0% |
| | | SB Approach | 0 | 0 | 0 | -- |
| | | EB Approach | 480 | 435 | -45 | -9% |
| | | WB Approach | 1160 | 1025 | -135 | -12% |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 120 | 120 | 0 | 0% |
| | | EB Departure | 495 | 450 | -45 | -9% |
| | | WB Departure | 1055 | 920 | -135 | -13% |
| | | Total Approach | 1670 | 1490 | -180 | -11% |
| | | Total Depart | 1670 | 1490 | -180 | -11% |
| 108 | Benning Road NE at 42nd Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 25 | 20 | -5 | -20% |
| | | NBT | 60 | 60 | 0 | 0% |
| | | NBR | 5 | 5 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 10 | 10 | 0 | 0% |
| | | SBT | 140 | 140 | 0 | 0% |
| | | SBR | 340 | 300 | -40 | -12% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 100 | 90 | -10 | -10% |
| | | EBT | 345 | 315 | -30 | -9% |
| | | EBR | 45 | 40 | -5 | -11% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 5 | 5 | 0 | 0% |
| | | WBT | 795 | 705 | -90 | -11% |
| | | WBR | 35 | 35 | 0 | 0% |
| | | NB Approach | 90 | 85 | -5 | -6% |
| | | SB Approach | 490 | 450 | -40 | -8% |
| | | EB Approach | 490 | 445 | -45 | -9% |
| | | WB Approach | 835 | 745 | -90 | -11% |
| | | NB Departure | 195 | 185 | -10 | -5% |
| | | SB Departure | 190 | 185 | -5 | -3% |
| | | EB Departure | 360 | 330 | -30 | -8% |
| | | WB Departure | 1160 | 1025 | -135 | -12% |
| | | Total Approach | 1905 | 1725 | -180 | -9% |
| | | Total Depart | 1905 | 1725 | -180 | -9% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**AM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 208 | Benning Road NE at 26th Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 0 | 0 | 0 | -- |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 185 | 185 | 0 | 0% |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 55 | 55 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 70 | 70 | 0 | 0% |
| | | EBT | 870 | 880 | 10 | 1% |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 1940 | 1690 | -250 | -13% |
| | | WBR | 470 | 410 | -60 | -13% |
| | | NB Approach | 0 | 0 | 0 | -- |
| | | SB Approach | 240 | 240 | 0 | 0% |
| | | EB Approach | 940 | 950 | 10 | 1% |
| | | WB Approach | 2410 | 2100 | -310 | -13% |
| | | NB Departure | 540 | 480 | -60 | -11% |
| | | SB Departure | 0 | 0 | 0 | -- |
| | | EB Departure | 1055 | 1065 | 10 | 1% |
| | | WB Departure | 1995 | 1745 | -250 | -13% |
| | | Total Approach | 3590 | 3290 | -300 | -8% |
| | | Total Depart | 3590 | 3290 | -300 | -8% |
| 209 | Benning Road NE at Oklahoma Avenue NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 75 | 125 | 50 | 67% |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 55 | 55 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 975 | 985 | 10 | 1% |
| | | EBR | 80 | 80 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 535 | 455 | -80 | -15% |
| | | WBT | 2335 | 1975 | -360 | -15% |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 130 | 180 | 50 | 38% |
| | | SB Approach | 0 | 0 | 0 | -- |
| | | EB Approach | 1055 | 1065 | 10 | 1% |
| | | WB Approach | 2870 | 2430 | -440 | -15% |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 615 | 535 | -80 | -13% |
| | | EB Departure | 1030 | 1040 | 10 | 1% |
| | | WB Departure | 2410 | 2100 | -310 | -13% |
| | | Total Approach | 4055 | 3675 | -380 | -9% |
| | | Total Depart | 4055 | 3675 | -380 | -9% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**AM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 210 | Minnesota Avenue NE at Dix Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 640 | 625 | -15 | -2% |
| | | NBR | 65 | 65 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 55 | 60 | 5 | 9% |
| | | SBT | 625 | 675 | 50 | 8% |
| | | SBR | 20 | 20 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 10 | 10 | 0 | 0% |
| | | EBT | 10 | 10 | 0 | 0% |
| | | EBR | 25 | 25 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 95 | 95 | 0 | 0% |
| | | WBT | 10 | 10 | 0 | 0% |
| | | WBR | 100 | 95 | -5 | -5% |
| | | NB Approach | 705 | 690 | -15 | -2% |
| | | SB Approach | 700 | 755 | 55 | 8% |
| | | EB Approach | 45 | 45 | 0 | 0% |
| | | WB Approach | 205 | 200 | -5 | -2% |
| | | NB Departure | 750 | 730 | -20 | -3% |
| | | SB Departure | 745 | 795 | 50 | 7% |
| | | EB Departure | 130 | 135 | 5 | 4% |
| | | WB Departure | 30 | 30 | 0 | 0% |
| | | Total Approach | 1655 | 1690 | 35 | 2% |
| | | Total Depart | 1655 | 1690 | 35 | 2% |
| 211 | Minnesota Avenue NE at Bus Exit South | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 535 | 555 | 20 | 4% |
| | | NBR | 0 | 0 | 0 | -- |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 885 | 885 | 0 | 0% |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 25 | 25 | 0 | 0% |
| | | EBT | 0 | 0 | 0 | -- |
| | | EBR | 25 | 25 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 0 | 0 | 0 | -- |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 535 | 555 | 20 | 4% |
| | | SB Approach | 885 | 885 | 0 | 0% |
| | | EB Approach | 50 | 50 | 0 | 0% |
| | | WB Approach | 0 | 0 | 0 | -- |
| | | NB Departure | 560 | 580 | 20 | 4% |
| | | SB Departure | 910 | 910 | 0 | 0% |
| | | EB Departure | 0 | 0 | 0 | -- |
| | | WB Departure | 0 | 0 | 0 | -- |
| | | Total Approach | 1470 | 1490 | 20 | 1% |
| | | Total Depart | 1470 | 1490 | 20 | 1% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**AM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 212 | Minnesota Avenue NE at Grant Street NE and Bus Entrance North | NBU | 0 | 0 | 0 | -- |
| | | NBL | 25 | 25 | 0 | 0% |
| | | NBT | 480 | 500 | 20 | 4% |
| | | NBR | 55 | 55 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 15 | 15 | 0 | 0% |
| | | SBT | 720 | 740 | 20 | 3% |
| | | SBR | 20 | 20 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 0 | 0 | 0 | -- |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 170 | 145 | -25 | -15% |
| | | WBT | 0 | 0 | 0 | -- |
| | | WBR | 40 | 40 | 0 | 0% |
| | | NB Approach | 560 | 580 | 20 | 4% |
| | | SB Approach | 755 | 775 | 20 | 3% |
| | | EB Approach | 0 | 0 | 0 | -- |
| | | WB Approach | 210 | 185 | -25 | -12% |
| | | NB Departure | 520 | 540 | 20 | 4% |
| | | SB Departure | 890 | 885 | -5 | -1% |
| | | EB Departure | 70 | 70 | 0 | 0% |
| | | WB Departure | 45 | 45 | 0 | 0% |
| | | Total Approach | 1525 | 1540 | 15 | 1% |
| | | Total Depart | 1525 | 1540 | 15 | 1% |
| 213 | Benning Road NE at Blaine Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 50 | 50 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 360 | 330 | -30 | -8% |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 240 | 240 | 0 | 0% |
| | | WBT | 835 | 745 | -90 | -11% |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 50 | 50 | 0 | 0% |
| | | SB Approach | 0 | 0 | 0 | -- |
| | | EB Approach | 360 | 330 | -30 | -8% |
| | | WB Approach | 1075 | 985 | -90 | -8% |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 240 | 240 | 0 | 0% |
| | | EB Departure | 410 | 380 | -30 | -7% |
| | | WB Departure | 835 | 745 | -90 | -11% |
| | | Total Approach | 1485 | 1365 | -120 | -8% |
| | | Total Depart | 1485 | 1365 | -120 | -8% |

| | % Difference Greater Than | 20% |
|---|---|---|
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

| AM Turning Movement Counts \| 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5) | | | | | | |
|---|---|---|---|---|---|---|
| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
| 214 | Benning Road NE at 44th Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 0 | 0 | 0 | -- |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 130 | 130 | 0 | 0% |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 275 | 225 | -50 | -18% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 105 | 95 | -10 | -10% |
| | | EBT | 310 | 285 | -25 | -8% |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 805 | 760 | -45 | -6% |
| | | WBR | 160 | 185 | 25 | 16% |
| | | NB Approach | 0 | 0 | 0 | -- |
| | | SB Approach | 405 | 355 | -50 | -12% |
| | | EB Approach | 415 | 380 | -35 | -8% |
| | | WB Approach | 965 | 945 | -20 | -2% |
| | | NB Departure | 265 | 280 | 15 | 6% |
| | | SB Departure | 0 | 0 | 0 | -- |
| | | EB Departure | 440 | 415 | -25 | -6% |
| | | WB Departure | 1080 | 985 | -95 | -9% |
| | | Total Approach | 1785 | 1680 | -105 | -6% |
| | | Total Depart | 1785 | 1680 | -105 | -6% |
| 215 | Benning Road NE at 45th Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 10 | 10 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 50 | 50 | 0 | 0% |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 45 | 45 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 25 | 25 | 0 | 0% |
| | | EBT | 415 | 390 | -25 | -6% |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 10 | 10 | 0 | 0% |
| | | WBT | 915 | 900 | -15 | -2% |
| | | WBR | 55 | 55 | 0 | 0% |
| | | NB Approach | 10 | 10 | 0 | 0% |
| | | SB Approach | 95 | 95 | 0 | 0% |
| | | EB Approach | 440 | 415 | -25 | -6% |
| | | WB Approach | 980 | 965 | -15 | -2% |
| | | NB Departure | 80 | 80 | 0 | 0% |
| | | SB Departure | 10 | 10 | 0 | 0% |
| | | EB Departure | 475 | 450 | -25 | -5% |
| | | WB Departure | 960 | 945 | -15 | -2% |
| | | Total Approach | 1525 | 1485 | -40 | -3% |
| | | Total Depart | 1525 | 1485 | -40 | -3% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

| AM Turning Movement Counts \| 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5) | | | | | | |
|---|---|---|---|---|---|---|
| **Map ID** | **Intersection Name** | **Movement** | **2025 No-Build Volumes** | **2025 MOT Volumes** | **Vehicle Difference** | **Percent Difference** |
| 216 | Benning Road NE at Central Avenue NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 0 | 0 | 0 | -- |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 390 | 380 | -10 | -3% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 480 | 450 | -30 | -6% |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 595 | 580 | -15 | -3% |
| | | WBR | 20 | 20 | 0 | 0% |
| | | NB Approach | 0 | 0 | 0 | -- |
| | | SB Approach | 390 | 380 | -10 | -3% |
| | | EB Approach | 480 | 450 | -30 | -6% |
| | | WB Approach | 615 | 600 | -15 | -2% |
| | | NB Departure | 20 | 20 | 0 | 0% |
| | | SB Departure | 0 | 0 | 0 | -- |
| | | EB Departure | 480 | 450 | -30 | -6% |
| | | WB Departure | 985 | 960 | -25 | -3% |
| | | Total Approach | 1485 | 1430 | -55 | -4% |
| | | Total Depart | 1485 | 1430 | -55 | -4% |
| 217 | Benning Road NE at East Capitol Street | NBU | 0 | 0 | 0 | -- |
| | | NBL | 125 | 125 | 0 | 0% |
| | | NBT | 305 | 305 | 0 | 0% |
| | | NBR | 125 | 125 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 15 | 15 | 0 | 0% |
| | | SBT | 1570 | 1520 | -50 | -3% |
| | | SBR | 15 | 15 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 115 | 110 | -5 | -4% |
| | | EBT | 280 | 265 | -15 | -5% |
| | | EBR | 85 | 80 | -5 | -6% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 295 | 305 | 10 | 3% |
| | | WBT | 475 | 470 | -5 | -1% |
| | | WBR | 20 | 20 | 0 | 0% |
| | | NB Approach | 555 | 555 | 0 | 0% |
| | | SB Approach | 1600 | 1550 | -50 | -3% |
| | | EB Approach | 480 | 455 | -25 | -5% |
| | | WB Approach | 790 | 795 | 5 | 1% |
| | | NB Departure | 440 | 435 | -5 | -1% |
| | | SB Departure | 1950 | 1905 | -45 | -2% |
| | | EB Departure | 420 | 405 | -15 | -4% |
| | | WB Departure | 615 | 610 | -5 | -1% |
| | | Total Approach | 3425 | 3355 | -70 | -2% |
| | | Total Depart | 3425 | 3355 | -70 | -2% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**AM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 218 | East Capitol Street SE at Texas Avenue SE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 470 | 465 | -5 | -1% |
| | | NBR | 15 | 15 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 85 | 105 | 20 | 24% |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 0 | 0 | 0 | -- |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 245 | 245 | 0 | 0% |
| | | WBT | 0 | 0 | 0 | -- |
| | | WBR | 90 | 90 | 0 | 0% |
| | | NB Approach | 485 | 480 | -5 | -1% |
| | | SB Approach | 85 | 105 | 20 | 24% |
| | | EB Approach | 0 | 0 | 0 | -- |
| | | WB Approach | 335 | 335 | 0 | 0% |
| | | NB Departure | 560 | 555 | -5 | -1% |
| | | SB Departure | 245 | 245 | 0 | 0% |
| | | EB Departure | 100 | 120 | 20 | 20% |
| | | WB Departure | 0 | 0 | 0 | -- |
| | | Total Approach | 905 | 920 | 15 | 2% |
| | | Total Depart | 905 | 920 | 15 | 2% |
| 310 | Deane Avenue NE at Lee St NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 0 | 0 | 0 | -- |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 260 | 260 | 0 | 0% |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 5 | 5 | 0 | 0% |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 5 | 5 | 0 | 0% |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 0 | 0 | 0 | -- |
| | | WBR | 85 | 85 | 0 | 0% |
| | | NB Approach | 0 | 0 | 0 | -- |
| | | SB Approach | 260 | 260 | 0 | 0% |
| | | EB Approach | 5 | 5 | 0 | 0% |
| | | WB Approach | 90 | 90 | 0 | 0% |
| | | NB Departure | 85 | 85 | 0 | 0% |
| | | SB Departure | 0 | 0 | 0 | -- |
| | | EB Departure | 270 | 270 | 0 | 0% |
| | | WB Departure | 0 | 0 | 0 | -- |
| | | Total Approach | 355 | 355 | 0 | 0% |
| | | Total Depart | 355 | 355 | 0 | 0% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**AM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 311 | Deane Avenue NE at Kenilworth Terrace NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 10 | 10 | 0 | 0% |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 275 | 305 | 30 | 11% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 565 | 565 | 0 | 0% |
| | | SBT | 145 | 145 | 0 | 0% |
| | | SBR | 25 | 25 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 205 | 205 | 0 | 0% |
| | | EBR | 65 | 65 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 225 | 225 | 0 | 0% |
| | | WBT | 55 | 55 | 0 | 0% |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 285 | 315 | 30 | 11% |
| | | SB Approach | 735 | 735 | 0 | 0% |
| | | EB Approach | 270 | 270 | 0 | 0% |
| | | WB Approach | 280 | 280 | 0 | 0% |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 435 | 435 | 0 | 0% |
| | | EB Departure | 1045 | 1075 | 30 | 3% |
| | | WB Departure | 90 | 90 | 0 | 0% |
| | | Total Approach | 1570 | 1600 | 30 | 2% |
| | | Total Depart | 1570 | 1600 | 30 | 2% |
| 312 | Deane Avenue NE at Kenilworth Avenue NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 0 | 0 | 0 | -- |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 135 | 135 | 0 | 0% |
| | | SBT | 120 | 120 | 0 | 0% |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 710 | 735 | 25 | 4% |
| | | EBR | 340 | 340 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 600 | 600 | 0 | 0% |
| | | WBT | 280 | 280 | 0 | 0% |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 0 | 0 | 0 | -- |
| | | SB Approach | 255 | 255 | 0 | 0% |
| | | EB Approach | 1050 | 1075 | 25 | 2% |
| | | WB Approach | 880 | 880 | 0 | 0% |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 1060 | 1060 | 0 | 0% |
| | | EB Departure | 845 | 870 | 25 | 3% |
| | | WB Departure | 280 | 280 | 0 | 0% |
| | | Total Approach | 2185 | 2210 | 25 | 1% |
| | | Total Depart | 2185 | 2210 | 25 | 1% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**AM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 313 | Nannie Helen Burroughs Avenue NE at Kenilworth Avenue NE and DC-295 U-Turns | NBU | 125 | 190 | 65 | 52% |
| | | NBL | 30 | 30 | 0 | 0% |
| | | NBT | 25 | 25 | 0 | 0% |
| | | NBR | 315 | 315 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 180 | 205 | 25 | 14% |
| | | EBT | 665 | 665 | 0 | 0% |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 850 | 850 | 0 | 0% |
| | | WBR | 530 | 565 | 35 | 7% |
| | | NB Approach | 495 | 560 | 65 | 13% |
| | | SB Approach | 0 | 0 | 0 | -- |
| | | EB Approach | 845 | 870 | 25 | 3% |
| | | WB Approach | 1380 | 1415 | 35 | 3% |
| | | NB Departure | 735 | 795 | 60 | 8% |
| | | SB Departure | 125 | 190 | 65 | 52% |
| | | EB Departure | 980 | 980 | 0 | 0% |
| | | WB Departure | 880 | 880 | 0 | 0% |
| | | Total Approach | 2720 | 2845 | 125 | 5% |
| | | Total Depart | 2720 | 2845 | 125 | 5% |
| 314 | Nannie Helen Burroughs Avenue NE at Minnesota Avenue NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 330 | 350 | 20 | 6% |
| | | NBT | 155 | 155 | 0 | 0% |
| | | NBR | 60 | 60 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 330 | 330 | 0 | 0% |
| | | SBR | 380 | 380 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 90 | 75 | -15 | -17% |
| | | EBT | 495 | 520 | 25 | 5% |
| | | EBR | 400 | 385 | -15 | -4% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 50 | 50 | 0 | 0% |
| | | WBT | 665 | 685 | 20 | 3% |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 545 | 565 | 20 | 4% |
| | | SB Approach | 710 | 710 | 0 | 0% |
| | | EB Approach | 985 | 980 | -5 | -1% |
| | | WB Approach | 715 | 735 | 20 | 3% |
| | | NB Departure | 245 | 230 | -15 | -6% |
| | | SB Departure | 780 | 765 | -15 | -2% |
| | | EB Departure | 555 | 580 | 25 | 5% |
| | | WB Departure | 1375 | 1415 | 40 | 3% |
| | | Total Approach | 2955 | 2990 | 35 | 1% |
| | | Total Depart | 2955 | 2990 | 35 | 1% |



