



# Executive Director's Recommendation

Commission Meeting: September 8, 2016

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<b>PROJECT</b> <b>Flood Hardening at Cleveland Park, Shaw-Howard University, and Capitol South Metrorail Stations</b> Washington, DC	<b>NCPC FILE NUMBER</b> 7812
	<b>NCPC MAP FILE NUMBER</b> 00:00(41.14)44403
<b>SUBMITTED BY</b> Washington Metropolitan Area Transit Authority	<b>APPLICANT'S REQUEST</b> Approval of comments on concept design
	<b>PROPOSED ACTION</b> Approve preliminary and final plans
<b>REVIEW AUTHORITY</b> Advisory D.C. Code § 9-1107.01, Washington Metropolitan Area Transit Authority Compact	<b>ACTION ITEM TYPE</b> Consent Calendar

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## PROJECT SUMMARY

The Washington Metropolitan Area Transit Authority (WMATA) submitted a project to harden and protect the underground Metrorail system at the Cleveland Park, Shaw/Howard University, and Capitol South Metrorail Stations from future flood events by raising existing vent shafts. These three locations are described below:

### *Cleveland Park Station*

On June 21, 2016, an intense storm caused a localized flood. Water entered the station's vent shafts, as well as the east and west entrances. These vents experience localized flooding even though it is not within the 100-year floodplain. WMATA is proposing to construct an 18-24 inch parapet concrete wall around the vent shafts next to the eastern side of Connecticut Avenue, NW. These walls will be faced with granite, which is in keeping with other vent shaft knee walls that have been installed in other parts of the city.

### *Shaw/Howard University Station*

On September 2, 2012, the Bloomingdale neighborhood experienced a major storm which led to localized flooding. WMATA states that because storm drain pipes could not handle the water, WMATA tracks and tunnels were flooded above the 3rd rail. These vents experience localized flooding even though it is not within the 100-year floodplain. WMATA is proposing to construct an 18-24-inch concrete parapet wall around four separate vent shafts that are currently flush with the sidewalk and covered with metal grates. The walls will be faced with granite. Two of these vents are located on the sidewalk adjacent to the Watha T. Daniel Public Library. One of the vents is located in the median strip on Rhode Island Avenue, NW between 7<sup>th</sup> Street and 8<sup>th</sup> Streets, NW. The fourth and final vent is located on a small triangular paved island bound by R Street, 7<sup>th</sup> Street and Rhode Island Avenue, NW.

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*Capitol South Station*

WMATA states that the intersection of D Street, SE and 1st Street, SE is vulnerable to flooding because of impervious surfaces, local topography, and the limited capacity of nearby storm drains. Water quickly overflows to the drains and enters the stations vaulted ceiling, falling onto the stations mezzanine and platform. Since this is the location of the Capitol South Metrorail station, WMATA needs to provide flood protection. WMATA notes that this flooding is the result of the four shafts located along D Street, SE only having three sides. WMATA proposes to elevate the existing walls of the four vent shafts from 7-inches to a 12-inches and to install another wall along the D Street, SE side of the shafts as well. These concrete enclosures will be faced with granite.

**KEY INFORMATION**

- Proposal will protect against localized flooding near three Metrorail stations in DC.
- WMATA currently has protective walls around vent shafts at several other locations adjacent to Metrorail stations or over the Metrorail tunnel.
- Existing knee walls are made of concrete and faced with granite.
- WMATA submitted the project for concept review, and staff note that there is sufficient information to provide preliminary and final approval of the project at this time.

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**RECOMMENDATION**

The Commission:

**Approves** the preliminary and final site development plans for flood protection measures at three Metrorail Stations consisting of raising the elevation of existing air vent shafts.

**Reminds** WMATA that it will need to submit these projects to the District of Columbia Public Space Committee for approval and further notes that if WMATA makes substantial changes to this project it will need to be resubmitted to the Commission for review in the future.