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| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**AM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 315 | Nannie Helen Burroughs Avenue NE at 44th Street NE and Hunt Place NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 165 | 190 | 25 | 15% |
| | | NBT | 70 | 70 | 0 | 0% |
| | | NBR | 50 | 50 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 5 | 5 | 0 | 0% |
| | | SBT | 205 | 205 | 0 | 0% |
| | | SBR | 50 | 50 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 15 | 15 | 0 | 0% |
| | | EBT | 390 | 410 | 20 | 5% |
| | | EBR | 150 | 155 | 5 | 3% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 60 | 60 | 0 | 0% |
| | | WBT | 505 | 495 | -10 | -2% |
| | | WBR | 10 | 10 | 0 | 0% |
| | | NB Approach | 285 | 310 | 25 | 9% |
| | | SB Approach | 260 | 260 | 0 | 0% |
| | | EB Approach | 555 | 580 | 25 | 5% |
| | | WB Approach | 575 | 565 | -10 | -2% |
| | | NB Departure | 95 | 95 | 0 | 0% |
| | | SB Departure | 415 | 420 | 5 | 1% |
| | | EB Departure | 445 | 465 | 20 | 4% |
| | | WB Departure | 720 | 735 | 15 | 2% |
| | | Total Approach | 1675 | 1715 | 40 | 2% |
| | | Total Depart | 1675 | 1715 | 40 | 2% |
| 316 | Kenilworth Avenue NE at Foote Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 0 | 0 | 0 | -- |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 1330 | 1295 | -35 | -3% |
| | | SBR | 55 | 55 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 0 | 0 | 0 | -- |
| | | EBR | 240 | 240 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 0 | 0 | 0 | -- |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 0 | 0 | 0 | -- |
| | | SB Approach | 1385 | 1350 | -35 | -3% |
| | | EB Approach | 240 | 240 | 0 | 0% |
| | | WB Approach | 0 | 0 | 0 | -- |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 1570 | 1535 | -35 | -2% |
| | | EB Departure | 0 | 0 | 0 | -- |
| | | WB Departure | 55 | 55 | 0 | 0% |
| | | Total Approach | 1625 | 1590 | -35 | -2% |
| | | Total Depart | 1625 | 1590 | -35 | -2% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**AM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 317 | 19th Street NE at C Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 106 | 106 | 0 | 0% |
| | | NBT | 263 | 263 | 0 | 0% |
| | | NBR | 22 | 22 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 6 | 6 | 0 | 0% |
| | | EBT | 266 | 266 | 0 | 0% |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 1452 | 1561 | 109 | 8% |
| | | WBR | 159 | 345 | 186 | 117% |
| | | NB Approach | 391 | 391 | 0 | 0% |
| | | SB Approach | 0 | 0 | 0 | -- |
| | | EB Approach | 272 | 272 | 0 | 0% |
| | | WB Approach | 1611 | 1906 | 295 | 18% |
| | | NB Departure | 428 | 614 | 186 | 43% |
| | | SB Departure | 0 | 0 | 0 | -- |
| | | EB Departure | 288 | 288 | 0 | 0% |
| | | WB Departure | 1558 | 1667 | 109 | 7% |
| | | Total Approach | 2274 | 2569 | 295 | 13% |
| | | Total Depart | 2274 | 2569 | 295 | 13% |
| 318 | 21st Street NE, 22nd Street NE, C Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 6 | 6 | 0 | 0% |
| | | NBR | 6 | 6 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 288 | 288 | 0 | 0% |
| | | SBT | 9 | 9 | 0 | 0% |
| | | SBR | 481 | 481 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 30 | 30 | 0 | 0% |
| | | EBT | 232 | 232 | 0 | 0% |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 10 | 10 | 0 | 0% |
| | | WBT | 1346 | 1641 | 295 | 22% |
| | | WBR | 258 | 258 | 0 | 0% |
| | | NB Approach | 12 | 12 | 0 | 0% |
| | | SB Approach | 778 | 778 | 0 | 0% |
| | | EB Approach | 262 | 262 | 0 | 0% |
| | | WB Approach | 1614 | 1909 | 295 | 18% |
| | | NB Departure | 294 | 294 | 0 | 0% |
| | | SB Departure | 19 | 19 | 0 | 0% |
| | | EB Departure | 526 | 526 | 0 | 0% |
| | | WB Departure | 1827 | 2122 | 295 | 16% |
| | | Total Approach | 2666 | 2961 | 295 | 11% |
| | | Total Depart | 2666 | 2961 | 295 | 11% |

| | % Difference Greater Than | 20% |
|---|---|---|
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**AM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 319 | 19th Street SE at Independence Avenue SE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 402 | 402 | 0 | 0% |
| | | NBR | 199 | 199 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 52 | 52 | 0 | 0% |
| | | EBT | 307 | 307 | 0 | 0% |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 0 | 0 | 0 | -- |
| | | WBR | 40 | 40 | 0 | 0% |
| | | NB Approach | 601 | 601 | 0 | 0% |
| | | SB Approach | 0 | 0 | 0 | -- |
| | | EB Approach | 359 | 359 | 0 | 0% |
| | | WB Approach | 40 | 40 | 0 | 0% |
| | | NB Departure | 494 | 494 | 0 | 0% |
| | | SB Departure | 0 | 0 | 0 | -- |
| | | EB Departure | 506 | 506 | 0 | 0% |
| | | WB Departure | 0 | 0 | 0 | -- |
| | | Total Approach | 1000 | 1000 | 0 | 0% |
| | | Total Depart | 1000 | 1000 | 0 | 0% |
| 323 | 17th Street NE at C Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 0 | 0 | 0 | -- |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 150 | 150 | 0 | 0% |
| | | SBT | 517 | 517 | 0 | 0% |
| | | SBR | 62 | 62 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 109 | 109 | 0 | 0% |
| | | EBR | 8 | 8 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 134 | 134 | 0 | 0% |
| | | WBT | 1655 | 1764 | 109 | 7% |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 0 | 0 | 0 | -- |
| | | SB Approach | 729 | 729 | 0 | 0% |
| | | EB Approach | 117 | 117 | 0 | 0% |
| | | WB Approach | 1789 | 1898 | 109 | 6% |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 659 | 659 | 0 | 0% |
| | | EB Departure | 259 | 259 | 0 | 0% |
| | | WB Departure | 1717 | 1826 | 109 | 6% |
| | | Total Approach | 2635 | 2744 | 109 | 4% |
| | | Total Depart | 2635 | 2744 | 109 | 4% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**PM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 101 | Benning Road NE at Anacostia Avenue NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 40 | 40 | 0 | 0% |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 25 | 20 | -5 | -20% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 2135 | 1680 | -455 | -21% |
| | | EBR | 95 | 95 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 5 | 5 | 0 | 0% |
| | | WBT | 1175 | 1115 | -60 | -5% |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 65 | 60 | -5 | -8% |
| | | SB Approach | 0 | 0 | 0 | -- |
| | | EB Approach | 2230 | 1775 | -455 | -20% |
| | | WB Approach | 1180 | 1120 | -60 | -5% |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 100 | 100 | 0 | 0% |
| | | EB Departure | 2160 | 1700 | -460 | -21% |
| | | WB Departure | 1215 | 1155 | -60 | -5% |
| | | Total Approach | 3475 | 2955 | -520 | -15% |
| | | Total Depart | 3475 | 2955 | -520 | -15% |
| 102 | Benning Road NE at 34th Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 25 | 25 | 0 | 0% |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 70 | 55 | -15 | -21% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 45 | 35 | -10 | -22% |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 10 | 10 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 5 | 5 | 0 | 0% |
| | | EBT | 2125 | 1660 | -465 | -22% |
| | | EBR | 35 | 35 | 0 | 0% |
| | | WBU | 20 | 20 | 0 | 0% |
| | | WBL | 170 | 160 | -10 | -6% |
| | | WBT | 1145 | 1085 | -60 | -5% |
| | | WBR | 20 | 20 | 0 | 0% |
| | | NB Approach | 95 | 80 | -15 | -16% |
| | | SB Approach | 55 | 45 | -10 | -18% |
| | | EB Approach | 2165 | 1700 | -465 | -21% |
| | | WB Approach | 1355 | 1285 | -70 | -5% |
| | | NB Departure | 25 | 25 | 0 | 0% |
| | | SB Departure | 205 | 195 | -10 | -5% |
| | | EB Departure | 2260 | 1770 | -490 | -22% |
| | | WB Departure | 1180 | 1120 | -60 | -5% |
| | | Total Approach | 3670 | 3110 | -560 | -15% |
| | | Total Depart | 3670 | 3110 | -560 | -15% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**PM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 103 | Benning Road NE Ramp to DC-295 at 36th Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 255 | 230 | -25 | -10% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 890 | 795 | -95 | -11% |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 0 | 0 | 0 | -- |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 255 | 230 | -25 | -10% |
| | | SB Approach | 0 | 0 | 0 | -- |
| | | EB Approach | 890 | 795 | -95 | -11% |
| | | WB Approach | 0 | 0 | 0 | -- |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 0 | 0 | 0 | -- |
| | | EB Departure | 1145 | 1025 | -120 | -10% |
| | | WB Departure | 0 | 0 | 0 | -- |
| | | Total Approach | 1145 | 1025 | -120 | -10% |
| | | Total Depart | 1145 | 1025 | -120 | -10% |
| 104 | Benning Road NE at Minnesota Avenue NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 205 | 205 | 0 | 0% |
| | | NBT | 525 | 615 | 90 | 17% |
| | | NBR | 70 | 100 | 30 | 43% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 50 | 50 | 0 | 0% |
| | | SBT | 475 | 475 | 0 | 0% |
| | | SBR | 185 | 185 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 235 | 235 | 0 | 0% |
| | | EBT | 810 | 410 | -400 | -49% |
| | | EBR | 325 | 325 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 315 | 315 | 0 | 0% |
| | | WBR | 90 | 90 | 0 | 0% |
| | | NB Approach | 800 | 920 | 120 | 15% |
| | | SB Approach | 710 | 710 | 0 | 0% |
| | | EB Approach | 1370 | 970 | -400 | -29% |
| | | WB Approach | 405 | 405 | 0 | 0% |
| | | NB Departure | 850 | 940 | 90 | 11% |
| | | SB Departure | 800 | 800 | 0 | 0% |
| | | EB Departure | 930 | 560 | -370 | -40% |
| | | WB Departure | 705 | 705 | 0 | 0% |
| | | Total Approach | 3285 | 3005 | -280 | -9% |
| | | Total Depart | 3285 | 3005 | -280 | -9% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**PM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 105 | Benning Road NB at 39th Street NE/Driveway | NBU | 0 | 0 | 0 | -- |
| | | NBL | 10 | 10 | 0 | 0% |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 145 | 145 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 5 | 5 | 0 | 0% |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 5 | 5 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 10 | 5 | -5 | -50% |
| | | EBT | 895 | 535 | -360 | -40% |
| | | EBR | 30 | 20 | -10 | -33% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 95 | 95 | 0 | 0% |
| | | WBT | 395 | 390 | -5 | -1% |
| | | WBR | 10 | 10 | 0 | 0% |
| | | NB Approach | 155 | 155 | 0 | 0% |
| | | SB Approach | 10 | 10 | 0 | 0% |
| | | EB Approach | 935 | 560 | -375 | -40% |
| | | WB Approach | 500 | 495 | -5 | -1% |
| | | NB Departure | 20 | 15 | -5 | -25% |
| | | SB Departure | 125 | 115 | -10 | -8% |
| | | EB Departure | 1045 | 685 | -360 | -34% |
| | | WB Departure | 410 | 405 | -5 | -1% |
| | | Total Approach | 1600 | 1220 | -380 | -24% |
| | | Total Depart | 1600 | 1220 | -380 | -24% |
| 106 | Benning Road NE at 40th Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 45 | 45 | 0 | 0% |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 145 | 175 | 30 | 21% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 995 | 655 | -340 | -34% |
| | | EBR | 50 | 35 | -15 | -30% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 100 | 100 | 0 | 0% |
| | | WBT | 455 | 450 | -5 | -1% |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 190 | 220 | 30 | 16% |
| | | SB Approach | 0 | 0 | 0 | -- |
| | | EB Approach | 1045 | 690 | -355 | -34% |
| | | WB Approach | 555 | 550 | -5 | -1% |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 150 | 135 | -15 | -10% |
| | | EB Departure | 1140 | 830 | -310 | -27% |
| | | WB Departure | 500 | 495 | -5 | -1% |
| | | Total Approach | 1790 | 1460 | -330 | -18% |
| | | Total Depart | 1790 | 1460 | -330 | -18% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

| PM Turning Movement Counts \| 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5) | | | | | | |
|---|---|---|---|---|---|---|
| **Map ID** | **Intersection Name** | **Movement** | **2025 No-Build Volumes** | **2025 MOT Volumes** | **Vehicle Difference** | **Percent Difference** |
| 107 | Benning Road NE at 41st Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 5 | 5 | 0 | 0% |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 100 | 100 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 1130 | 825 | -305 | -27% |
| | | EBR | 5 | 5 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 40 | 40 | 0 | 0% |
| | | WBT | 550 | 545 | -5 | -1% |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 105 | 105 | 0 | 0% |
| | | SB Approach | 0 | 0 | 0 | -- |
| | | EB Approach | 1135 | 830 | -305 | -27% |
| | | WB Approach | 590 | 585 | -5 | -1% |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 45 | 45 | 0 | 0% |
| | | EB Departure | 1230 | 925 | -305 | -25% |
| | | WB Departure | 555 | 550 | -5 | -1% |
| | | Total Approach | 1830 | 1520 | -310 | -17% |
| | | Total Depart | 1830 | 1520 | -310 | -17% |
| 108 | Benning Road NE at 42nd Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 25 | 25 | 0 | 0% |
| | | NBT | 105 | 105 | 0 | 0% |
| | | NBR | 10 | 10 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 20 | 20 | 0 | 0% |
| | | SBT | 90 | 90 | 0 | 0% |
| | | SBR | 145 | 145 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 425 | 320 | -105 | -25% |
| | | EBT | 740 | 555 | -185 | -25% |
| | | EBR | 65 | 50 | -15 | -23% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 5 | 5 | 0 | 0% |
| | | WBT | 415 | 415 | 0 | 0% |
| | | WBR | 25 | 25 | 0 | 0% |
| | | NB Approach | 140 | 140 | 0 | 0% |
| | | SB Approach | 255 | 255 | 0 | 0% |
| | | EB Approach | 1230 | 925 | -305 | -25% |
| | | WB Approach | 445 | 445 | 0 | 0% |
| | | NB Departure | 555 | 450 | -105 | -19% |
| | | SB Departure | 160 | 145 | -15 | -9% |
| | | EB Departure | 770 | 585 | -185 | -24% |
| | | WB Departure | 585 | 585 | 0 | 0% |
| | | Total Approach | 2070 | 1765 | -305 | -15% |
| | | Total Depart | 2070 | 1765 | -305 | -15% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**PM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 208 | Benning Road NE at 26th Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 0 | 0 | 0 | -- |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 145 | 115 | -30 | -21% |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 15 | 15 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 10 | 10 | 0 | 0% |
| | | EBT | 2055 | 1645 | -410 | -20% |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 1045 | 995 | -50 | -5% |
| | | WBR | 135 | 130 | -5 | -4% |
| | | NB Approach | 0 | 0 | 0 | -- |
| | | SB Approach | 160 | 130 | -30 | -19% |
| | | EB Approach | 2065 | 1655 | -410 | -20% |
| | | WB Approach | 1180 | 1125 | -55 | -5% |
| | | NB Departure | 145 | 140 | -5 | -3% |
| | | SB Departure | 0 | 0 | 0 | -- |
| | | EB Departure | 2200 | 1760 | -440 | -20% |
| | | WB Departure | 1060 | 1010 | -50 | -5% |
| | | Total Approach | 3405 | 2910 | -495 | -15% |
| | | Total Depart | 3405 | 2910 | -495 | -15% |
| 209 | Benning Road NE at Oklahoma Avenue NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 35 | 35 | 0 | 0% |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 85 | 65 | -20 | -24% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 2150 | 1705 | -445 | -21% |
| | | EBR | 55 | 55 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 70 | 65 | -5 | -7% |
| | | WBT | 1145 | 1090 | -55 | -5% |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 120 | 100 | -20 | -17% |
| | | SB Approach | 0 | 0 | 0 | -- |
| | | EB Approach | 2205 | 1760 | -445 | -20% |
| | | WB Approach | 1215 | 1155 | -60 | -5% |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 125 | 120 | -5 | -4% |
| | | EB Departure | 2235 | 1770 | -465 | -21% |
| | | WB Departure | 1180 | 1125 | -55 | -5% |
| | | Total Approach | 3540 | 3015 | -525 | -15% |
| | | Total Depart | 3540 | 3015 | -525 | -15% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**PM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 210 | Minnesota Avenue NE at Dix Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 5 | 5 | 0 | 0% |
| | | NBT | 650 | 770 | 120 | 18% |
| | | NBR | 110 | 110 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 110 | 110 | 0 | 0% |
| | | SBT | 665 | 660 | -5 | -1% |
| | | SBR | 30 | 30 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 25 | 25 | 0 | 0% |
| | | EBT | 20 | 20 | 0 | 0% |
| | | EBR | 35 | 35 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 175 | 175 | 0 | 0% |
| | | WBT | 35 | 35 | 0 | 0% |
| | | WBR | 125 | 125 | 0 | 0% |
| | | NB Approach | 765 | 885 | 120 | 16% |
| | | SB Approach | 805 | 800 | -5 | -1% |
| | | EB Approach | 80 | 80 | 0 | 0% |
| | | WB Approach | 335 | 335 | 0 | 0% |
| | | NB Departure | 800 | 920 | 120 | 15% |
| | | SB Departure | 875 | 870 | -5 | -1% |
| | | EB Departure | 240 | 240 | 0 | 0% |
| | | WB Departure | 70 | 70 | 0 | 0% |
| | | Total Approach | 1985 | 2100 | 115 | 6% |
| | | Total Depart | 1985 | 2100 | 115 | 6% |
| 211 | Minnesota Avenue NE at Bus Exit South | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 865 | 950 | 85 | 10% |
| | | NBR | 0 | 0 | 0 | -- |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 550 | 545 | -5 | -1% |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 35 | 35 | 0 | 0% |
| | | EBT | 0 | 0 | 0 | -- |
| | | EBR | 35 | 35 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 0 | 0 | 0 | -- |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 865 | 950 | 85 | 10% |
| | | SB Approach | 550 | 545 | -5 | -1% |
| | | EB Approach | 70 | 70 | 0 | 0% |
| | | WB Approach | 0 | 0 | 0 | -- |
| | | NB Departure | 900 | 985 | 85 | 9% |
| | | SB Departure | 585 | 580 | -5 | -1% |
| | | EB Departure | 0 | 0 | 0 | -- |
| | | WB Departure | 0 | 0 | 0 | -- |
| | | Total Approach | 1485 | 1565 | 80 | 5% |
| | | Total Depart | 1485 | 1565 | 80 | 5% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**PM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 212 | Minnesota Avenue NE at Grant Street NE and Bus Entrance North | NBU | 0 | 0 | 0 | -- |
| | | NBL | 25 | 25 | 0 | 0% |
| | | NBT | 760 | 835 | 75 | 10% |
| | | NBR | 115 | 125 | 10 | 9% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 30 | 30 | 0 | 0% |
| | | SBT | 410 | 405 | -5 | -1% |
| | | SBR | 15 | 15 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 0 | 0 | 0 | -- |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 140 | 140 | 0 | 0% |
| | | WBT | 0 | 0 | 0 | -- |
| | | WBR | 35 | 35 | 0 | 0% |
| | | NB Approach | 900 | 985 | 85 | 9% |
| | | SB Approach | 455 | 450 | -5 | -1% |
| | | EB Approach | 0 | 0 | 0 | -- |
| | | WB Approach | 175 | 175 | 0 | 0% |
| | | NB Departure | 795 | 870 | 75 | 9% |
| | | SB Departure | 550 | 545 | -5 | -1% |
| | | EB Departure | 145 | 155 | 10 | 7% |
| | | WB Departure | 40 | 40 | 0 | 0% |
| | | Total Approach | 1530 | 1610 | 80 | 5% |
| | | Total Depart | 1530 | 1610 | 80 | 5% |
| 213 | Benning Road NE at Blaine Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 5 | 5 | 0 | 0% |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 30 | 30 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 770 | 580 | -190 | -25% |
| | | EBR | 5 | 5 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 30 | 30 | 0 | 0% |
| | | WBT | 440 | 440 | 0 | 0% |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 35 | 35 | 0 | 0% |
| | | SB Approach | 0 | 0 | 0 | -- |
| | | EB Approach | 775 | 585 | -190 | -25% |
| | | WB Approach | 470 | 470 | 0 | 0% |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 35 | 35 | 0 | 0% |
| | | EB Departure | 800 | 610 | -190 | -24% |
| | | WB Departure | 445 | 445 | 0 | 0% |
| | | Total Approach | 1280 | 1090 | -190 | -15% |
| | | Total Depart | 1280 | 1090 | -190 | -15% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**PM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 214 | Benning Road NE at 44th Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 0 | 0 | 0 | -- |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 135 | 135 | 0 | 0% |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 75 | 75 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 140 | 105 | -35 | -25% |
| | | EBT | 660 | 505 | -155 | -23% |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 395 | 395 | 0 | 0% |
| | | WBR | 165 | 165 | 0 | 0% |
| | | NB Approach | 0 | 0 | 0 | -- |
| | | SB Approach | 210 | 210 | 0 | 0% |
| | | EB Approach | 800 | 610 | -190 | -24% |
| | | WB Approach | 560 | 560 | 0 | 0% |
| | | NB Departure | 305 | 270 | -35 | -11% |
| | | SB Departure | 0 | 0 | 0 | -- |
| | | EB Departure | 795 | 640 | -155 | -19% |
| | | WB Departure | 470 | 470 | 0 | 0% |
| | | Total Approach | 1570 | 1380 | -190 | -12% |
| | | Total Depart | 1570 | 1380 | -190 | -12% |
| 215 | Benning Road NE at 45th Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 10 | 10 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 15 | 15 | 0 | 0% |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 15 | 15 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 20 | 15 | -5 | -25% |
| | | EBT | 775 | 625 | -150 | -19% |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 545 | 545 | 0 | 0% |
| | | WBR | 55 | 55 | 0 | 0% |
| | | NB Approach | 10 | 10 | 0 | 0% |
| | | SB Approach | 30 | 30 | 0 | 0% |
| | | EB Approach | 795 | 640 | -155 | -19% |
| | | WB Approach | 600 | 600 | 0 | 0% |
| | | NB Departure | 75 | 70 | -5 | -7% |
| | | SB Departure | 0 | 0 | 0 | -- |
| | | EB Departure | 800 | 650 | -150 | -19% |
| | | WB Departure | 560 | 560 | 0 | 0% |
| | | Total Approach | 1435 | 1280 | -155 | -11% |
| | | Total Depart | 1435 | 1280 | -155 | -11% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**PM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 216 | Benning Road NE at Central Avenue NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 0 | 0 | 0 | -- |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 95 | 95 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 800 | 650 | -150 | -19% |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 510 | 505 | -5 | -1% |
| | | WBR | 20 | 20 | 0 | 0% |
| | | NB Approach | 0 | 0 | 0 | -- |
| | | SB Approach | 95 | 95 | 0 | 0% |
| | | EB Approach | 800 | 650 | -150 | -19% |
| | | WB Approach | 530 | 525 | -5 | -1% |
| | | NB Departure | 20 | 20 | 0 | 0% |
| | | SB Departure | 0 | 0 | 0 | -- |
| | | EB Departure | 800 | 650 | -150 | -19% |
| | | WB Departure | 605 | 600 | -5 | -1% |
| | | Total Approach | 1425 | 1270 | -155 | -11% |
| | | Total Depart | 1425 | 1270 | -155 | -11% |
| 217 | Benning Road NE at East Capitol Street SE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 110 | 100 | -10 | -9% |
| | | NBT | 1590 | 1590 | 0 | 0% |
| | | NBR | 370 | 370 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 40 | 40 | 0 | 0% |
| | | SBT | 635 | 635 | 0 | 0% |
| | | SBR | 55 | 55 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 175 | 145 | -30 | -17% |
| | | EBT | 355 | 285 | -70 | -20% |
| | | EBR | 270 | 220 | -50 | -19% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 45 | 45 | 0 | 0% |
| | | WBT | 375 | 370 | -5 | -1% |
| | | WBR | 55 | 55 | 0 | 0% |
| | | NB Approach | 2070 | 2060 | -10 | 0% |
| | | SB Approach | 730 | 730 | 0 | 0% |
| | | EB Approach | 800 | 650 | -150 | -19% |
| | | WB Approach | 475 | 470 | -5 | -1% |
| | | NB Departure | 1820 | 1790 | -30 | -2% |
| | | SB Departure | 950 | 900 | -50 | -5% |
| | | EB Departure | 765 | 695 | -70 | -9% |
| | | WB Departure | 540 | 525 | -15 | -3% |
| | | Total Approach | 4075 | 3910 | -165 | -4% |
| | | Total Depart | 4075 | 3910 | -165 | -4% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**PM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 218 | East Capitol Street SE at Texas Avenue SE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 2010 | 2005 | -5 | 0% |
| | | NBR | 70 | 70 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 260 | 260 | 0 | 0% |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 0 | 0 | 0 | -- |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 105 | 105 | 0 | 0% |
| | | WBT | 0 | 0 | 0 | -- |
| | | WBR | 55 | 90 | 35 | 64% |
| | | NB Approach | 2080 | 2075 | -5 | 0% |
| | | SB Approach | 260 | 260 | 0 | 0% |
| | | EB Approach | 0 | 0 | 0 | -- |
| | | WB Approach | 160 | 195 | 35 | 22% |
| | | NB Departure | 2065 | 2095 | 30 | 1% |
| | | SB Departure | 105 | 105 | 0 | 0% |
| | | EB Departure | 330 | 330 | 0 | 0% |
| | | WB Departure | 0 | 0 | 0 | -- |
| | | Total Approach | 2500 | 2530 | 30 | 1% |
| | | Total Depart | 2500 | 2530 | 30 | 1% |
| 310 | Deane Avenue NE at Lee St NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 0 | 0 | 0 | -- |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 80 | 80 | 0 | 0% |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 0 | 0 | 0 | -- |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 5 | 5 | 0 | 0% |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 0 | 0 | 0 | -- |
| | | WBR | 120 | 115 | -5 | -4% |
| | | NB Approach | 0 | 0 | 0 | -- |
| | | SB Approach | 80 | 80 | 0 | 0% |
| | | EB Approach | 0 | 0 | 0 | -- |
| | | WB Approach | 125 | 120 | -5 | -4% |
| | | NB Departure | 120 | 115 | -5 | -4% |
| | | SB Departure | 0 | 0 | 0 | -- |
| | | EB Departure | 85 | 85 | 0 | 0% |
| | | WB Departure | 0 | 0 | 0 | -- |
| | | Total Approach | 205 | 200 | -5 | -2% |
| | | Total Depart | 205 | 200 | -5 | -2% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**PM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 311 | Deane Avenue NE at Kenilworth Terrace NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 10 | 10 | 0 | 0% |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 305 | 320 | 15 | 5% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 215 | 215 | 0 | 0% |
| | | SBT | 85 | 85 | 0 | 0% |
| | | SBR | 5 | 5 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 70 | 70 | 0 | 0% |
| | | EBR | 15 | 15 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 125 | 125 | 0 | 0% |
| | | WBT | 105 | 105 | 0 | 0% |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 315 | 330 | 15 | 5% |
| | | SB Approach | 305 | 305 | 0 | 0% |
| | | EB Approach | 85 | 85 | 0 | 0% |
| | | WB Approach | 230 | 230 | 0 | 0% |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 225 | 225 | 0 | 0% |
| | | EB Departure | 590 | 605 | 15 | 3% |
| | | WB Departure | 120 | 120 | 0 | 0% |
| | | Total Approach | 935 | 950 | 15 | 2% |
| | | Total Depart | 935 | 950 | 15 | 2% |
| 312 | Deane Avenue NE at Kenilworth Avenue NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 0 | 0 | 0 | -- |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 320 | 320 | 0 | 0% |
| | | SBT | 25 | 25 | 0 | 0% |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 550 | 570 | 20 | 4% |
| | | EBR | 35 | 35 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 345 | 350 | 5 | 1% |
| | | WBT | 230 | 230 | 0 | 0% |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 0 | 0 | 0 | -- |
| | | SB Approach | 345 | 345 | 0 | 0% |
| | | EB Approach | 585 | 605 | 20 | 3% |
| | | WB Approach | 575 | 580 | 5 | 1% |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 405 | 410 | 5 | 1% |
| | | EB Departure | 870 | 890 | 20 | 2% |
| | | WB Departure | 230 | 230 | 0 | 0% |
| | | Total Approach | 1505 | 1530 | 25 | 2% |
| | | Total Depart | 1505 | 1530 | 25 | 2% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**PM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 313 | Nannie Helen Burroughs Avenue NE at Kenilworth Avenue NE and DC-295 U-Turns | NBU | 155 | 155 | 0 | 0% |
| | | NBL | 40 | 40 | 0 | 0% |
| | | NBT | 270 | 270 | 0 | 0% |
| | | NBR | 395 | 395 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 155 | 175 | 20 | 13% |
| | | EBT | 715 | 715 | 0 | 0% |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 540 | 540 | 0 | 0% |
| | | WBR | 615 | 660 | 45 | 7% |
| | | NB Approach | 860 | 860 | 0 | 0% |
| | | SB Approach | 0 | 0 | 0 | -- |
| | | EB Approach | 870 | 890 | 20 | 2% |
| | | WB Approach | 1155 | 1200 | 45 | 4% |
| | | NB Departure | 1040 | 1105 | 65 | 6% |
| | | SB Departure | 155 | 155 | 0 | 0% |
| | | EB Departure | 1110 | 1110 | 0 | 0% |
| | | WB Departure | 580 | 580 | 0 | 0% |
| | | Total Approach | 2885 | 2950 | 65 | 2% |
| | | Total Depart | 2885 | 2950 | 65 | 2% |
| 314 | Nannie Helen Burroughs Avenue NE at Minnesota Avenue NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 455 | 495 | 40 | 9% |
| | | NBT | 435 | 435 | 0 | 0% |
| | | NBR | 110 | 110 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 5 | 5 | 0 | 0% |
| | | SBT | 120 | 120 | 0 | 0% |
| | | SBR | 170 | 170 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 120 | 120 | 0 | 0% |
| | | EBT | 675 | 675 | 0 | 0% |
| | | EBR | 315 | 315 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 55 | 55 | 0 | 0% |
| | | WBT | 535 | 535 | 0 | 0% |
| | | WBR | 20 | 20 | 0 | 0% |
| | | NB Approach | 1000 | 1040 | 40 | 4% |
| | | SB Approach | 295 | 295 | 0 | 0% |
| | | EB Approach | 1110 | 1110 | 0 | 0% |
| | | WB Approach | 610 | 610 | 0 | 0% |
| | | NB Departure | 575 | 575 | 0 | 0% |
| | | SB Departure | 490 | 490 | 0 | 0% |
| | | EB Departure | 790 | 790 | 0 | 0% |
| | | WB Departure | 1160 | 1200 | 40 | 3% |
| | | Total Approach | 3015 | 3055 | 40 | 1% |
| | | Total Depart | 3015 | 3055 | 40 | 1% |

| | % Difference Greater Than | 20% |
|---|---|---|
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**PM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 315 | Nannie Helen Burroughs Avenue NE at 44th Street NE and Hunt Place NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 250 | 250 | 0 | 0% |
| | | NBT | 135 | 135 | 0 | 0% |
| | | NBR | 165 | 165 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 15 | 15 | 0 | 0% |
| | | SBT | 70 | 70 | 0 | 0% |
| | | SBR | 30 | 30 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 30 | 30 | 0 | 0% |
| | | EBT | 475 | 475 | 0 | 0% |
| | | EBR | 285 | 285 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 45 | 45 | 0 | 0% |
| | | WBT | 330 | 330 | 0 | 0% |
| | | WBR | 15 | 15 | 0 | 0% |
| | | NB Approach | 550 | 550 | 0 | 0% |
| | | SB Approach | 115 | 115 | 0 | 0% |
| | | EB Approach | 790 | 790 | 0 | 0% |
| | | WB Approach | 390 | 390 | 0 | 0% |
| | | NB Departure | 180 | 180 | 0 | 0% |
| | | SB Departure | 400 | 400 | 0 | 0% |
| | | EB Departure | 655 | 655 | 0 | 0% |
| | | WB Departure | 610 | 610 | 0 | 0% |
| | | Total Approach | 1845 | 1845 | 0 | 0% |
| | | Total Depart | 1845 | 1845 | 0 | 0% |
| 316 | Kenilworth Avenue NE at Foote Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 0 | 0 | 0 | -- |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 495 | 475 | -20 | -4% |
| | | SBR | 75 | 75 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 0 | 0 | 0 | -- |
| | | EBR | 105 | 105 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 0 | 0 | 0 | -- |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 0 | 0 | 0 | -- |
| | | SB Approach | 570 | 550 | -20 | -4% |
| | | EB Approach | 105 | 105 | 0 | 0% |
| | | WB Approach | 0 | 0 | 0 | -- |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 600 | 580 | -20 | -3% |
| | | EB Departure | 0 | 0 | 0 | -- |
| | | WB Departure | 75 | 75 | 0 | 0% |
| | | Total Approach | 675 | 655 | -20 | -3% |
| | | Total Depart | 675 | 655 | -20 | -3% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**PM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 317 | 19th Street NE at C Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 107 | 107 | 0 | 0% |
| | | NBT | 308 | 308 | 0 | 0% |
| | | NBR | 129 | 129 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 18 | 18 | 0 | 0% |
| | | EBT | 537 | 666 | 129 | 24% |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 696 | 696 | 0 | 0% |
| | | WBR | 124 | 154 | 30 | 24% |
| | | NB Approach | 544 | 544 | 0 | 0% |
| | | SB Approach | 0 | 0 | 0 | -- |
| | | EB Approach | 555 | 684 | 129 | 23% |
| | | WB Approach | 820 | 850 | 30 | 4% |
| | | NB Departure | 450 | 480 | 30 | 7% |
| | | SB Departure | 0 | 0 | 0 | -- |
| | | EB Departure | 666 | 795 | 129 | 19% |
| | | WB Departure | 803 | 803 | 0 | 0% |
| | | Total Approach | 1919 | 2078 | 159 | 8% |
| | | Total Depart | 1919 | 2078 | 159 | 8% |
| 318 | 21st Street NE, 22nd Street NE, C Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 1 | 1 | 0 | 0% |
| | | NBT | 17 | 17 | 0 | 0% |
| | | NBR | 1 | 1 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 217 | 241 | 24 | 11% |
| | | SBT | 30 | 30 | 0 | 0% |
| | | SBR | 218 | 218 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 247 | 247 | 0 | 0% |
| | | EBT | 406 | 535 | 129 | 32% |
| | | EBR | 22 | 22 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 5 | 5 | 0 | 0% |
| | | WBT | 634 | 664 | 30 | 5% |
| | | WBR | 199 | 199 | 0 | 0% |
| | | NB Approach | 19 | 19 | 0 | 0% |
| | | SB Approach | 465 | 489 | 24 | 5% |
| | | EB Approach | 675 | 804 | 129 | 19% |
| | | WB Approach | 838 | 868 | 30 | 4% |
| | | NB Departure | 463 | 463 | 0 | 0% |
| | | SB Departure | 57 | 57 | 0 | 0% |
| | | EB Departure | 624 | 777 | 153 | 25% |
| | | WB Departure | 853 | 883 | 30 | 4% |
| | | Total Approach | 1997 | 2180 | 183 | 9% |
| | | Total Depart | 1997 | 2180 | 183 | 9% |

| | | |
|---|---|---|
| | % Difference Greater Than | 20% |
| | % Difference Between | -20% and 20% |
| | % Difference Less Than | -20% |