**PROJECT REVIEW TIMELINE**

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<b>Previous actions</b>	None
<b>Remaining actions (anticipated)</b>	None

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## PROJECT ANALYSIS

### Executive Summary

Staff has reviewed the submitted materials and supports WMATA's efforts to protect this vital transit infrastructure which will allow it to continue to be used during rain events when localized flooding occurs. Therefore, staff recommends that the Commission **approve the flood hardening and protection project at Cleveland Park, Shaw/Howard University and Capitol South Metrorail Stations**. As this project will be located in public space, staff **reminds WMATA that it will have to submit this project to the District of Columbia Public Space Committee and further notes that if WMATA makes substantial changes to this project it will need to be resubmitted to the Commission for review in the future.**

### Analysis

Staff has reviewed the project submission and understands that these measures are intended to make the Metrorail system more resilient by preventing stormwater from entering metro tunnels. Staff evaluated each of these sites separately because they have unique conditions. All of these projects will be located in public space requiring WMATA to submit the project to the District of Columbia's Public Space Committee for approval.

#### *Cleveland Park Station*

WMATA is proposing to protect two vent shafts for this Metrorail station that are located in a confined area between the existing metro escalator and the Connecticut Avenue curb. This portion of the sidewalk is heavily used by pedestrians walking both north and south of the station. Adding an 18-24 inch wall around the existing vent shafts will replace the existing sandbags that are used to temporarily protect these vents. While this will occur at a narrow section of the sidewalk which would limit the walking path at this location, WMATA states that there will be approximately a 6-foot clear area which would allow for pedestrians to pass. Staff understands that this is a very narrow area, however WMATA has described that the existing site conditions make it impossible to develop this project at another location.

#### *Shaw/Howard University Station*

WMATA is proposing to protect four vent shafts in close proximity to the Shaw/Howard University Metrorail station. Two of the four shafts are near the Walter P. Daniel Library on Rhode Island Avenue. Staff have reviewed the plans and note that improvements to both of these shafts will be adjacent to pedestrian sidewalks and will not impact the pedestrian space. The third shaft is located in the Rhode Island Avenue median and does not pose an obstruction for pedestrians. Furthermore, it's relatively low height of 24-inches will not obstruct drivers. The final site is located on a triangular traffic island. Staff does not believe it will pose any obstructions to pedestrians or drivers.

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*Capitol South Station*

WMATA is proposing to protect four vent shafts near the Capitol South Metrorail station along D Street, SE by raising the existing vent shaft walls from 7 inches to 12 inches. Staff finds that this is a minimal change and there will be no impacts to pedestrians or the ability to park. Currently parking is not allowed on this side of the street.

## **CONFORMANCE TO EXISTING PLANS, POLICIES AND RELATED GUIDANCE**

### **Comprehensive Plan for the National Capital**

NCPC staff has reviewed this proposal and determined that it is not inconsistent with the policies contained within the Elements of the Comprehensive Plan for the National Capital. The project is supported by policies in the transportation, historic preservation and natural resource elements of the Comprehensive Plan.

### **National Historic Preservation Act and National Environmental Policy Act**

As WMATA is not a federal agency, and NCPC is only required to provide comments to WMATA, neither agency has NHPA or NEPA responsibilities for this project. The Federal Highway Administration did however submit these vent shaft protection projects on behalf of WMATA to the District of Columbia State Historic Preservation Office (DC SHPO) for its concurrence with FHWA's no effect determination. The DC SHPO determined that none of these projects would have an adverse effect on historic properties in letters dated, February 17, June 2 and June 23, 2016 for each of the three locations for this project.

## **CONSULTATION**

### **Coordinating Committee**

The Coordinating Committee reviewed the proposal at its August, 17, 2016 meeting. The Committee forwarded the proposal to the Commission with the statement that it has been coordinated with all participating agencies. The participating agencies were: NCPC; the District of Columbia Office of Planning; the District of Columbia Department of Transportation, the General Services Administration; the National Park Service, the District of Columbia State Historic Preservation Office, and the Washington Metropolitan Area Transit Authority.

### **U.S. Commission of Fine Arts**

The Commission of Fine Arts reviewed and approved this project at its July 21, 2016 meeting which was on its consent calendar.

## **ONLINE REFERENCE**

The following supporting documents for this project are available online:

- Submission Package

Prepared by Carlton Hart  
09/01/2016

## **POWERPOINT (ATTACHED)**

**NCPC File #: 7812**  
**Flood Hardening at Cleveland Park, Shaw-Howard  
University, and Capitol South Metrorail Stations**

Various Locations, Washington, DC

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Washington Metropolitan Area Transit Authority

Preliminary and Final

**Commission meeting date:** September 8, 2016

**NCPC review authority:** WMATA Compact

**Applicant request:** Approval of preliminary site development plans

**Delegated / consent / open / executive session:** delegated

**NCPC Review Officer:** Hart

**NCPC File number:** 7812

**Project summary:**

WMATA has submitted a project that will harden and protect the underground Metrorail system at Cleveland Park, Shaw-Howard U, and Capitol South Metrorail Stations from future flood events by raising existing shafts.