**PM Turning Movement Counts | 2025 Maintenance of Traffic (MOT) Plan (Scenario 8) Compared with 2025 No-Build without Streetcar and Interchange (Scenario 5)**

| Map ID | Intersection Name | Movement | 2025 No-Build Volumes | 2025 MOT Volumes | Vehicle Difference | Percent Difference |
|---|---|---|---|---|---|---|
| 319 | 19th Street SE at Independence Avenue SE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 292 | 292 | 0 | 0% |
| | | NBR | 408 | 408 | 0 | 0% |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 0 | 0 | 0 | -- |
| | | SBT | 0 | 0 | 0 | -- |
| | | SBR | 0 | 0 | 0 | -- |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 64 | 64 | 0 | 0% |
| | | EBT | 1557 | 1706 | 149 | 10% |
| | | EBR | 0 | 0 | 0 | -- |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 0 | 0 | 0 | -- |
| | | WBT | 0 | 0 | 0 | -- |
| | | WBR | 82 | 82 | 0 | 0% |
| | | NB Approach | 700 | 700 | 0 | 0% |
| | | SB Approach | 0 | 0 | 0 | -- |
| | | EB Approach | 1621 | 1770 | 149 | 9% |
| | | WB Approach | 82 | 82 | 0 | 0% |
| | | NB Departure | 438 | 438 | 0 | 0% |
| | | SB Departure | 0 | 0 | 0 | -- |
| | | EB Departure | 1965 | 2114 | 149 | 8% |
| | | WB Departure | 0 | 0 | 0 | -- |
| | | Total Approach | 2403 | 2552 | 149 | 6% |
| | | Total Depart | 2403 | 2552 | 149 | 6% |
| 323 | 17th Street NE at C Street NE | NBU | 0 | 0 | 0 | -- |
| | | NBL | 0 | 0 | 0 | -- |
| | | NBT | 0 | 0 | 0 | -- |
| | | NBR | 0 | 0 | 0 | -- |
| | | SBU | 0 | 0 | 0 | -- |
| | | SBL | 223 | 352 | 129 | 58% |
| | | SBT | 528 | 528 | 0 | 0% |
| | | SBR | 44 | 44 | 0 | 0% |
| | | EBU | 0 | 0 | 0 | -- |
| | | EBL | 0 | 0 | 0 | -- |
| | | EBT | 318 | 318 | 0 | 0% |
| | | EBR | 11 | 11 | 0 | 0% |
| | | WBU | 0 | 0 | 0 | -- |
| | | WBL | 176 | 176 | 0 | 0% |
| | | WBT | 659 | 659 | 0 | 0% |
| | | WBR | 0 | 0 | 0 | -- |
| | | NB Approach | 0 | 0 | 0 | -- |
| | | SB Approach | 795 | 924 | 129 | 16% |
| | | EB Approach | 329 | 329 | 0 | 0% |
| | | WB Approach | 835 | 835 | 0 | 0% |
| | | NB Departure | 0 | 0 | 0 | -- |
| | | SB Departure | 715 | 715 | 0 | 0% |
| | | EB Departure | 541 | 670 | 129 | 24% |
| | | WB Departure | 703 | 703 | 0 | 0% |
| | | Total Approach | 1959 | 2088 | 129 | 7% |
| | | Total Depart | 1959 | 2088 | 129 | 7% |

# Attachment D

## HCS Analysis Results

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# HCS Analysis Results

**2025 Benning Road IMR Maintenance of Traffic Analysis Summary**
AM Peak Hour (7:45 AM - 8:45 AM)
PM Peak Hour (5:00 PM - 6:00 PM)

**Summary of Assumptions and Observations**

**Assumption 1:** Traffic analyses were conducted using the Freeway Facilities methodology found in the 6th Edition of the *Highway Capacity Manual* for both directions of DC-295 (between East Capitol Street and Nannie Helen Burroughs Avenue NE) and the segment of East Capitol Street between C Street NE/Independence Avenue SE and Minnesota Avenue NE.

**Assumption 2:** Peak hour traffic volumes under anticipated lane closures throughout the study network were developed based on the assumptions outlined in the *Benning Road MOT Analysis Assumptions* memorandum (dated March 17, 2020). These volumes are referred to as "MOT" volumes herein.

**Assumption 3:** The peak hour traffic volumes noted under Assumption #2 were fine-tuned based on the outcomes of this analysis. Adjustments to these volumes were made based on the general assumption that drivers are willing to tolerate some amount of delay but will ultimately choose the fastest practicable route between an origin and destination.

**Observation 1:** The off-peak directions of East Capitol Street (eastbound and westbound during the AM and PM peak periods, respectively) operate at LOS A under 2025 No-Build and MOT volumes. The peak directions of East Capitol Street (westbound and eastbound during the AM and PM peak periods, respectively) operate at no worse than LOS D and differ minimally under 2025 No-Build and MOT volumes. Impacts to operations on East Capitol Street during construction are likely to be driven by delay and queueing at signalized intersections.

**Observation 2:** Traffic volumes on southbound DC-295 are expected to change by fewer than 100 vehicles on all segments during the AM peak hour and decrease by up to 150 vehicles between Benning Road NE and East Capitol Street during the PM peak hour. Accordingly, speed and density differ minimally under 2025 No-Build and MOT volumes. Impacts to operations on southbound DC-295 during construction are likely to be negligible.

**Observation 3:** Traffic volumes on northbound DC-295 are expected to decrease by nearly 200 vehicles south of the Benning Road NE interchange during the AM peak hour. However, with the closure of the northbound DC-295 off-ramp to Benning Road NE, traffic volumes north of the interchange are expected to increase by up to 100 vehicles as a result of diverted trips.

Nonetheless, given the closure of one northbound through lane on DC-295, operations are expected to deteriorate within and upstream of the two-lane section between East Capitol Street and Benning Road NE. Where the freeway currently operates at LOS C with near free flow speeds during the AM peak hour, the formation of a new bottleneck is expected to decrease speeds to approximately 20 mph and increase density to approximately 55 passenger cars per mile per lane. The HCS software estimates that queue length could reach 1.2 miles upstream of the East Capitol Street interchange; since HCS is a deterministic tool, actual observed queues may be shorter or longer.

The measures of effectiveness noted above assume that the merge from eastbound Benning Road NE to northbound DC-295 will occur within a two-lane section of the freeway. If feasible, the proposed freeway lane closure should end such that this merge becomes an add-lane to mitigate impacts upstream of the Benning Road NE interchange.

**Observation 4:** Traffic volumes on northbound DC-295 are expected to decrease by between 400 and 500 vehicles across all segments during the PM peak hour, primarily driven by diverted through trips.

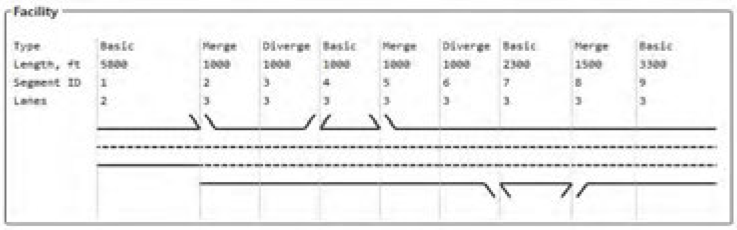
Despite this large decrease, operations within and upstream of the proposed freeway lane closure are likely to be impacted substantially. Where the freeway currently operates with speeds less than 15 mph and densities greater than 100 passenger cars per mile per lane - largely due to downstream oversaturated conditions - both measures are expected to improve slightly. However, the increase in speeds and decrease in density north of the Benning Road interchange are a result of metered traffic flow through the work zone; the formation of a new bottleneck at the freeway lane closure is expected to propagate queues well upstream of the East Capitol Street interchange. The HCS software estimates that queue length could reach nearly 5 miles upstream of the East Capitol Street interchange; since HCS is a deterministic tool and upstream interchanges were not included in this analysis, actual observed queues may be shorter or longer.

The measures of effectiveness noted above assume that the merge from eastbound Benning Road NE to northbound DC-295 will occur within a two-lane section of the freeway. If feasible, the proposed freeway lane closure should end such that this merge becomes an add-lane to mitigate impacts upstream of the Benning Road NE interchange.

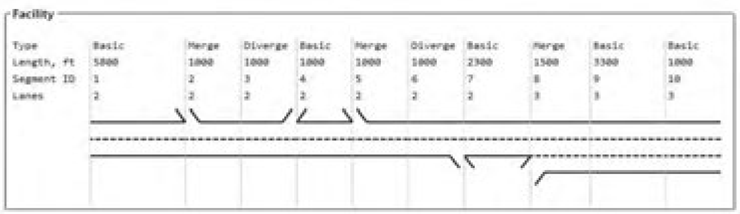
**2025 Benning Road IMR Maintenance of Traffic Analysis Summary**
*HCS Network Key*

*Northbound DC-295*
1. NB DC-295 South of East Capitol Street
2. On-Ramp from East Capitol Street to NB DC-295
3. Off-Ramp from NB DC-295 to Benning Road NE
4. Between Ramps
5. On-Ramp from Benning Road NE to NB DC-295
6. Off-Ramp from NB DC-295 to Nannie Helen Burroughs Avenue NE
7. Between Ramps
8. On-Ramp from Kenilworth Avenue NE to NB DC-295

Northbound Baseline

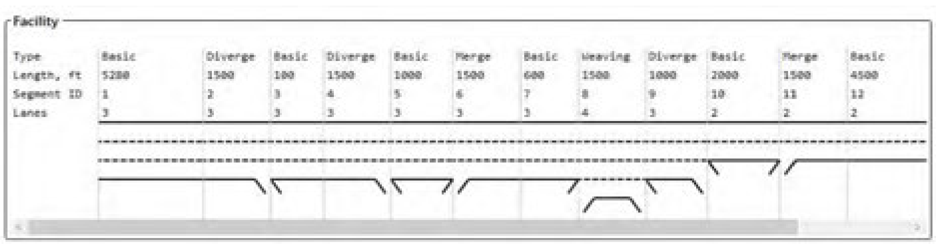



Northbound MOT




*Southbound DC-295*
1. SB DC-295 north of Nannie Helen Burroughs Avenue NE
2. Off-Ramp from SB DC-295 to Nannie Helen Burroughs Avenue NE
3. Between Ramps
4. Off-Ramp from SB DC-295 to Kenilworth Avenue NE/Benning Road NE
5. Between Ramps
6. On-Ramp from Kenilworth Avenue NE to SB DC-295
7. Between Ramps
8. On-Ramp from Benning Road NE to SB DC-295/Off-Ramp to Baker Street NE (WEAVE)
9. Off-Ramp to East Capitol Street
10. Between Ramps
11. On-Ramp from East Capitol Street to SB DC-295

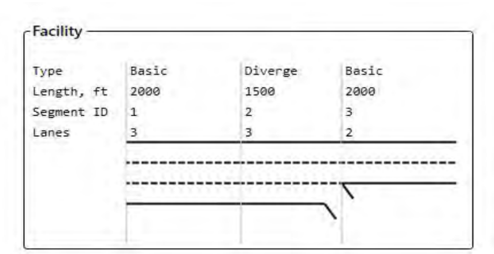
Southbound Baseline and MOT



**2025 Benning Road IMR Maintenance of Traffic Analysis Summary**
*HCS Network Key*

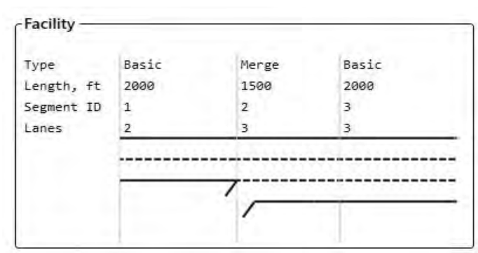
*Eastbound East Capitol Street*
1. EB East Capitol Street west of DC-295 ramps
2. On-ramp to northbound/southbound DC-295
3. EB East Capitol Street east of DC-295 ramps

Eastbound East Capitol Street Baseline and MOT




*Westbound East Capitol Street*
1. WB East Capitol Street east of DC-295 ramps
2. Off-Ramp from southbound DC-295
3. WB East Capitol Street west of DC-295 ramps

Westbound East Capitol Street Baseline and MOT



**2025 Benning Road IMR Maintenance of Traffic Analysis Summary**
*East Capitol Street*
AM Peak Hour (7:45 AM - 8:45 AM)
PM Peak Hour (5:00 PM - 6:00 PM)

*Eastbound East Capitol Street (Average Speed [mph])*

| Scenario/Segment ID | 1 | 2 | 3 |
|---|---|---|---|
| AM Peak | | | |
| 2025 No-Build | 44.5 | 35.5 | 35.5 |
| 2025 MOT | 44.5 | 35.5 | 35.5 |
| PM Peak | | | |
| 2025 No-Build | 44.5 | 35.5 | 35.5 |
| 2025 MOT | 44.5 | 35.5 | 35.5 |

*Westbound East Capitol Street (Average Speed [mph])*

| Scenario/Segment ID | 1 | 2 | 3 |
|---|---|---|---|
| AM Peak | | | |
| 2025 No-Build | 44.4 | 36.1 | 36.1 |
| 2025 MOT | 44.4 | 36.1 | 36.1 |
| PM Peak | | | |
| 2025 No-Build | 44.4 | 36.1 | 36.1 |
| 2025 MOT | 44.4 | 36.1 | 36.1 |

*Eastbound East Capitol Street (Average Density [pc/mi/ln])*

| Scenario/Segment ID | 1 | 2 | 3 |
|---|---|---|---|
| AM Peak | | | |
| 2025 No-Build | 8.7 | 5.8 | 5.8 |
| 2025 MOT | 8.1 | 6.4 | 6.4 |
| PM Peak | | | |
| 2025 No-Build | 14.5 | 11.9 | 11.9 |
| 2025 MOT | 16.7 | 24.4 | 24.4 |

*Westbound East Capitol Street (Average Density [pc/mi/ln])*

| Scenario/Segment ID | 1 | 2 | 3 |
|---|---|---|---|
| AM Peak | | | |
| 2025 No-Build | 18.5 | 22.7 | 22.7 |
| 2025 MOT | 20.3 | 24.9 | 24.9 |
| PM Peak | | | |
| 2025 No-Build | 7.8 | 9.6 | 9.6 |
| 2025 MOT | 7.8 | 9.6 | 9.6 |

*Eastbound East Capitol Street (Average LOS)*

| Scenario/Segment ID | 1 | 2 | 3 |
|---|---|---|---|
| AM Peak | | | |
| 2025 No-Build | A | A | A |
| 2025 MOT | A | A | A |
| PM Peak | | | |
| 2025 No-Build | C | B | B |
| 2025 MOT | C | B | C |

*Westbound East Capitol Street (Average LOS)*

| Scenario/Segment ID | 1 | 2 | 3 |
|---|---|---|---|
| AM Peak | | | |
| 2025 No-Build | D | C | C |
| 2025 MOT | D | C | C |
| PM Peak | | | |
| 2025 No-Build | A | A | A |
| 2025 MOT | A | A | A |

*Eastbound East Capitol Street (Average Demand-to-Capacity Ratio)*

| Scenario/Segment ID | 1 | 2 | 3 |
|---|---|---|---|
| AM Peak | | | |
| 2025 No-Build | 0.17 | 0.09 | 0.09 |
| 2025 MOT | 0.16 | 0.10 | 0.10 |
| PM Peak | | | |
| 2025 No-Build | 0.30 | 0.19 | 0.19 |
| 2025 MOT | 0.34 | 0.40 | 0.40 |

*Westbound East Capitol Street (Average Demand-to-Capacity Ratio)*

| Scenario/Segment ID | 1 | 2 | 3 |
|---|---|---|---|
| AM Peak | | | |
| 2025 No-Build | 0.38 | 0.37 | 0.37 |
| 2025 MOT | 0.42 | 0.41 | 0.41 |
| PM Peak | | | |
| 2025 No-Build | 0.16 | 0.16 | 0.16 |
| 2025 MOT | 0.16 | 0.16 | 0.16 |

**2025 Benning Road IMR Maintenance of Traffic Analysis Summary**
*Southbound DC-295*
AM Peak Hour (7:45 AM - 8:45 AM)
PM Peak Hour (5:00 PM - 6:00 PM)

*Southbound DC-295 (Average Speed [mph])*

| Scenario/Segment ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AM Peak | | | | | | | | | | | | |
| 2025 No-Build | 11.5 | 12.0 | 15.6 | 11.0 | 6.9 | 8.0 | 8.3 | 6.1 | 9.0 | 14.2 | 18.8 | 19.9 |
| 2025 MOT | 10.4 | 10.9 | 17.2 | 9.6 | 6.8 | 7.9 | 8.2 | 6.1 | 9.0 | 14.3 | 18.6 | 19.9 |
| PM Peak | | | | | | | | | | | | |
| 2025 No-Build | 46.9 | 53.3 | 46.5 | 52.7 | 44.5 | 51.5 | 44.5 | 48.0 | 54.0 | 46.9 | 49.8 | 39.9 |
| 2025 MOT | 46.9 | 53.2 | 46.5 | 52.7 | 44.5 | 51.5 | 44.5 | 49.7 | 54.3 | 46.9 | 49.9 | 42.2 |

*Southbound DC-295 (Average Density [pc/mi/ln])*

| Scenario/Segment ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AM Peak | | | | | | | | | | | | |
| 2025 No-Build | 109.5 | 105.1 | 90.1 | 106.5 | 128.6 | 125.2 | 119.9 | 132.2 | 119.3 | 97.7 | 85.6 | 82.1 |
| 2025 MOT | 114.0 | 109.0 | 88.7 | 114.7 | 130.3 | 126.3 | 121.1 | 132.0 | 119.2 | 97.8 | 86.4 | 82.1 |
| PM Peak | | | | | | | | | | | | |
| 2025 No-Build | 24.4 | 21.5 | 21.9 | 19.1 | 21.0 | 19.9 | 23.1 | 17.7 | 20.2 | 31.6 | 31.4 | 39.4 |
| 2025 MOT | 24.4 | 21.5 | 22.1 | 19.2 | 21.4 | 20.2 | 23.4 | 16.4 | 19.3 | 30.3 | 30.0 | 35.6 |

*Southbound DC-295 (Average LOS)*

| Scenario/Segment ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AM Peak | | | | | | | | | | | | |
| 2025 No-Build | F | F | F | F | F | F | F | F | F | F | F | F |
| 2025 MOT | F | F | F | F | F | F | F | F | F | F | F | F |
| PM Peak | | | | | | | | | | | | |
| 2025 No-Build | C | C | C | C | C | C | C | B | C | D | D | E |
| 2025 MOT | C | C | C | C | C | C | C | B | C | D | D | E |

*Southbound DC-295 (Average Demand-to-Capacity Ratio)*

| Scenario/Segment ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AM Peak | | | | | | | | | | | | |
| 2025 No-Build | 0.58 | 0.57 | 0.54 | 0.53 | 0.41 | 0.51 | 0.53 | 0.46 | 0.54 | 0.71 | 0.77 | 0.82 |
| 2025 MOT | 0.58 | 0.57 | 0.54 | 0.53 | 0.43 | 0.53 | 0.54 | 0.48 | 0.57 | 0.75 | 0.79 | 0.84 |
| PM Peak | | | | | | | | | | | | |
| 2025 No-Build | 0.52 | 0.51 | 0.46 | 0.45 | 0.43 | 0.46 | 0.47 | 0.42 | 0.49 | 0.67 | 0.70 | 0.95 |
| 2025 MOT | 0.52 | 0.51 | 0.47 | 0.46 | 0.43 | 0.46 | 0.47 | 0.40 | 0.47 | 0.65 | 0.67 | 0.91 |

**2025 Benning Road IMR Maintenance of Traffic Analysis Summary**
*Northbound DC-295 (Two-lane section between East Capitol Street and Nannie Helen Burroughs Avenue NE)*
AM Peak Hour (7:45 AM - 8:45 AM)
PM Peak Hour (5:00 PM - 6:00 PM)

*Northbound DC-295 (Average Speed [mph])*

| Scenario/Segment ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| AM Peak | | | | | | | | | |
| 2025 No-Build | 48.6 | 55.0 | 53.0 | 46.2 | 51.2 | 53.0 | 48.2 | 51.2 | 48.6 |
| 2025 MOT | 32.6 | 31.3 | 30.0 | 28.4 | 48.9 | 50.5 | 47.8 | 52.2 | 48.6 |
| PM Peak | | | | | | | | | |
| 2025 No-Build | 21.8 | 13.4 | 11.8 | 11.4 | 13.1 | 13.1 | 9.5 | 11.0 | 19.3 |
| 2025 MOT | 16.1 | 22.9 | 23.1 | 23.8 | 47.8 | 50.1 | 42.7 | 12.4 | 19.3 |

*Northbound DC-295 (Average Density [pc/mi/ln])*

| Scenario/Segment ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| AM Peak | | | | | | | | | |
| 2025 No-Build | 31.2 | 20.5 | 21.3 | 22.3 | 22.8 | 22.0 | 20.3 | 22.7 | 24.2 |
| 2025 MOT | 55.4 | 53.9 | 56.7 | 57.6 | 33.9 | 33.3 | 29.3 | 20.4 | 22.0 |
| PM Peak | | | | | | | | | |
| 2025 No-Build | 78.9 | 93.3 | 105.4 | 106.2 | 101.6 | 102.5 | 116.7 | 111.2 | 64.3 |
| 2025 MOT | 93.1 | 76.8 | 76.1 | 74.1 | 41.4 | 39.9 | 41.4 | 99.8 | 64.2 |

*Northbound DC-295 (Average LOS)*

| Scenario/Segment ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| AM Peak | | | | | | | | | |
| 2025 No-Build | D | C | C | C | C | C | C | C | C |
| 2025 MOT | F | F | F | F | D | D | D | C | C |
| PM Peak | | | | | | | | | |
| 2025 No-Build | F | F | F | F | F | F | F | F | F |
| 2025 MOT | F | F | F | F | E | E | E | F | F |

*Northbound DC-295 (Average Demand-to-Capacity Ratio)*

| Scenario/Segment ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| AM Peak | | | | | | | | | |
| 2025 No-Build | 0.69 | 0.50 | 0.50 | 0.47 | 0.52 | 0.52 | 0.44 | 0.52 | 0.53 |
| 2025 MOT | 0.64 | 0.84 | 0.84 | 0.86 | 0.93 | 0.98 | 0.79 | 0.52 | 0.53 |
| PM Peak | | | | | | | | | |
| 2025 No-Build | 0.79 | 0.66 | 0.66 | 0.66 | 0.79 | 0.79 | 0.67 | 0.70 | 1.11 |
| 2025 MOT | 0.68 | 0.84 | 0.84 | 0.86 | 1.04 | 1.04 | 0.87 | 0.62 | 0.97 |

**2025 Benning Road IMR Maintenance of Traffic Analysis Summary**
*Northbound DC-295 (Three-lane section north of Benning Road NE)*
AM Peak Hour (7:45 AM - 8:45 AM)
PM Peak Hour (5:00 PM - 6:00 PM)

*Northbound DC-295 (Average Speed [mph])*

| Scenario/Segment ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| AM Peak | | | | | | | | | |
| 2025 No-Build | 48.6 | 55.0 | 53.0 | 46.2 | 51.2 | 53.0 | 48.2 | 51.2 | 48.6 |
| 2025 MOT | 48.6 | 50.8 | 51.1 | 43.0 | 52.6 | 52.9 | 48.2 | 51.1 | 48.6 |
| PM Peak | | | | | | | | | |
| 2025 No-Build | 21.8 | 13.4 | 11.8 | 11.4 | 13.1 | 13.1 | 9.5 | 11.0 | 19.3 |
| 2025 MOT | 28.4 | 33.7 | 33.9 | 38.4 | 27.2 | 13.6 | 9.5 | 11.1 | 19.3 |

*Northbound DC-295 (Average Density [pc/mi/ln])*

| Scenario/Segment ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| AM Peak | | | | | | | | | |
| 2025 No-Build | 31.2 | 20.5 | 21.3 | 22.3 | 22.8 | 22.0 | 20.3 | 22.7 | 24.2 |
| 2025 MOT | 29.4 | 31.4 | 31.3 | 37.3 | 21.5 | 22.2 | 20.4 | 22.8 | 24.4 |
| PM Peak | | | | | | | | | |
| 2025 No-Build | 78.9 | 93.3 | 105.4 | 106.2 | 101.6 | 102.5 | 116.7 | 111.2 | 64.3 |
| 2025 MOT | 66.0 | 58.1 | 58.0 | 48.8 | 61.9 | 99.6 | 116.3 | 110.8 | 64.2 |

*Northbound DC-295 (Average LOS)*

| Scenario/Segment ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| AM Peak | | | | | | | | | |
| 2025 No-Build | D | C | C | C | C | C | C | C | C |
| 2025 MOT | D | D | D | E | D | D | D | C | C |
| PM Peak | | | | | | | | | |
| 2025 No-Build | F | F | F | F | F | F | F | F | F |
| 2025 MOT | F | F | F | F | F | F | F | F | F |

*Northbound DC-295 (Average Demand-to-Capacity Ratio)*

| Scenario/Segment ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| AM Peak | | | | | | | | | |
| 2025 No-Build | 0.69 | 0.50 | 0.50 | 0.47 | 0.52 | 0.52 | 0.44 | 0.52 | 0.53 |
| 2025 MOT | 0.65 | 0.84 | 0.85 | 0.87 | 0.62 | 0.65 | 0.53 | 0.52 | 0.54 |
| PM Peak | | | | | | | | | |
| 2025 No-Build | 0.79 | 0.66 | 0.66 | 0.66 | 0.79 | 0.79 | 0.67 | 0.70 | 1.11 |
| 2025 MOT | 0.68 | 0.84 | 0.84 | 0.86 | 0.70 | 0.70 | 0.58 | 0.62 | 0.97 |

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# Attachment E

## Synchro Analysis Results

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# LOS & Delay Summary Table | 2025 No Build | AM

| Map ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Approach | | | | Intersection |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR | NB | SB | EB | WB | |
| 208 | 26th Street NE at Benning Road NE | | | | D (40.4) | | s | C (25.1) | A (8.9) | | | C (27.7) | s | | D (40.4) | B (10.1) | C (27.7) | C (23.9) |
| 209 | Oklahoma Avenue NE at Benning Road NE | E (68.4) | | F (123.7) | | | | | B (14.5) | A (6.9) | F (88.0) | A (1.4) | | F (91.8) | | B (13.9) | B (17.5) | B (19.0) |
| 101 | Anacostia Avenue NE at Benning Road NE | s | D (49.4) | D (43.2) | s | D (45.8) | s | s | A (2.0) | s | s | A (3.8) | s | D (47.5) | D (45.8) | A (2.0) | A (3.8) | A (4.9) |
| 102 | 34th Street NE at Benning Road NE | s | C (34.3) | s | s | D (36.0) | s | C (24.0) | B (14.7) | s | F (81.7) | D (41.8) | s | C (34.3) | D (36.0) | B (14.8) | D (45.0) | D (37.3) |
| 104 | Minnesota Avenue NE at Benning Road NE | D (36.0) | B (12.7) | s | D (42.3) | D (45.8) | C (34.7) | F (83.7) | C (33.4) | s | | E (72.8) | s | C (22.2) | D (41.3) | D (46.7) | E (72.8) | D (45.4) |
| 105 | 39th Street NE/Driveway at Benning Road NE | s | E (66.0) | s | s | E (70.4) | s | s | A (3.1) | s | s | A (4.0) | s | E (66.0) | E (70.4) | A (3.1) | A (4.0) | A (8.2) |
| 106 | 40th Street NE at Benning Road NE | B (14.0) | | s | | | | | - (-) | - (-) | A (9.2) | A (1.3) | | B (14.0) | | | A (2.7) | |
| 107 | 41st Street NE at Benning Road NE | C (16.7) | | s | | | | | - (-) | - (-) | A (9.0) | A (1.2) | | C (16.7) | | | A (1.9) | |
| 108 | 42nd Street NE at Benning Road NE | s | B (19.8) | s | s | F (186.6) | s | s | B (17.4) | s | s | B (11.6) | s | B (19.8) | F (186.6) | B (17.4) | B (11.6) | E (58.5) |
| 213 | Blaine Street NE at Benning Road NE | A (9.8) | | s | | | | | - (-) | - (-) | A (9.1) | A (1.4) | | A (9.8) | | | A (3.1) | |
| 214 | 44th Street NE at Benning Road NE | | | | C (32.6) | | s | s | A (9.4) | | | B (11.1) | s | | C (32.6) | A (9.4) | B (11.1) | B (15.6) |
| 215 | 45th Street NE at Benning Road NE | | | | E (39.5) | | s | B (10.9) | A (0.3) | | | - (-) | - (-) | | E (39.5) | A (0.9) | | |
| 216 | Central Avenue NE at Benning Road NE | | | | s | | C (20.6) | | - (-) | | | - (-) | - (-) | | C (20.6) | | | |
| 217 | East Capitol Street at Benning Road NE | F (103.0) | A (5.1) | s | s | E (60.3) | s | E (75.7) | F (96.7) | s | D (48.7) | D (39.5) | s | C (27.1) | E (60.3) | F (91.6) | D (42.9) | E (55.3) |
| 218 | East Capitol Street at Texas Avenue SE | | C (30.5) | s | B (15.9) | | | | | | D (40.7) | | C (32.7) | C (30.5) | B (15.9) | | D (38.5) | C (32.1) |
| 210 | Minnesota Avenue NE at Dix Street NE | | A (7.7) | s | s | A (7.6) | s | s | D (41.4) | s | s | F (85.8) | s | A (7.7) | A (7.6) | D (41.4) | F (85.8) | B (18.3) |
| 219 | Minnesota Avenue NE at DOES Parking Garage Driveway | C (21.1) | A (8.4) | | | B (10.8) | B (11.1) | | | | | | | B (10.5) | B (10.8) | | | |
| 211 | Minnesota Avenue NE at Bus Exit South | | A (6.7) | | | A (4.9) | | B (18.6) | | B (17.8) | | | | A (6.7) | A (4.9) | B (18.2) | | A (6.0) |
| 212 | Minnesota Avenue NE at Grant Street NE and Bus Entrance North | A (7.4) | A (6.9) | s | s | B (15.2) | s | | | | s | B (17.1) | s | A (7.0) | B (15.2) | | B (17.1) | B (12.4) |
| 311 | Kenilworth Terrace NE at Deane Avenue NE | s | C (34.7) | s | F (863.9) | F (621.1) | s | | E (58.4) | s | A (0.4) | A (0.2) | | C (34.7) | F (742.4) | E (58.4) | A (0.3) | F (363.7) |
| 312 | Kenilworth Avenue NE at Deane Avenue NE | | | | F (129.9) | F (143.5) | | | A (9.9) | s | B (19.9) | B (10.7) | | | F (137.0) | A (9.9) | B (17.0) | C (27.6) |
| 313 | Kenilworth Avenue NE and DC-295 U-Turns at Nannie Helen Burroughs Avenue NE | s | D (35.0) | E (71.6) | | | | s | C (34.5) | | | C (32.8) | s | E (66.1) | | C (34.5) | C (32.8) | D (38.1) |
| 314 | Minnesota Avenue NE at Nannie Helen Burroughs Avenue NE | F (92.6) | C (22.9) | s | | F (128.2) | s | s | C (30.7) | s | E (66.3) | C (32.3) | | E (65.1) | F (128.2) | C (30.7) | C (34.7) | E (61.4) |
| 315 | 44th Street NE and Hunt Place NE at Nannie Helen Burroughs Avenue NE | s | F (267.4) | s | s | D (48.1) | s | D (50.3) | | s | | | | F (267.4) | D (48.1) | D (50.3) | | E (59.2) |
| 316 | Kenilworth Avenue NE at Foote Street NE | | | | | - (-) | - (-) | | | E (44.0) | | | | | | E (44.0) | | |
| 323 | 17th Street NE at C Street NE | | | | s | A (7.8) | s | | A (5.3) | s | A (7.1) | F (127.2) | | | A (7.8) | A (5.3) | F (119.1) | F (83.3) |
| 317 | 19th Street NE at C Street NE | C (28.2) | D (42.9) | C (21.7) | | | | s | A (9.9) | | | B (12.3) | s | D (37.7) | | A (9.9) | B (12.3) | B (16.4) |
| 318 | 21st Street NE, 22nd Street NE, C Street NE | | D (37.9) | | s | F (271.9) | F (176.1) | B (16.3) | A (6.1) | | s | B (19.0) | B (16.8) | D (37.8) | F (212.7) | A (7.3) | B (18.7) | E (74.3) |
| 319 | 19th Street SE at Independence Avenue SE | | C (34.6) | B (14.3) | | | | s | B (19.8) | | | | B (12.9) | C (28.5) | | B (19.8) | B (12.9) | C (24.8) |

* Intersections in blue are unsignalized
* Benning Road is represented as East/West at all intersection
* East Capitol is represented as North/South to mirror Benning Road at all intersections
s Shared lane
- (-) Freeflow movement