Cleveland Park Station

On June 21, 2016, an intense storm caused a localized flood. Water entered the station's vent shafts, as well as the east and west entrances. Proposal is to construct a 18-24 inch parapet wall around the vent shaft. These vents experience localized flooding even though it is not within the 100-year floodplain.

Shaw/Howard University Metro Station

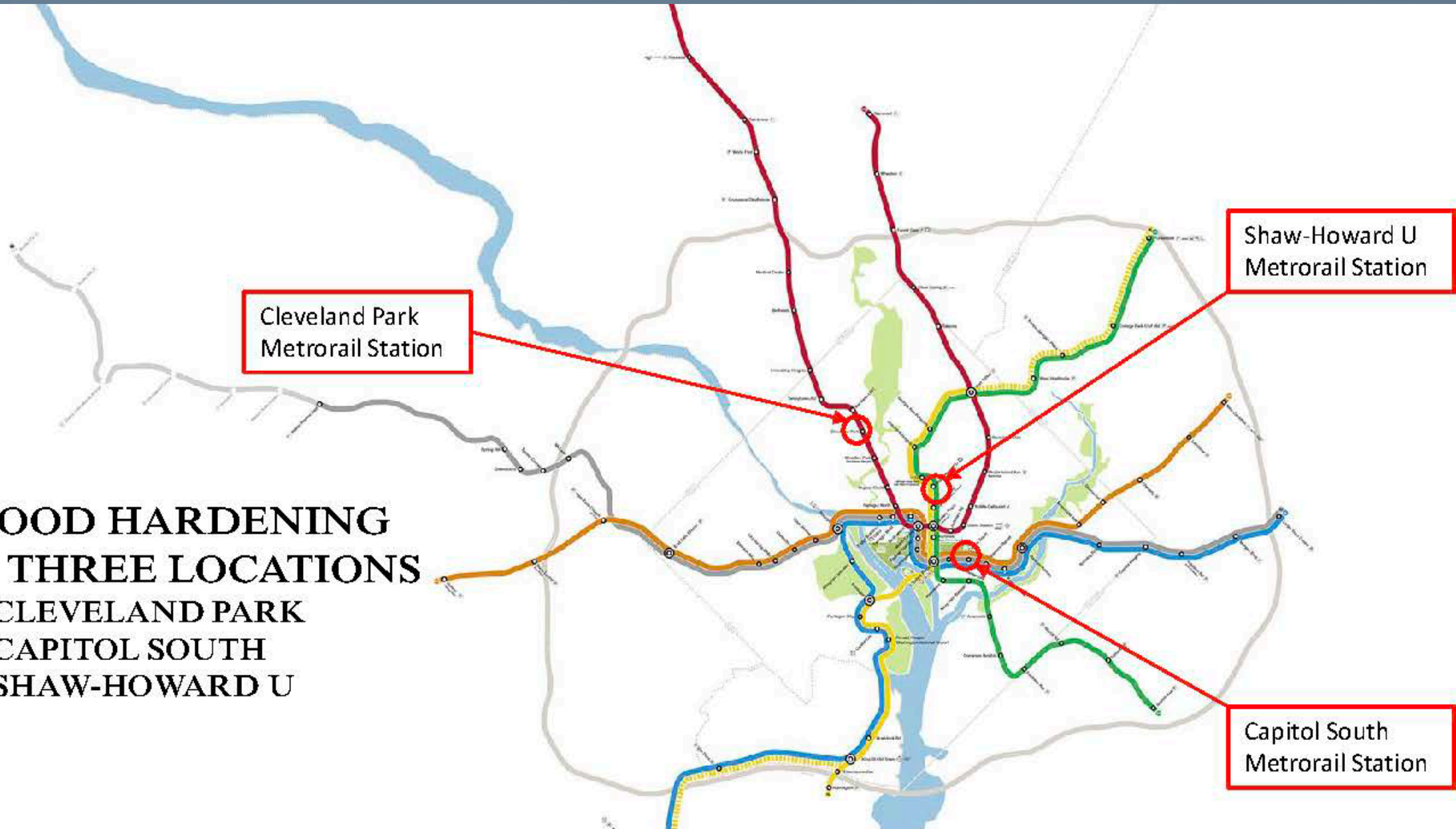
On September 2, 2012, the Bloomingdale neighborhood experienced a major storm which led to localized flooding. Storm drain pipes could not handle the rain water. WMATA tracks and tunnels were flooded above the 3<sup>rd</sup> rail. Proposal is to construct a 18-24-inch parapet wall around the vent shaft depending on flood modeling. These vents experience localized flooding even though it is not within the 100-year floodplain.