Kimley»Horn

# LOS & Delay Summary Table | 2025 No Build | PM

| Map ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Approach | | | | Intersection |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR | NB | SB | EB | WB | |
| 208 | 26th Street NE at Benning Road NE | | | | D (49.1) | | s | A (4.3) | A (7.1) | | | A (5.3) | A (0.9) | | D (49.1) | A (7.0) | A (4.8) | A (8.2) |
| 209 | Oklahoma Avenue NE at Benning Road NE | D (50.4) | | C (32.4) | | | | | A (9.6) | s | C (32.8) | A (1.0) | | D (37.6) | | A (9.6) | A (2.9) | A (8.3) |
| 101 | Anacostia Avenue NE at Benning Road NE | s | D (50.2) | D (47.1) | | - (-) | | | A (4.5) | s | s | A (2.7) | | D (49.0) | | A (4.5) | A (2.7) | A (4.7) |
| 102 | 34th Street NE at Benning Road NE | s | C (34.4) | s | s | D (35.4) | s | B (16.1) | C (20.6) | s | E (59.0) | B (12.2) | s | C (34.4) | D (35.4) | C (20.6) | B (18.2) | C (20.3) |
| 104 | Minnesota Avenue NE at Benning Road NE | D (42.4) | C (20.2) | s | C (33.6) | C (33.9) | A (8.6) | C (34.6) | C (32.1) | s | | D (48.8) | s | C (25.9) | C (27.3) | C (32.6) | D (48.8) | C (31.8) |
| 105 | 39th Street NE/Driveway at Benning Road NE | s | E (65.9) | s | s | E (70.4) | s | s | A (4.8) | s | s | A (5.7) | s | E (65.9) | E (70.4) | A (4.8) | A (5.7) | B (11.4) |
| 106 | 40th Street NE at Benning Road NE | F (132.7) | | s | | | | | - (-) | - (-) | B (12.4) | A (1.1) | | F (132.7) | | | A (3.1) | |
| 107 | 41st Street NE at Benning Road NE | C (20.3) | | s | | | | | - (-) | - (-) | B (12.2) | A (0.6) | | C (20.3) | | | A (1.4) | |
| 108 | 42nd Street NE at Benning Road NE | s | C (26.4) | s | s | F (86.0) | s | s | F (212.2) | s | s | A (6.7) | s | C (26.4) | F (86.0) | F (212.2) | A (6.7) | F (140.0) |
| 213 | Blaine Street NE at Benning Road NE | B (14.2) | | s | | | | | - (-) | - (-) | A (9.8) | A (0.3) | | B (14.2) | | | A (0.9) | |
| 214 | 44th Street NE at Benning Road NE | | | | D (38.7) | | s | s | A (1.6) | | | A (2.3) | s | | D (38.7) | A (1.6) | A (2.3) | A (6.8) |
| 215 | 45th Street NE at Benning Road NE | | | | C (18.5) | | s | A (9.0) | A (0.2) | | | - (-) | - (-) | | C (18.5) | A (0.4) | | |
| 216 | Central Avenue NE at Benning Road NE | | | | s | | B (11.0) | | - (-) | | | - (-) | - (-) | | B (11.0) | | | |
| 217 | East Capitol Street at Benning Road NE | F (84.4) | B (15.7) | s | s | C (32.8) | s | E (71.7) | E (60.6) | s | E (62.9) | D (47.1) | s | B (19.4) | C (32.8) | E (63.0) | D (48.6) | C (33.8) |
| 218 | East Capitol Street at Texas Avenue SE | | E (76.1) | s | F (111.9) | | | | | | D (42.7) | | D (39.2) | E (76.1) | F (111.9) | | D (41.5) | E (77.6) |
| 210 | Minnesota Avenue NE at Dix Street NE | s | B (14.3) | s | s | B (19.5) | s | s | C (34.6) | s | s | F (119.3) | s | B (14.3) | B (19.5) | C (34.6) | F (119.3) | C (34.9) |
| 219 | Minnesota Avenue NE at DOES Parking Garage Driveway | - (-) | A (9.1) | | | A (7.1) | A (7.1) | | | s | | | | A (9.1) | A (7.1) | | | |
| 211 | Minnesota Avenue NE at Bus Exit South | | C (22.7) | | | A (3.8) | | B (17.5) | | B (16.2) | | | | C (22.7) | A (3.8) | B (16.8) | | B (15.4) |
| 212 | Minnesota Avenue NE at Grant Street NE and Bus Entrance North | A (4.3) | B (11.1) | s | s | B (14.3) | s | | | | s | B (16.1) | s | B (10.9) | B (14.3) | | B (16.1) | B (12.5) |
| 311 | Kenilworth Terrace NE at Deane Avenue NE | s | C (33.7) | s | F (214.8) | E (56.3) | s | | D (47.3) | s | A (0.5) | A (0.5) | | C (33.7) | F (134.6) | D (47.3) | A (0.5) | E (59.5) |
| 312 | Kenilworth Avenue NE at Deane Avenue NE | | | | E (75.7) | E (73.2) | | | B (11.6) | s | E (56.7) | C (24.5) | | | E (74.4) | B (11.6) | D (43.8) | D (38.3) |
| 313 | Kenilworth Avenue NE and DC-295 U-Turns at Nannie Helen Burroughs Avenue NE | s | D (54.1) | F (163.3) | | | | s | A (9.8) | | | C (28.1) | s | F (115.3) | | A (9.8) | C (28.1) | D (44.8) |
| 314 | Minnesota Avenue NE at Nannie Helen Burroughs Avenue NE | F (98.7) | C (21.4) | s | s | E (57.9) | s | s | D (44.6) | s | E (69.6) | D (39.4) | s | E (56.6) | E (57.9) | D (44.6) | D (42.1) | D (49.4) |
| 315 | 44th Street NE and Hunt Place NE at Nannie Helen Burroughs Avenue NE | s | F (340.0) | s | s | D (38.8) | s | D (48.6) | | s | | | | F (340.0) | D (38.8) | D (48.6) | | F (109.4) |
| 316 | Kenilworth Avenue NE at Foote Street NE | | | | | - (-) | - (-) | | | B (11.4) | | | | | | B (11.4) | | |
| 323 | 17th Street NE at C Street NE | | | | s | A (8.2) | s | | A (5.9) | s | B (11.1) | A (8.0) | | | A (8.2) | A (5.9) | A (8.6) | A (7.9) |
| 317 | 19th Street NE at C Street NE | C (24.3) | D (38.2) | C (27.2) | | | | s | B (11.8) | | | A (4.8) | s | C (32.9) | | B (11.8) | A (4.8) | B (14.8) |
| 318 | 21st Street NE, 22nd Street NE, C Street NE | s | C (25.2) | | s | D (36.9) | B (15.6) | C (34.5) | B (11.8) | - (-) | s | C (29.5) | C (31.4) | C (25.1) | C (26.9) | C (20.1) | C (30.0) | C (25.9) |
| 319 | 19th Street SE at Independence Avenue SE | | D (38.5) | D (44.2) | | | | s | D (53.8) | | | | B (10.4) | D (40.3) | | D (53.8) | B (10.4) | D (48.4) |

* Intersections in blue are unsignalized
* Benning Road is represented as East/West at all intersection
* East Capitol is represented as North/South to mirror Benning Road at all intersections

s Shared lane
- (-) Freeflow movement

# LOS & Delay Summary Table | MOT Pre-Mitigation | AM

| Map ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Approach | | | | Intersection |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR | NB | SB | EB | WB | |
| 208 | 26th Street NE at Benning Road NE | | | | F (115.3) | | s | C (27.2) | A (3.7) | | | C (33.3) | s | | F (115.3) | A (5.4) | C (33.3) | C (31.2) |
| 209 | Oklahoma Avenue NE at Benning Road NE | E (70.6) | | F (125.9) | | | | | B (14.8) | A (9.1) | E (61.2) | A (8.0) | | F (87.6) | | B (14.4) | B (17.9) | C (20.4) |
| 101 | Anacostia Avenue NE at Benning Road NE | s | E (74.3) | D (48.0) | s | D (53.0) | s | s | A (4.4) | s | s | F (86.9) | s | E (66.3) | D (53.0) | A (4.4) | F (86.9) | E (61.1) |
| 102 | 34th Street NE at Benning Road NE | s | D (50.9) | s | s | E (76.7) | s | D (45.4) | C (20.7) | s | D (49.7) | F (86.6) | s | D (50.9) | E (76.7) | C (20.9) | F (83.6) | E (64.6) |
| 104 | Minnesota Avenue NE at Benning Road NE | F (88.4) | B (19.7) | s | C (28.9) | C (31.3) | D (51.8) | D (44.3) | C (33.1) | s | | D (38.3) | s | D (43.8) | D (38.0) | D (36.1) | D (38.3) | D (39.1) |
| 105 | 39th Street NE/Driveway at Benning Road NE | s | E (66.0) | s | s | E (70.4) | s | s | A (4.1) | s | s | A (4.6) | s | E (66.0) | E (70.4) | A (4.1) | A (4.6) | A (9.8) |
| 106 | 40th Street NE at Benning Road NE | C (15.6) | | s | | | | | - (-) | - (-) | A (9.3) | | | C (15.6) | | | A (2.3) | |
| 107 | 41st Street NE at Benning Road NE | C (18.5) | | s | | | | | - (-) | - (-) | A (8.8) | | | C (18.5) | | | A (1.0) | |
| 108 | 42nd Street NE at Benning Road NE | s | B (19.4) | s | s | F (134.3) | s | s | E (64.3) | s | s | F (102.6) | s | B (19.4) | F (134.3) | E (64.3) | F (102.6) | F (96.7) |
| 213 | Blaine Street NE at Benning Road NE | B (10.8) | | s | | | | | - (-) | - (-) | A (8.9) | | | B (10.8) | | | A (2.3) | |
| 214 | 44th Street NE at Benning Road NE | | | | C (30.0) | | s | s | F (525.3) | | | F (103.5) | s | | C (30.0) | F (525.3) | F (103.5) | F (186.1) |
| 215 | 45th Street NE at Benning Road NE | | | | E (48.5) | | s | B (10.4) | | | | - (-) | - (-) | | E (48.5) | A (0.6) | | |
| 216 | Central Avenue NE at Benning Road NE | | | | s | | E (39.9) | | - (-) | | | - (-) | - (-) | | E (39.9) | | | |
| 217 | East Capitol Street at Benning Road NE | F (123.0) | A (5.7) | s | s | E (55.8) | s | s | F (268.8) | s | F (130.5) | D (35.8) | s | C (32.1) | E (55.8) | F (268.8) | E (78.6) | F (86.2) |
| 218 | East Capitol Street at Texas Avenue SE | | C (34.7) | s | B (17.4) | | | | | | D (38.0) | | C (30.8) | C (34.7) | B (17.4) | | D (36.0) | C (33.2) |
| 210 | Minnesota Avenue NE at Dix Street NE | | A (7.6) | s | s | A (6.8) | s | s | D (41.4) | s | s | F (83.2) | s | A (7.6) | A (6.8) | D (41.4) | F (83.2) | B (17.1) |
| 219 | Minnesota Avenue NE at DOES Parking Garage Driveway | C (20.5) | A (7.7) | | | A (5.3) | A (4.3) | | | | | | | A (9.8) | A (5.3) | | | |
| 211 | Minnesota Avenue NE at Bus Exit South | | B (15.2) | | | A (5.0) | | B (18.6) | | B (17.8) | | | | B (15.2) | A (5.0) | B (18.2) | | A (9.3) |
| 212 | Minnesota Avenue NE at Grant Street NE and Bus Entrance North | A (5.5) | A (5.9) | s | s | B (15.7) | s | | | | s | B (16.4) | s | A (5.9) | B (15.7) | | B (16.4) | B (12.1) |
| 311 | Kenilworth Terrace NE at Deane Avenue NE | s | D (35.1) | s | F (985.9) | F (699.2) | s | | E (58.4) | s | A (0.4) | A (0.2) | | D (35.1) | F (842.3) | E (58.4) | A (0.4) | F (403.7) |
| 312 | Kenilworth Avenue NE at Deane Avenue NE | | | | F (129.9) | F (143.5) | | | B (10.4) | s | C (23.4) | B (10.7) | | | F (137.0) | B (10.4) | B (19.3) | C (28.6) |
| 313 | Kenilworth Avenue NE and DC-295 U-Turns at Nannie Helen Burroughs Avenue NE | s | D (35.0) | E (71.6) | | | | s | D (36.3) | | | C (29.6) | s | E (66.1) | | D (36.3) | C (29.6) | D (36.9) |
| 314 | Minnesota Avenue NE at Nannie Helen Burroughs Avenue NE | E (61.3) | C (21.7) | s | | F (128.2) | s | s | D (37.5) | s | E (64.4) | D (38.2) | | D (46.2) | F (128.2) | D (37.5) | D (40.0) | E (61.3) |
| 315 | 44th Street NE and Hunt Place NE at Nannie Helen Burroughs Avenue NE | s | F (248.7) | s | s | D (41.7) | s | D (51.5) | | s | | | | F (248.7) | D (41.7) | D (51.5) | | E (57.4) |
| 316 | Kenilworth Avenue NE at Foote Street NE | | | | | - (-) | - (-) | | | E (40.5) | | | | | | E (40.5) | | |
| 323 | 17th Street NE at C Street NE | | | | s | A (7.8) | s | | A (5.3) | s | A (7.1) | F (162.8) | | | A (7.8) | A (5.3) | F (152.9) | F (108.1) |
| 317 | 19th Street NE at C Street NE | C (28.1) | D (42.9) | C (21.7) | | | | s | A (9.9) | | | B (14.8) | s | D (37.7) | | A (9.9) | B (14.8) | B (17.8) |
| 318 | 21st Street NE, 22nd Street NE, C Street NE | | D (37.9) | | s | F (273.1) | F (181.2) | C (22.5) | A (6.1) | | s | C (22.0) | B (16.8) | D (37.8) | F (216.3) | A (8.0) | C (21.3) | E (71.4) |
| 319 | 19th Street SE at Independence Avenue SE | | C (34.6) | B (14.3) | | | | s | B (19.8) | | | | B (12.9) | C (28.5) | | B (19.8) | B (12.9) | C (24.8) |

* Intersections in blue are unsignalized
* Benning Road is represented as East/West at all intersection
* East Capitol is represented as North/South to mirror Benning Road at all intersections

s Shared lane
- (-) Freeflow movement

# LOS & Delay Summary Table | MOT Pre-Mitigation | PM

| Map ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Approach | | | | Intersection |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR | NB | SB | EB | WB | |
| 208 | 26th Street NE at Benning Road NE | | | | D (48.5) | | s | A (4.1) | A (5.0) | | | A (4.6) | s | | D (48.5) | A (5.0) | A (4.6) | A (6.8) |
| 209 | Oklahoma Avenue NE at Benning Road NE | E (58.2) | | D (35.8) | | | | | B (13.7) | s | C (21.2) | A (1.6) | | D (43.6) | | B (13.7) | A (2.7) | B (10.5) |
| 101 | Anacostia Avenue NE at Benning Road NE | s | E (55.9) | D (50.6) | | - (-) | | | A (7.1) | s | s | A (4.8) | | D (54.2) | | A (7.1) | A (4.8) | A (7.2) |
| 102 | 34th Street NE at Benning Road NE | s | D (50.9) | s | s | E (55.8) | s | E (73.5) | A (8.9) | s | D (42.2) | A (4.5) | s | D (50.9) | E (55.8) | A (9.1) | A (9.2) | B (10.9) |
| 104 | Minnesota Avenue NE at Benning Road NE | D (40.6) | C (22.6) | s | D (38.7) | C (33.7) | C (33.9) | D (53.2) | F (108.8) | s | | D (48.7) | s | C (26.6) | C (34.1) | F (92.4) | D (48.7) | D (52.6) |
| 105 | 39th Street NE/Driveway at Benning Road NE | s | E (65.9) | s | s | E (70.4) | s | s | A (5.1) | s | s | A (5.5) | s | E (65.9) | E (70.4) | A (5.1) | A (5.5) | B (13.9) |
| 106 | 40th Street NE at Benning Road NE | F (56.3) | | s | | | | | - (-) | - (-) | A (9.6) | | | F (56.3) | | | A (1.7) | |
| 107 | 41st Street NE at Benning Road NE | C (22.3) | | s | | | | | - (-) | - (-) | A (9.9) | | | C (22.3) | | | A (0.7) | |
| 108 | 42nd Street NE at Benning Road NE | s | C (26.4) | s | s | F (88.0) | s | s | F (402.5) | s | s | B (12.9) | s | C (26.4) | F (88.0) | F (402.5) | B (12.9) | F (223.4) |
| 213 | Blaine Street NE at Benning Road NE | C (15.1) | | s | | | | | - (-) | - (-) | A (9.0) | | | C (15.1) | | | A (0.6) | |
| 214 | 44th Street NE at Benning Road NE | | | | D (40.2) | | s | s | C (34.6) | | | B (18.0) | s | | D (40.2) | C (34.6) | B (18.0) | C (28.7) |
| 215 | 45th Street NE at Benning Road NE | | | | C (22.5) | | s | A (9.0) | | | | - (-) | - (-) | | C (22.5) | A (0.2) | | |
| 216 | Central Avenue NE at Benning Road NE | | | | s | | B (13.7) | | - (-) | | | - (-) | - (-) | | B (13.7) | | | |
| 217 | East Capitol Street at Benning Road NE | F (94.2) | B (12.3) | s | s | C (30.8) | s | s | F (373.1) | s | F (127.5) | D (51.1) | s | B (16.3) | C (30.8) | F (373.1) | E (58.4) | F (83.4) |
| 218 | East Capitol Street at Texas Avenue SE | | E (69.6) | s | F (92.7) | | | | | | D (46.2) | | D (42.5) | E (69.6) | F (92.7) | | D (44.5) | E (70.0) |
| 210 | Minnesota Avenue NE at Dix Street NE | s | B (15.9) | s | s | C (22.3) | s | s | C (34.6) | s | s | F (119.3) | s | B (15.9) | C (22.3) | C (34.6) | F (119.3) | D (35.5) |
| 219 | Minnesota Avenue NE at DOES Parking Garage Driveway | - (-) | B (11.8) | | | A (7.2) | A (7.5) | | | s | | | | B (11.8) | A (7.3) | | | |
| 211 | Minnesota Avenue NE at Bus Exit South | | C (24.2) | | | A (4.1) | | B (17.5) | | B (16.2) | | | | C (24.2) | A (4.1) | B (16.8) | | B (17.1) |
| 212 | Minnesota Avenue NE at Grant Street NE and Bus Entrance North | A (6.6) | C (20.9) | s | s | B (14.1) | s | | | | s | B (16.1) | s | C (20.4) | B (14.1) | | B (16.1) | B (18.3) |
| 311 | Kenilworth Terrace NE at Deane Avenue NE | s | C (33.8) | s | F (246.6) | E (60.6) | s | | D (47.3) | s | A (0.5) | A (0.4) | | C (33.8) | F (152.4) | D (47.3) | A (0.4) | E (64.8) |
| 312 | Kenilworth Avenue NE at Deane Avenue NE | | | | E (75.7) | E (73.2) | | | B (12.1) | s | E (55.0) | C (23.4) | | | E (74.4) | B (12.1) | D (42.5) | D (37.7) |
| 313 | Kenilworth Avenue NE and DC-295 U-Turns at Nannie Helen Burroughs Avenue NE | s | D (43.9) | F (107.4) | | | | s | B (11.5) | | | C (31.6) | s | E (79.5) | | B (11.5) | C (31.6) | D (37.3) |
| 314 | Minnesota Avenue NE at Nannie Helen Burroughs Avenue NE | D (47.2) | B (17.3) | s | s | E (69.6) | s | s | E (70.5) | s | E (71.2) | D (47.9) | s | C (31.6) | E (69.6) | E (70.5) | D (50.0) | D (53.1) |
| 315 | 44th Street NE and Hunt Place NE at Nannie Helen Burroughs Avenue NE | s | F (264.6) | s | s | D (35.4) | s | E (55.3) | | s | | | | F (264.6) | D (35.4) | E (55.3) | | F (94.4) |
| 316 | Kenilworth Avenue NE at Foote Street NE | | | | | - (-) | - (-) | | | B (11.3) | | | | | | B (11.3) | | |
| 323 | 17th Street NE at C Street NE | | | | s | A (9.2) | s | | A (5.9) | s | B (11.1) | A (8.0) | | | A (9.2) | A (5.9) | A (8.6) | A (8.4) |
| 317 | 19th Street NE at C Street NE | C (24.3) | D (38.2) | C (27.1) | | | | s | B (12.7) | | | A (4.8) | s | C (32.9) | | B (12.7) | A (4.8) | B (14.7) |
| 318 | 21st Street NE, 22nd Street NE, C Street NE | s | C (25.2) | | s | D (39.2) | B (14.9) | C (33.6) | B (11.8) | - (-) | s | C (29.8) | C (31.4) | C (25.1) | C (28.4) | B (18.5) | C (30.2) | C (25.4) |
| 319 | 19th Street SE at Independence Avenue SE | | D (38.5) | D (44.2) | | | | s | F (87.0) | | | | B (10.4) | D (40.3) | | F (87.0) | B (10.4) | E (71.7) |

* Intersections in blue are unsignalized
* Benning Road is represented as East/West at all intersection
* East Capitol is represented as North/South to mirror Benning Road at all intersections

s Shared lane
- (-) Freeflow movement



Kimley»Horn

# LOS & Delay Summary Table | MOT Post-Mitigation | AM

| Map ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Approach | | | | Intersection |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR | NB | SB | EB | WB | |
| 208 | 26th Street NE at Benning Road NE | | | | F (115.3) | | s | C (27.2) | A (3.7) | | | C (33.2) | s | | F (115.3) | A (5.4) | C (33.2) | C (31.1) |
| 209 | Oklahoma Avenue NE at Benning Road NE | E (70.6) | | F (125.9) | | | | | B (14.8) | A (9.1) | E (61.7) | A (7.9) | | F (87.6) | | B (14.4) | B (17.9) | C (20.4) |
| 101 | Anacostia Avenue NE at Benning Road NE | s | E (74.3) | D (48.0) | s | D (53.0) | s | B (10.3) | A (2.2) | s | A (0.4) | D (52.1) | s | E (66.3) | D (53.0) | A (2.2) | D (51.8) | D (37.4) |
| 102 | 34th Street NE at Benning Road NE | s | D (50.9) | s | s | E (76.7) | s | D (47.4) | B (18.7) | s | D (49.7) | F (86.6) | s | D (50.9) | E (76.7) | B (19.0) | F (83.6) | E (64.1) |
| 104 | Minnesota Avenue NE at Benning Road NE | F (88.4) | B (19.7) | s | C (28.5) | C (31.0) | D (51.3) | D (43.7) | C (32.9) | s | | D (38.3) | s | D (43.8) | D (37.7) | D (35.8) | D (38.3) | D (38.9) |
| 105 | 39th Street NE/Driveway at Benning Road NE | s | E (66.0) | s | s | E (70.4) | s | s | A (4.1) | s | s | A (4.6) | s | E (66.0) | E (70.4) | A (4.1) | A (4.6) | A (9.8) |
| 106 | 40th Street NE at Benning Road NE | B (14.8) | | s | | | | | - (-) | - (-) | A (9.3) | - (-) | | B (14.8) | | | A (2.3) | |
| 107 | 41st Street NE at Benning Road NE | C (18.5) | | s | | | | | - (-) | - (-) | A (8.8) | | | C (18.5) | | | A (1.0) | |
| 108 | 42nd Street NE at Benning Road NE | s | B (19.4) | s | s | F (134.3) | s | F (175.1) | B (15.6) | s | A (5.1) | F (97.2) | s | B (19.4) | F (134.3) | D (47.8) | F (96.5) | F (89.8) |
| 213 | Blaine Street NE at Benning Road NE | B (10.8) | | s | | | | | - (-) | - (-) | A (8.9) | | | B (10.8) | | | A (2.3) | |
| 214 | 44th Street NE at Benning Road NE | | | | C (30.0) | | s | F (241.5) | A (9.1) | | | F (103.5) | s | | C (30.0) | E (67.2) | F (103.5) | E (79.0) |
| 215 | 45th Street NE at Benning Road NE | | | | E (48.5) | | s | B (10.4) | | | | - (-) | - (-) | | E (48.5) | A (0.6) | | |
| 216 | Central Avenue NE at Benning Road NE | | | | s | | E (39.9) | | - (-) | | | - (-) | - (-) | | E (39.9) | | | |
| 217 | East Capitol Street at Benning Road NE | F (123.0) | A (5.7) | s | s | E (55.8) | s | D (54.5) | F (87.4) | s | F (130.5) | D (35.8) | s | C (32.1) | E (55.8) | E (79.4) | E (78.6) | E (60.4) |
| 218 | East Capitol Street at Texas Avenue SE | | C (34.7) | s | B (17.5) | | | | | | D (38.0) | | C (30.8) | C (34.7) | B (17.5) | | D (36.0) | C (33.2) |
| 210 | Minnesota Avenue NE at Dix Street NE | | A (7.6) | s | s | A (6.8) | s | s | D (41.4) | s | s | F (83.2) | s | A (7.6) | A (6.8) | D (41.4) | F (83.2) | B (17.1) |
| 219 | Minnesota Avenue NE at DOES Parking Garage Driveway | C (24.5) | A (7.7) | | | A (5.7) | A (4.3) | | | | | | | B (10.4) | A (5.7) | | | |
| 211 | Minnesota Avenue NE at Bus Exit South | | B (15.2) | | | A (5.0) | | B (18.6) | | B (17.8) | | | | B (15.2) | A (5.0) | B (18.2) | | A (9.3) |
| 212 | Minnesota Avenue NE at Grant Street NE and Bus Entrance North | A (5.5) | A (5.9) | s | s | B (15.8) | s | | | | s | B (16.4) | s | A (5.9) | B (15.8) | | B (16.4) | B (12.1) |
| 311 | Kenilworth Terrace NE at Deane Avenue NE | s | D (35.1) | s | F (985.9) | F (699.2) | s | | E (58.4) | s | A (0.6) | A (0.4) | | D (35.1) | F (842.3) | E (58.4) | A (0.5) | F (403.8) |
| 312 | Kenilworth Avenue NE at Deane Avenue NE | | | | F (129.9) | F (143.5) | | | B (10.4) | s | C (23.1) | B (11.4) | | | F (137.0) | B (10.4) | B (19.4) | C (28.6) |
| 313 | Kenilworth Avenue NE and DC-295 U-Turns at Nannie Helen Burroughs Avenue NE | s | D (53.0) | D (53.2) | | | | s | C (22.6) | | | C (29.6) | s | D (53.1) | | C (22.6) | C (29.6) | C (30.6) |
| 314 | Minnesota Avenue NE at Nannie Helen Burroughs Avenue NE | E (61.3) | C (21.7) | s | | F (128.2) | s | s | D (43.6) | s | E (64.4) | D (38.2) | | D (46.2) | F (128.2) | D (43.6) | D (40.0) | E (63.3) |
| 315 | 44th Street NE and Hunt Place NE at Nannie Helen Burroughs Avenue NE | s | F (248.7) | s | s | D (41.7) | s | D (51.5) | | s | | | | F (248.7) | D (41.7) | D (51.5) | | E (57.3) |
| 316 | Kenilworth Avenue NE at Foote Street NE | | | | | - (-) | - (-) | | | E (40.5) | | | | | | E (40.5) | | |
| 323 | 17th Street NE at C Street NE | | | | s | A (7.8) | s | | A (5.3) | s | A (7.1) | F (162.8) | | | A (7.8) | A (5.3) | F (152.9) | F (108.1) |
| 317 | 19th Street NE at C Street NE | C (28.1) | D (42.9) | C (21.7) | | | | s | A (9.9) | | | B (14.8) | s | D (37.7) | | A (9.9) | B (14.8) | B (17.8) |
| 318 | 21st Street NE, 22nd Street NE, C Street NE | | D (37.9) | | s | F (273.1) | F (181.2) | C (22.5) | A (6.1) | | s | C (22.0) | B (16.8) | D (37.8) | F (216.3) | A (8.0) | C (21.3) | E (71.4) |
| 319 | 19th Street SE at Independence Avenue SE | | C (34.6) | B (14.3) | | | | s | B (19.8) | | | | B (12.9) | C (28.5) | | B (19.8) | B (12.9) | C (24.8) |

* Intersections in blue are unsignalized
* Benning Road is represented as East/West at all intersection
* East Capitol is represented as North/South to mirror Benning Road at all intersections

s Shared lane
- (-) Freeflow movement

# LOS & Delay Summary Table | MOT Post-Mitigation | PM

| Map ID | Intersection Name | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Approach | | | | Intersection |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR | NB | SB | EB | WB | |
| 208 | 26th Street NE at Benning Road NE | | | | D (48.5) | | s | A (4.1) | A (5.0) | | | A (4.6) | s | | D (48.5) | A (5.0) | A (4.6) | A (6.8) |
| 209 | Oklahoma Avenue NE at Benning Road NE | E (58.2) | | D (35.8) | | | | | B (13.7) | s | C (21.2) | A (1.6) | | D (43.6) | | B (13.7) | A (2.7) | B (10.5) |
| 101 | Anacostia Avenue NE at Benning Road NE | s | E (55.9) | D (50.6) | | - (-) | | - (-) | A (7.1) | s | A (2.6) | A (4.4) | | D (54.2) | | A (7.1) | A (4.4) | A (7.0) |
| 102 | 34th Street NE at Benning Road NE | s | D (50.9) | s | s | E (55.8) | s | E (73.5) | A (8.9) | s | D (42.2) | A (4.5) | s | D (50.9) | E (55.8) | A (9.1) | A (9.2) | B (10.9) |
| 104 | Minnesota Avenue NE at Benning Road NE | D (40.6) | C (22.6) | s | D (38.5) | C (33.5) | C (33.6) | D (53.2) | F (108.8) | s | | D (48.7) | s | C (26.6) | C (33.9) | F (92.4) | D (48.7) | D (52.5) |
| 105 | 39th Street NE/Driveway at Benning Road NE | s | E (65.9) | s | s | E (70.4) | s | s | A (5.1) | s | s | A (5.6) | s | E (65.9) | E (70.4) | A (5.1) | A (5.6) | B (14.0) |
| 106 | 40th Street NE at Benning Road NE | F (52.7) | | s | | | | | - (-) | - (-) | A (9.6) | - (-) | | F (52.7) | | | A (1.7) | |
| 107 | 41st Street NE at Benning Road NE | C (22.3) | | s | | | | | - (-) | - (-) | A (9.9) | | | C (22.3) | | | A (0.7) | |
| 108 | 42nd Street NE at Benning Road NE | s | C (26.4) | s | s | F (88.0) | s | E (77.1) | C (23.6) | s | A (5.4) | B (12.4) | s | C (26.4) | F (88.0) | D (40.1) | B (12.4) | D (38.9) |
| 213 | Blaine Street NE at Benning Road NE | C (15.1) | | s | | | | | - (-) | - (-) | A (9.0) | | | C (15.1) | | | A (0.6) | |
| 214 | 44th Street NE at Benning Road NE | | | | D (40.2) | | s | A (3.9) | A (3.9) | | | B (18.0) | s | | D (40.2) | A (3.9) | B (18.0) | B (15.2) |
| 215 | 45th Street NE at Benning Road NE | | | | C (22.5) | | s | A (9.0) | | | | - (-) | - (-) | | C (22.5) | A (0.2) | | |
| 216 | Central Avenue NE at Benning Road NE | | | | s | | B (13.7) | | - (-) | | | - (-) | - (-) | | B (13.7) | | | |
| 217 | East Capitol Street at Benning Road NE | F (94.2) | B (12.3) | s | s | C (30.8) | s | D (45.5) | F (96.3) | s | F (127.5) | D (51.1) | s | B (16.3) | C (30.8) | F (85.0) | E (58.4) | D (35.5) |
| 218 | East Capitol Street at Texas Avenue SE | | E (69.6) | s | F (97.7) | | | | | | D (46.2) | | D (42.5) | E (69.6) | F (97.7) | | D (44.5) | E (70.5) |
| 210 | Minnesota Avenue NE at Dix Street NE | s | B (15.9) | s | s | C (22.3) | s | s | C (34.6) | s | s | F (119.3) | s | B (15.9) | C (22.3) | C (34.6) | F (119.3) | D (35.5) |
| 219 | Minnesota Avenue NE at DOES Parking Garage Driveway | - (-) | B (11.8) | | | A (7.5) | A (7.3) | | | s | | | | B (11.8) | A (7.5) | | | |
| 211 | Minnesota Avenue NE at Bus Exit South | | C (24.2) | | | A (4.1) | | B (17.5) | | B (16.2) | | | | C (24.2) | A (4.1) | B (16.8) | | B (17.1) |
| 212 | Minnesota Avenue NE at Grant Street NE and Bus Entrance North | A (6.6) | C (20.9) | s | s | B (14.1) | s | | | | s | B (16.1) | s | C (20.4) | B (14.1) | | B (16.1) | B (18.3) |
| 311 | Kenilworth Terrace NE at Deane Avenue NE | s | C (33.8) | s | F (246.6) | E (60.6) | s | | D (47.3) | s | A (0.5) | A (0.5) | | C (33.8) | F (152.4) | D (47.3) | A (0.5) | E (64.9) |
| 312 | Kenilworth Avenue NE at Deane Avenue NE | | | | E (75.7) | E (73.2) | | | B (12.1) | s | D (54.9) | C (23.6) | | | E (74.4) | B (12.1) | D (42.5) | D (37.6) |
| 313 | Kenilworth Avenue NE and DC-295 U-Turns at Nannie Helen Burroughs Avenue NE | s | E (70.1) | E (75.0) | | | | s | B (11.4) | | | C (31.6) | s | E (72.4) | | B (11.4) | C (31.6) | D (35.5) |
| 314 | Minnesota Avenue NE at Nannie Helen Burroughs Avenue NE | D (47.2) | B (17.3) | s | s | E (69.6) | s | s | E (72.2) | s | E (71.2) | D (47.9) | s | C (31.6) | E (69.6) | E (72.2) | D (50.0) | D (53.7) |
| 315 | 44th Street NE and Hunt Place NE at Nannie Helen Burroughs Avenue NE | s | F (264.6) | s | s | D (35.4) | s | E (55.3) | | s | | | | F (264.6) | D (35.4) | E (55.3) | | F (94.4) |
| 316 | Kenilworth Avenue NE at Foote Street NE | | | | | - (-) | - (-) | | | B (11.3) | | | | | | B (11.3) | | |
| 323 | 17th Street NE at C Street NE | | | | s | A (9.2) | s | | A (5.9) | s | B (11.1) | A (8.0) | | | A (9.2) | A (5.9) | A (8.6) | A (8.4) |
| 317 | 19th Street NE at C Street NE | C (24.3) | D (38.2) | C (27.1) | | | | s | B (12.7) | | | A (4.8) | s | C (32.9) | | B (12.7) | A (4.8) | B (14.7) |
| 318 | 21st Street NE, 22nd Street NE, C Street NE | s | C (25.2) | | s | D (39.3) | B (14.9) | C (33.6) | B (11.8) | - (-) | s | C (29.8) | C (31.4) | C (25.1) | C (28.4) | B (18.5) | C (30.2) | C (25.4) |
| 319 | 19th Street SE at Independence Avenue SE | | D (38.5) | D (44.2) | | | | s | F (87.0) | | | | B (10.4) | D (40.3) | | F (87.0) | B (10.4) | E (71.7) |

* Intersections in blue are unsignalized
* Benning Road is represented as East/West at all intersection
* East Capitol is represented as North/South to mirror Benning Road at all intersections

s Shared lane
- (-) Freeflow movement



Kimley»Horn

# Delay Comparison Table | 2025 NB vs MOT Pre-Mitigation | AM

| Map ID | Intersection Name | Northbound | | | Southbound | | | | Eastbound | | | | Westbound | | | | Approach | | | | Intersection |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NBL | NBT | NBR | SBU | SBL | SBT | SBR | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NB Approach | SB Approach | EB Approach | WB Approach | |
| 208 | 26th Street NE at Benning Road NE | | | | | 75 | | | | 2 | -5 | | | | 6 | | | 75 | -5 | 6 | 7 |
| 209 | Oklahoma Avenue NE at Benning Road NE | 2 | | 2 | | | | | | | 0 | 2 | | -27 | 7 | | -4 | | 1 | 0 | 1 |
| 101 | Anacostia Avenue NE at Benning Road NE | | 25 | 5 | | | 7 | | | | 2 | | | | 83 | | 19 | 7 | 2 | 83 | 56 |
| 102 | 34th Street NE at Benning Road NE | | 17 | | | | 41 | | | 21 | 6 | | | -32 | 45 | | 17 | 41 | 6 | 39 | 27 |
| 104 | Minnesota Avenue NE at Benning Road NE | 52 | 7 | | | -13 | -15 | 17 | | -39 | 0 | | | | -35 | | 22 | -3 | -11 | -35 | -6 |
| 105 | 39th Street NE/Driveway at Benning Road NE | | 0 | | | | 0 | | | | 1 | | | | 1 | | 0 | 0 | 1 | 1 | 2 |
| 106 | 40th Street NE at Benning Road NE | 2 | | | | | | | | | | | | 0 | -1 | | 2 | | 0 | 0 | |
| 107 | 41st Street NE at Benning Road NE | 2 | | | | | | | | | | | | 0 | -1 | | 2 | | 0 | -1 | |
| 108 | 42nd Street NE at Benning Road NE | | 0 | | | | -52 | | | | 47 | | | | 91 | | 0 | -52 | 47 | 91 | 38 |
| 213 | Blaine Street NE at Benning Road NE | 1 | | | | | | | | | | | | 0 | -1 | | 1 | | 0 | -1 | |
| 214 | 44th Street NE at Benning Road NE | | | | | -3 | | | | | 516 | | | | 92 | | | -3 | 516 | 92 | 171 |
| 215 | 45th Street NE at Benning Road NE | | | | | 9 | | | | -1 | 0 | | | | | | | 9 | 0 | 0 | |
| 216 | Central Avenue NE at Benning Road NE | | | | | | | 19 | | | | | | | | | | 19 | 0 | 0 | |
| 217 | East Capitol Street at Benning Road NE | 20 | 1 | | | | -5 | | | | 172 | | | 82 | -4 | | 5 | -5 | 177 | 36 | 31 |
| 218 | East Capitol Street at Texas Avenue SE | | 4 | | | 2 | | | | | | | | -3 | | -2 | 4 | 2 | | -3 | 1 |
| 210 | Minnesota Avenue NE at Dix Street NE | | 0 | | | | -1 | | | | 0 | | | | -3 | | 0 | -1 | 0 | -3 | -1 |
| 219 | Minnesota Avenue NE at DOES Parking Garage Driveway | -1 | -1 | | | | -6 | -7 | | | | | | | | | -1 | -6 | | | |
| 211 | Minnesota Avenue NE at Bus Exit South | | 9 | | | | 0 | | | 0 | | 0 | | | | | 9 | 0 | 0 | | 3 |
| 212 | Minnesota Avenue NE at Grant Street NE and Bus Entrance | -2 | -1 | | | | 1 | | | | | | | | -1 | | -1 | 1 | 0 | -1 | 0 |
| 311 | Kenilworth Terrace NE at Deane Avenue NE | | 0 | | | 122 | 78 | | | | 0 | | | 0 | 0 | | 0 | 100 | 0 | 0 | 40 |
| 312 | Kenilworth Avenue NE at Deane Avenue NE | | | | | 0 | 0 | | | | 1 | | | 4 | 0 | | 0 | 0 | 1 | 2 | 1 |
| 313 | Kenilworth Avenue NE and DC-295 U-Turns at Nannie | | 0 | 0 | | | | | | | 2 | | | | -3 | | 0 | 0 | 2 | -3 | -1 |
| 314 | Minnesota Avenue NE at Nannie Helen Burroughs Avenue | -31 | -1 | | | | 0 | | | | 7 | | | -2 | 6 | | -19 | 0 | 7 | 5 | 0 |
| 315 | 44th Street NE and Hunt Place NE at Nannie Helen | | -19 | | | | -6 | | | 1 | | | | | | | -19 | -6 | 1 | | -2 |
| 316 | Kenilworth Avenue NE at Foote Street NE | | | | | | | | | | | -4 | | | | | | 0 | -4 | | |
| 323 | 17th Street NE at C Street NE | | | | | | 0 | | | | 0 | | | 0 | 36 | | 0 | 0 | 0 | 34 | 25 |
| 317 | 19th Street NE at C Street NE | 0 | 0 | 0 | | | | | | | 0 | | | | 3 | | 0 | 0 | 0 | 3 | 1 |
| 318 | 21st Street NE, 22nd Street NE, C Street NE | | 0 | | | | 1 | 5 | | 6 | 0 | | | | 3 | 0 | 0 | 4 | 1 | 3 | -3 |
| 319 | 19th Street SE at Independence Avenue SE | | 0 | 0 | | | | | | | 0 | | | | | 0 | 0 | 0 | 0 | 0 | 0 |