Capitol South Station

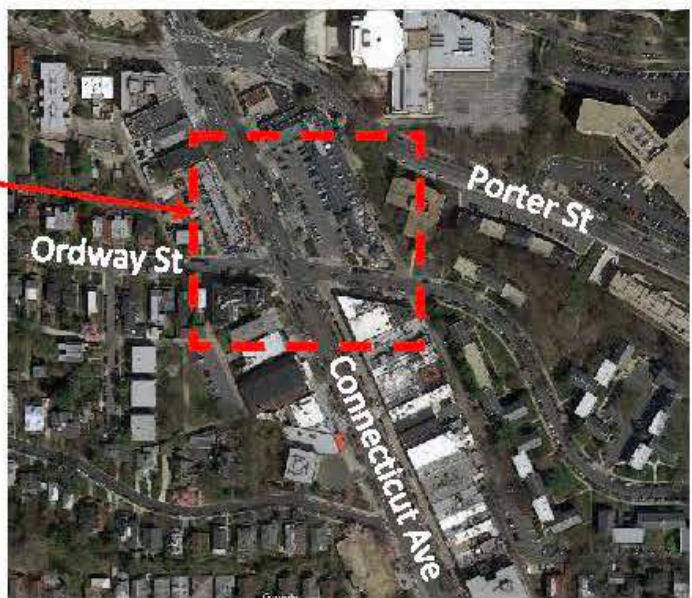
The intersection of D St. SE and First St. SE is vulnerable to flooding because of the impervious surfaces, local topography, and the capacity of nearby storm drains. WMATA's four shafts located along D Street are open to the street. Water quickly overflows to the drains and enters the stations vaulted ceiling, falling onto the stations mezzanine and platform. Proposal is to elevate existing vent shaft wall from 7-inches to a 12-inches. These vents experience localized flooding even though it is not within the 100-year floodplain.

## FLOOD HARDENING AT THREE LOCATIONS

- CLEVELAND PARK
- CAPITOL SOUTH
- SHAW-HOWARD U



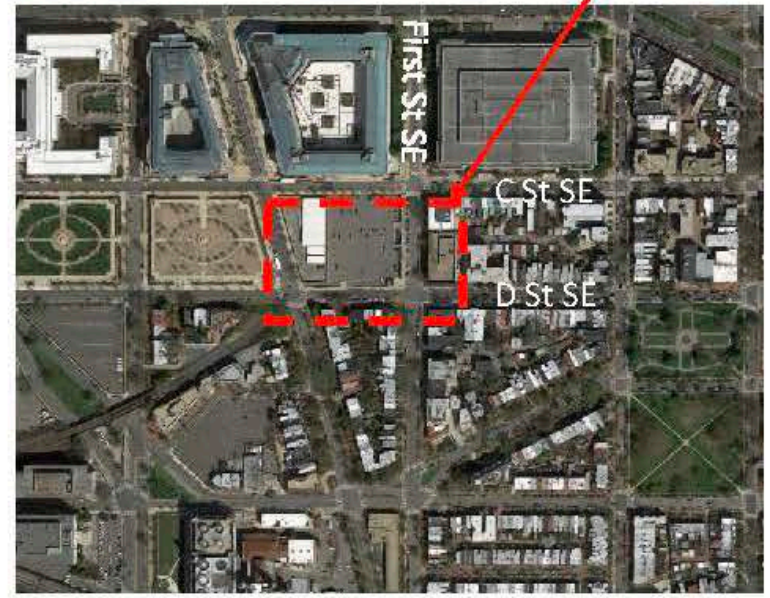
Project Area for Cleveland  
Park Metrorail Station



Project Area for Shaw-  
Howard U Metrorail Station



Project Area for Capitol  
South Metrorail Station





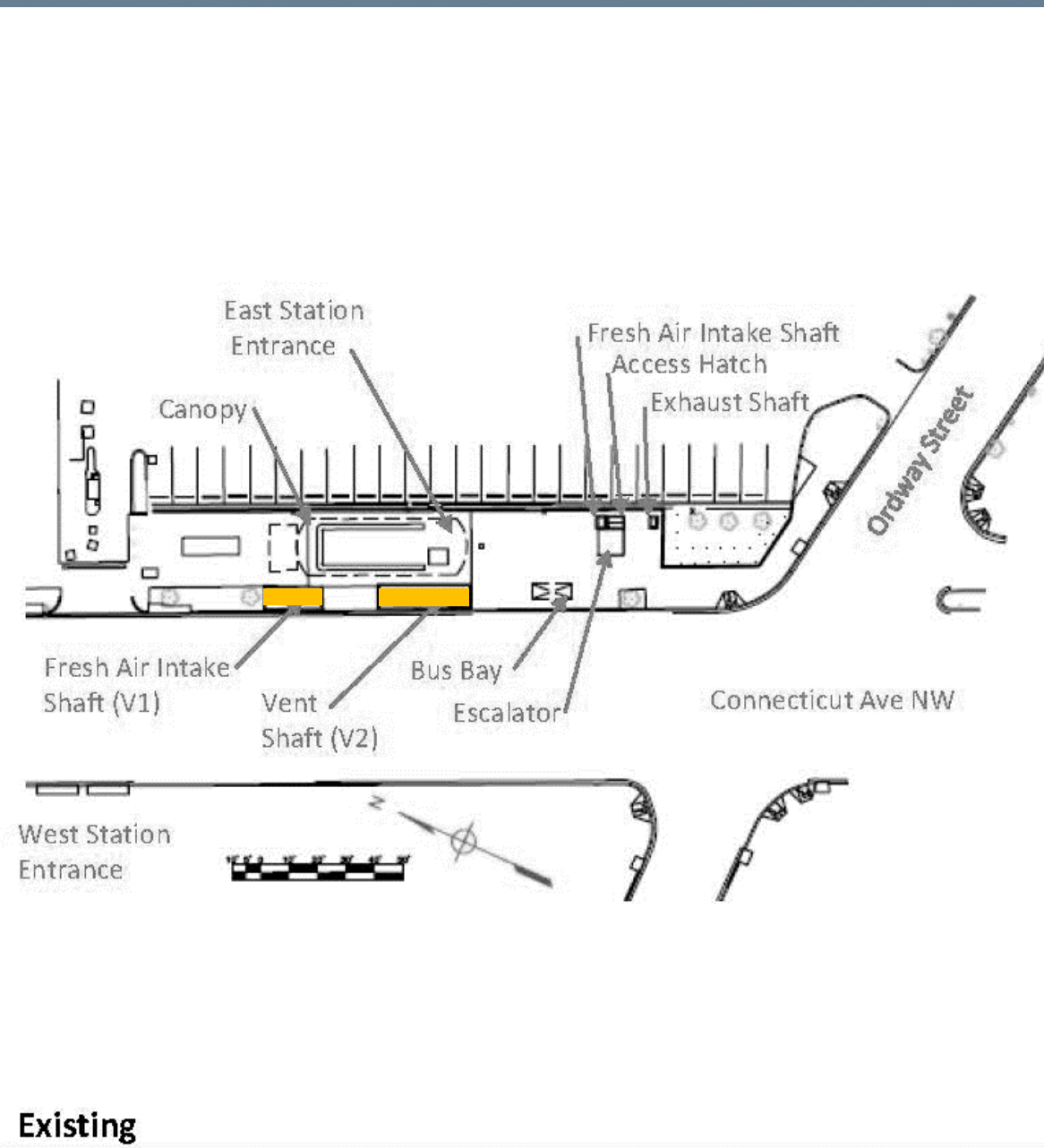
**Cleveland Park Metro Station**



**Capitol South Metro Station**



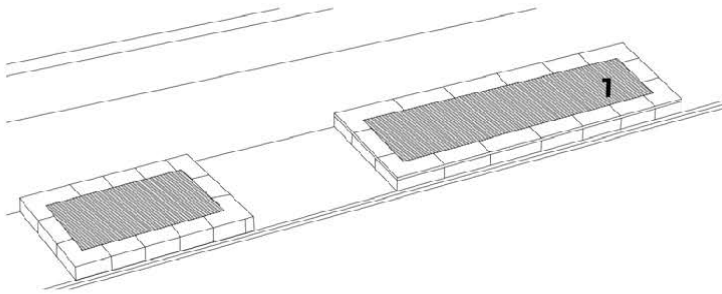
**Howard University/Shaw Metro Station**