* Intersections in blue are unsignalized

* Results from Synchro 10, HCM 2000 Report

# Delay Comparison Table | 2025 NB vs MOT Pre-Mitigation | PM

| Map ID | Intersection Name | Northbound | | | Southbound | | | | Eastbound | | | | Westbound | | | | Approach | | | | Intersection |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NBL | NBT | NBR | SBU | SBL | SBT | SBR | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NB Approach | SB Approach | EB Approach | WB Approach | |
| 208 | 26th Street NE at Benning Road NE | | | | | -1 | | | | 0 | -2 | | | | -1 | | | -1 | -2 | 0 | -1 |
| 209 | Oklahoma Avenue NE at Benning Road NE | 8 | | 3 | | | | | | | 4 | | | -12 | 1 | | 6 | | 4 | 0 | 2 |
| 101 | Anacostia Avenue NE at Benning Road NE | | 6 | 4 | | | | | | | 3 | | | | 2 | | 5 | 0 | 3 | 2 | 3 |
| 102 | 34th Street NE at Benning Road NE | | 17 | | | | 20 | | | 57 | -12 | | | -17 | -8 | | 17 | 20 | -12 | -9 | -9 |
| 104 | Minnesota Avenue NE at Benning Road NE | -2 | 2 | | | 5 | 0 | 25 | | 19 | 77 | | | | 0 | | 1 | 7 | 60 | 0 | 21 |
| 105 | 39th Street NE/Driveway at Benning Road NE | | 0 | | | | 0 | | | | 0 | | | | 0 | | 0 | 0 | 0 | 0 | 3 |
| 106 | 40th Street NE at Benning Road NE | -76 | | | | | | | | | | | | -3 | -1 | | -76 | | 0 | -1 | |
| 107 | 41st Street NE at Benning Road NE | 2 | | | | | | | | | | | | -2 | -1 | | 2 | | 0 | -1 | |
| 108 | 42nd Street NE at Benning Road NE | | 0 | | | | 2 | | | | 190 | | | | 6 | | 0 | 2 | 190 | 6 | 83 |
| 213 | Blaine Street NE at Benning Road NE | 1 | | | | | | | | | | | | -1 | 0 | | 1 | | 0 | 0 | |
| 214 | 44th Street NE at Benning Road NE | | | | | 2 | | | | | 33 | | | | 16 | | | 2 | 33 | 16 | 22 |
| 215 | 45th Street NE at Benning Road NE | | | | | 4 | | | | 0 | 0 | | | | | | | 4 | 0 | 0 | |
| 216 | Central Avenue NE at Benning Road NE | | | | | | | 3 | | | | | | | | | | 3 | 0 | 0 | |
| 217 | East Capitol Street at Benning Road NE | 10 | -3 | | | | -2 | | | | 313 | | | 65 | 4 | | -3 | -2 | 310 | 10 | 50 |
| 218 | East Capitol Street at Texas Avenue SE | | -7 | | | -19 | | | | | | | | 4 | | 3 | -7 | -19 | | 3 | -8 |
| 210 | Minnesota Avenue NE at Dix Street NE | | 2 | | | | 3 | | | | 0 | | | | 0 | | 2 | 3 | 0 | 0 | 1 |
| 219 | Minnesota Avenue NE at DOES Parking Garage Driveway | | 3 | | | | 0 | 0 | | | | | | | | | 3 | 0 | | | |
| 211 | Minnesota Avenue NE at Bus Exit South | | 2 | | | | 0 | | | 0 | | 0 | | | | | 2 | 0 | 0 | | 2 |
| 212 | Minnesota Avenue NE at Grant Street NE and Bus Entrance | 2 | 10 | | | | 0 | | | | | | | | 0 | | 10 | 0 | 0 | 0 | 6 |
| 311 | Kenilworth Terrace NE at Deane Avenue NE | | 0 | | | 32 | 4 | | | | 0 | | | 0 | 0 | | 0 | 18 | 0 | 0 | 5 |
| 312 | Kenilworth Avenue NE at Deane Avenue NE | | | | | 0 | 0 | | | | 1 | | | -2 | -1 | | 0 | 0 | 1 | -1 | -1 |
| 313 | Kenilworth Avenue NE and DC-295 U-Turns at Nannie | | -10 | -56 | | | | | | | 2 | | | | 4 | | -36 | 0 | 2 | 4 | -8 |
| 314 | Minnesota Avenue NE at Nannie Helen Burroughs Avenue | -52 | -4 | | | | 12 | | | | 26 | | | 2 | 9 | | -25 | 12 | 26 | 8 | 4 |
| 315 | 44th Street NE and Hunt Place NE at Nannie Helen | | -75 | | | | -3 | | | 7 | | | | | | | -75 | -3 | 7 | | -15 |
| 316 | Kenilworth Avenue NE at Foote Street NE | | | | | | | | | | | 0 | | | | | | 0 | 0 | | |
| 323 | 17th Street NE at C Street NE | | | | | | 1 | | | | 0 | | | 0 | 0 | | 0 | 1 | 0 | 0 | 1 |
| 317 | 19th Street NE at C Street NE | 0 | 0 | 0 | | | | | | | 1 | | | | 0 | | 0 | 0 | 1 | 0 | 0 |
| 318 | 21st Street NE, 22nd Street NE, C Street NE | | 0 | | | | 2 | -1 | | -1 | 0 | | | | 0 | 0 | 0 | 2 | -2 | 0 | -1 |
| 319 | 19th Street SE at Independence Avenue SE | | 0 | 0 | | | | | | | 33 | | | | | 0 | 0 | 0 | 33 | 0 | 23 |

* Intersections in blue are unsignalized
* Results from Synchro 10, HCM 2000 Report

# Delay Comparison Table | 2025 NB vs Post-Mitigation MOT | AM

| Map ID | Intersection Name | Northbound | | | Southbound | | | | Eastbound | | | | Westbound | | | | Approach | | | | Intersection |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NBL | NBT | NBR | SBU | SBL | SBT | SBR | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NB Approach | SB Approach | EB Approach | WB Approach | |
| 208 | 26th Street NE at Benning Road NE | | | | | 75 | | | | 2 | -5 | | | | 6 | | | 75 | -5 | 6 | 7 |
| 209 | Oklahoma Avenue NE at Benning Road NE | 2 | | 2 | | | | | | | 0 | 2 | | -26 | 7 | | -4 | | 1 | 0 | 1 |
| 101 | Anacostia Avenue NE at Benning Road NE | | 25 | 5 | | | 7 | | | | 0 | | | | 48 | | 19 | 7 | 0 | 48 | 33 |
| 102 | 34th Street NE at Benning Road NE | | 17 | | | | 41 | | | 23 | 4 | | | -32 | 45 | | 17 | 41 | 4 | 39 | 27 |
| 104 | Minnesota Avenue NE at Benning Road NE | 52 | 7 | | | -14 | -15 | 17 | | -40 | -1 | | | | -35 | | 22 | -4 | -11 | -35 | -7 |
| 105 | 39th Street NE/Driveway at Benning Road NE | | 0 | | | | 0 | | | | 1 | | | | 1 | | 0 | 0 | 1 | 1 | 2 |
| 106 | 40th Street NE at Benning Road NE | 1 | | | | | | | | | | | | 0 | | | 1 | | 0 | 0 | |
| 107 | 41st Street NE at Benning Road NE | 2 | | | | | | | | | | | | 0 | -1 | | 2 | | 0 | -1 | |
| 108 | 42nd Street NE at Benning Road NE | | 0 | | | | -52 | | | | -2 | | | | 86 | | 0 | -52 | 30 | 85 | 31 |
| 213 | Blaine Street NE at Benning Road NE | 1 | | | | | | | | | | | | 0 | -1 | | 1 | | 0 | -1 | |
| 214 | 44th Street NE at Benning Road NE | | | | | -3 | | | | | 0 | | | | 92 | | | -3 | 58 | 92 | 63 |
| 215 | 45th Street NE at Benning Road NE | | | | | 9 | | | | -1 | 0 | | | | | | | 9 | 0 | 0 | |
| 216 | Central Avenue NE at Benning Road NE | | | | | | | 19 | | | | | | | | | | 19 | 0 | 0 | |
| 217 | East Capitol Street at Benning Road NE | 20 | 1 | | | | -5 | | | -21 | -9 | | | 82 | -4 | | 5 | -5 | -12 | 36 | 5 |
| 218 | East Capitol Street at Texas Avenue SE | | 4 | | | 2 | | | | | | | | -3 | | -2 | 4 | 2 | | -3 | 1 |
| 210 | Minnesota Avenue NE at Dix Street NE | | 0 | | | | -1 | | | | 0 | | | | -3 | | 0 | -1 | 0 | -3 | -1 |
| 219 | Minnesota Avenue NE at DOES Parking Garage Driveway | 3 | -1 | | | | -5 | -7 | | | | | | | | | 0 | -5 | | | |
| 211 | Minnesota Avenue NE at Bus Exit South | | 9 | | | | 0 | | | 0 | | 0 | | | | | 9 | 0 | 0 | | 3 |
| 212 | Minnesota Avenue NE at Grant Street NE and Bus Entrance | -2 | -1 | | | | 1 | | | | | | | | -1 | | -1 | 1 | 0 | -1 | 0 |
| 311 | Kenilworth Terrace NE at Deane Avenue NE | | 0 | | | 122 | 78 | | | | 0 | | | 0 | 0 | | 0 | 100 | 0 | 0 | 40 |
| 312 | Kenilworth Avenue NE at Deane Avenue NE | | | | | 0 | 0 | | | | 1 | | | 3 | 1 | | 0 | 0 | 1 | 2 | 1 |
| 313 | Kenilworth Avenue NE and DC-295 U-Turns at Nannie | | 18 | -18 | | | | | | | -12 | | | | -3 | | -13 | 0 | -12 | -3 | -8 |
| 314 | Minnesota Avenue NE at Nannie Helen Burroughs Avenue | -31 | -1 | | | | 0 | | | | 13 | | | -2 | 6 | | -19 | 0 | 13 | 5 | 2 |
| 315 | 44th Street NE and Hunt Place NE at Nannie Helen | | -19 | | | | -6 | | | 1 | | | | | | | -19 | -6 | 1 | | -2 |
| 316 | Kenilworth Avenue NE at Foote Street NE | | | | | | | | | | | -4 | | | | | | 0 | -4 | | |
| 323 | 17th Street NE at C Street NE | | | | | | 0 | | | | 0 | | | 0 | 36 | | 0 | 0 | 0 | 34 | 25 |
| 317 | 19th Street NE at C Street NE | 0 | 0 | 0 | | | | | | | 0 | | | | 3 | | 0 | 0 | 0 | 3 | 1 |
| 318 | 21st Street NE, 22nd Street NE, C Street NE | | 0 | | | | 1 | 5 | | 6 | 0 | | | | 3 | 0 | 0 | 4 | 1 | 3 | -3 |
| 319 | 19th Street SE at Independence Avenue SE | | 0 | 0 | | | | | | | 0 | | | | | 0 | 0 | 0 | 0 | 0 | 0 |

* Intersections in blue are unsignalized

* Results from Synchro 10, HCM 2000 Report

# Delay Comparison Table | 2025 NB vs Post-Mitigation MOT | PM

| Map ID | Intersection Name | Northbound | | | Southbound | | | | Eastbound | | | | Westbound | | | | Approach | | | | Intersection |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NBL | NBT | NBR | SBU | SBL | SBT | SBR | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NB Approach | SB Approach | EB Approach | WB Approach | |
| 208 | 26th Street NE at Benning Road NE | | | | | -1 | | | | 0 | -2 | | | | -1 | | | -1 | -2 | 0 | -1 |
| 209 | Oklahoma Avenue NE at Benning Road NE | 8 | | 3 | | | | | | | 4 | | | -12 | 1 | | 6 | | 4 | 0 | 2 |
| 101 | Anacostia Avenue NE at Benning Road NE | | 6 | 4 | | | | | | | 3 | | | | 2 | | 5 | 0 | 3 | 2 | 2 |
| 102 | 34th Street NE at Benning Road NE | | 17 | | | | 20 | | | 57 | -12 | | | -17 | -8 | | 17 | 20 | -12 | -9 | -9 |
| 104 | Minnesota Avenue NE at Benning Road NE | -2 | 2 | | | 5 | 0 | 25 | | 19 | 77 | | | | 0 | | 1 | 7 | 60 | 0 | 21 |
| 105 | 39th Street NE/Driveway at Benning Road NE | | 0 | | | | 0 | | | | 0 | | | | 0 | | 0 | 0 | 0 | 0 | 3 |
| 106 | 40th Street NE at Benning Road NE | -80 | | | | | | | | | | | | -3 | | | -80 | | 0 | -1 | |
| 107 | 41st Street NE at Benning Road NE | 2 | | | | | | | | | | | | -2 | -1 | | 2 | | 0 | -1 | |
| 108 | 42nd Street NE at Benning Road NE | | 0 | | | | 2 | | | | -189 | | | | 6 | | 0 | 2 | -172 | 6 | -101 |
| 213 | Blaine Street NE at Benning Road NE | 1 | | | | | | | | | | | | -1 | 0 | | 1 | | 0 | 0 | |
| 214 | 44th Street NE at Benning Road NE | | | | | 2 | | | | | 2 | | | | 16 | | | 2 | 2 | 16 | 8 |
| 215 | 45th Street NE at Benning Road NE | | | | | 4 | | | | 0 | 0 | | | | | | | 4 | 0 | 0 | |
| 216 | Central Avenue NE at Benning Road NE | | | | | | | 3 | | | | | | | | | | 3 | 0 | 0 | |
| 217 | East Capitol Street at Benning Road NE | 10 | -3 | | | | -2 | | | -26 | 36 | | | 65 | 4 | | -3 | -2 | 22 | 10 | 2 |
| 218 | East Capitol Street at Texas Avenue SE | | -7 | | | -14 | | | | | | | | 4 | | 3 | -7 | -14 | | 3 | -7 |
| 210 | Minnesota Avenue NE at Dix Street NE | | 2 | | | | 3 | | | | 0 | | | | 0 | | 2 | 3 | 0 | 0 | 1 |
| 219 | Minnesota Avenue NE at DOES Parking Garage Driveway | | 3 | | | | 0 | 0 | | | | | | | | | 3 | 0 | | | |
| 211 | Minnesota Avenue NE at Bus Exit South | | 2 | | | | 0 | | | 0 | | 0 | | | | | 2 | 0 | 0 | | 2 |
| 212 | Minnesota Avenue NE at Grant Street NE and Bus Entrance | 2 | 10 | | | | 0 | | | | | | | | 0 | | 10 | 0 | 0 | 0 | 6 |
| 311 | Kenilworth Terrace NE at Deane Avenue NE | | 0 | | | 32 | 4 | | | | 0 | | | 0 | 0 | | 0 | 18 | 0 | 0 | 5 |
| 312 | Kenilworth Avenue NE at Deane Avenue NE | | | | | 0 | 0 | | | | 1 | | | -2 | -1 | | 0 | 0 | 1 | -1 | -1 |
| 313 | Kenilworth Avenue NE and DC-295 U-Turns at Nannie | | 16 | -88 | | | | | | | 2 | | | | 4 | | -43 | 0 | 2 | 4 | -9 |
| 314 | Minnesota Avenue NE at Nannie Helen Burroughs Avenue | -52 | -4 | | | | 12 | | | | 28 | | | 2 | 9 | | -25 | 12 | 28 | 8 | 4 |
| 315 | 44th Street NE and Hunt Place NE at Nannie Helen | | -75 | | | | -3 | | | 7 | | | | | | | -75 | -3 | 7 | | -15 |
| 316 | Kenilworth Avenue NE at Foote Street NE | | | | | | | | | | | 0 | | | | | | 0 | 0 | | |
| 323 | 17th Street NE at C Street NE | | | | | | 1 | | | | 0 | | | 0 | 0 | | 0 | 1 | 0 | 0 | 1 |
| 317 | 19th Street NE at C Street NE | 0 | 0 | 0 | | | | | | | 1 | | | | 0 | | 0 | 0 | 1 | 0 | 0 |
| 318 | 21st Street NE, 22nd Street NE, C Street NE | | 0 | | | | 2 | -1 | | -1 | 0 | | | | 0 | 0 | 0 | 2 | -2 | 0 | -1 |
| 319 | 19th Street SE at Independence Avenue SE | | 0 | 0 | | | | | | | 33 | | | | | 0 | 0 | 0 | 33 | 0 | 23 |

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