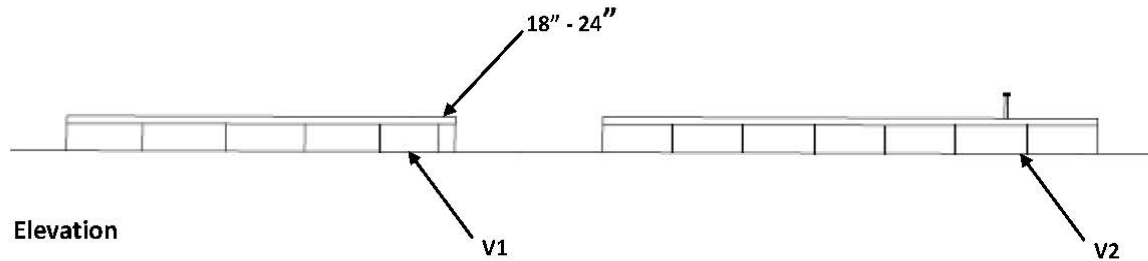
Existing



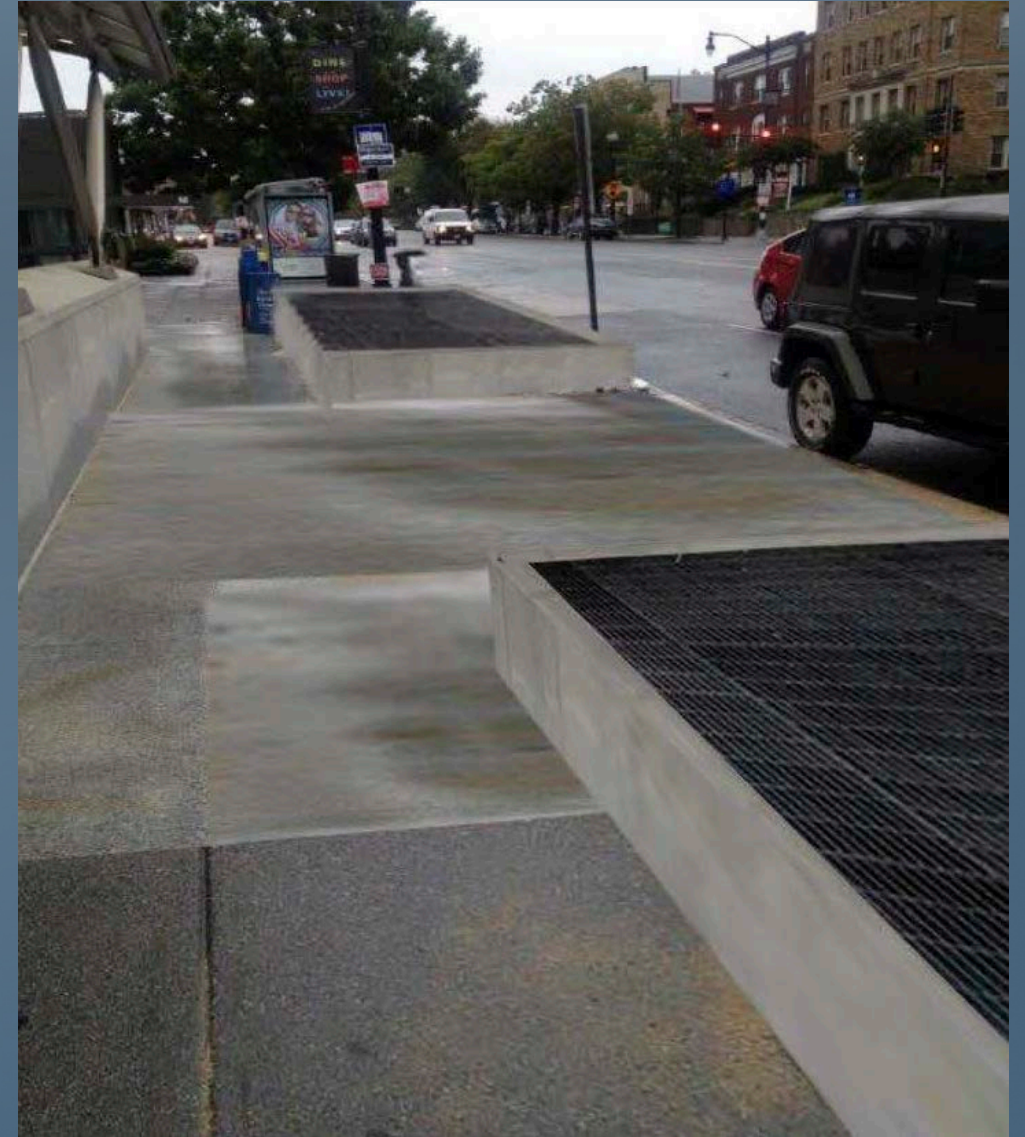
PROPOSED: Elevate shaft with a 18-24-inch parapet wall depending on flood modeling. These vents experience localized flooding even though it is not within the 100-year floodplain.



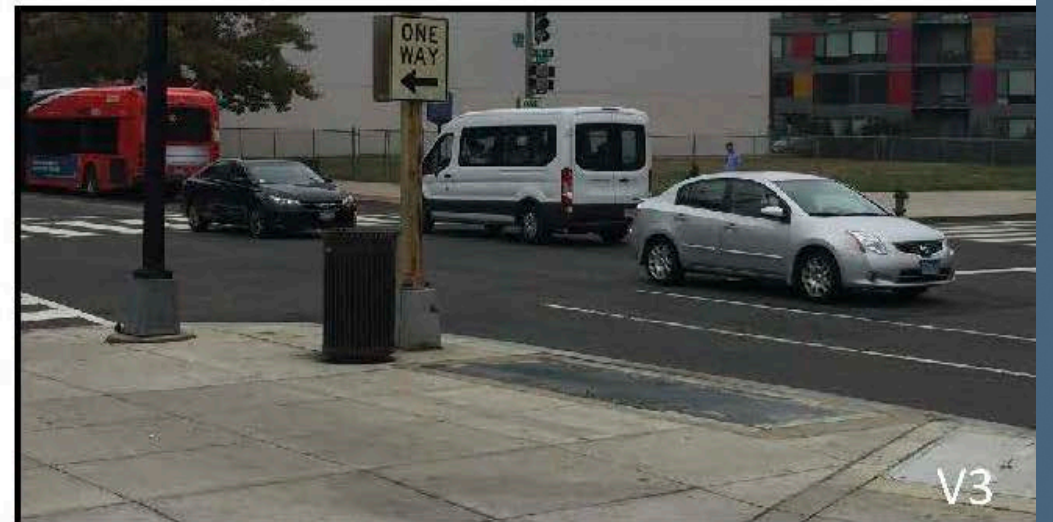
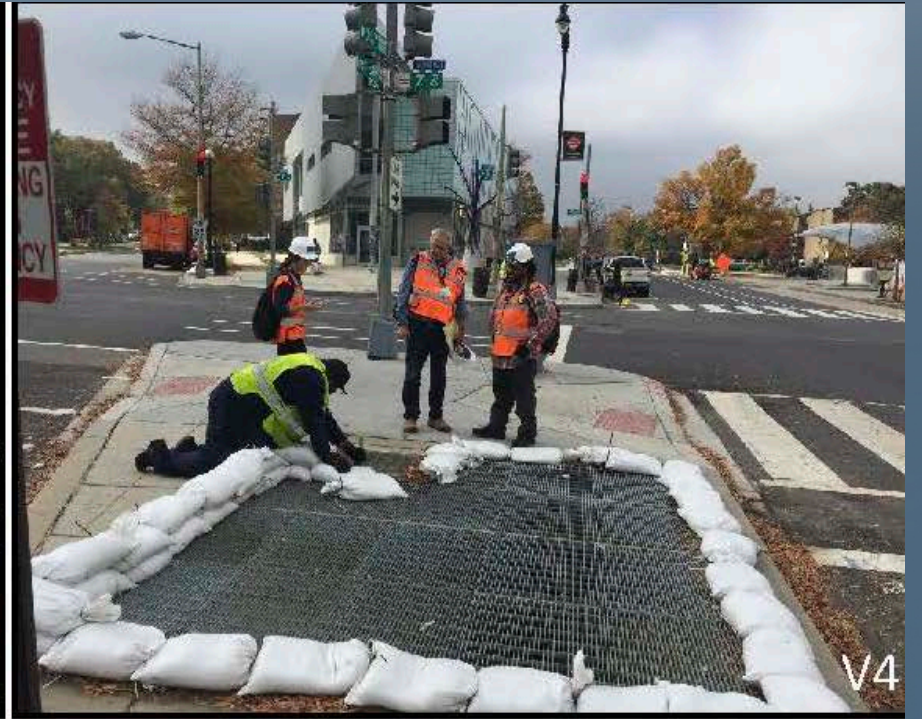
Perspective

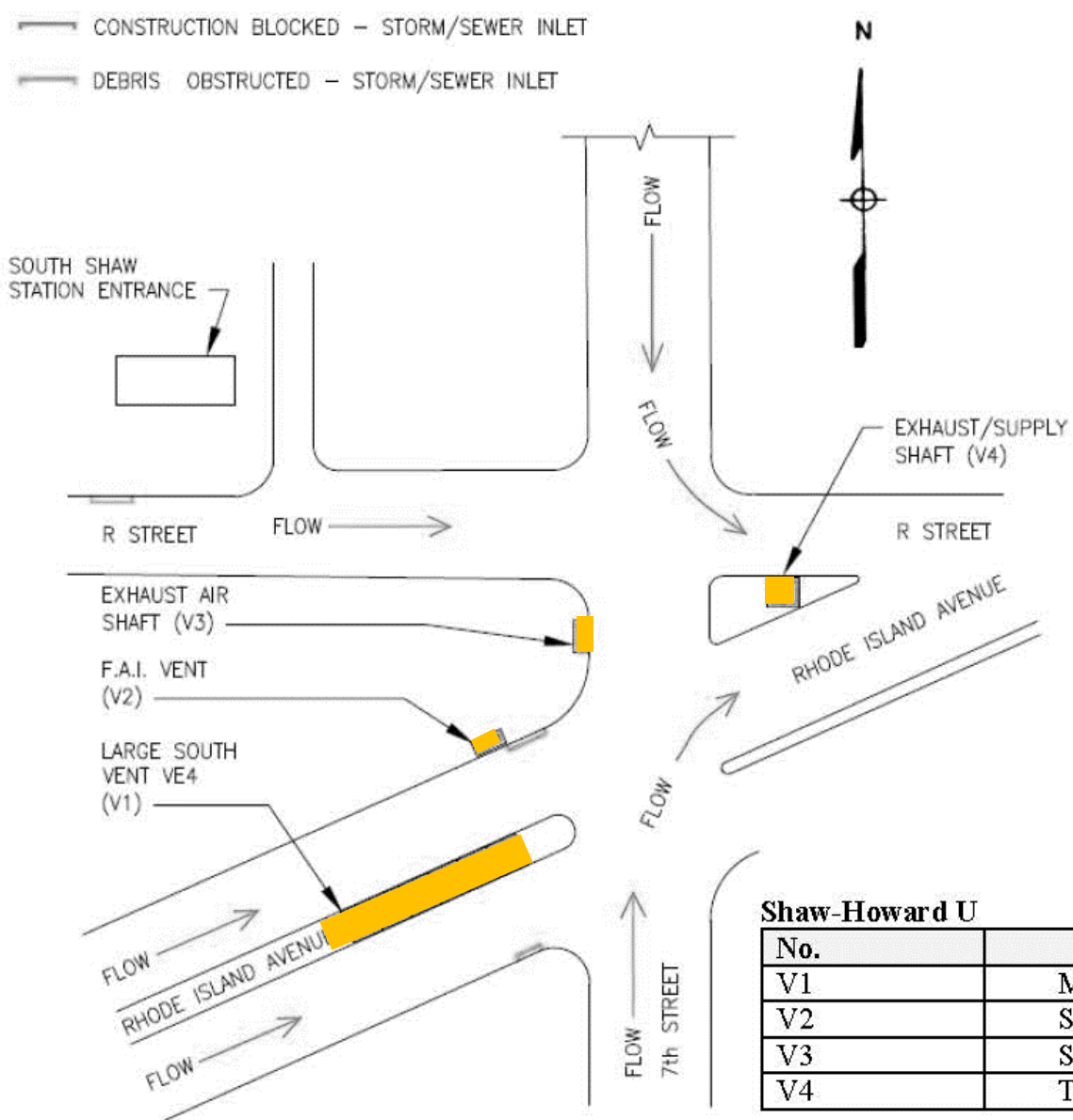


Elevation



# Shaw/Howard University Metro Station – Existing Conditions



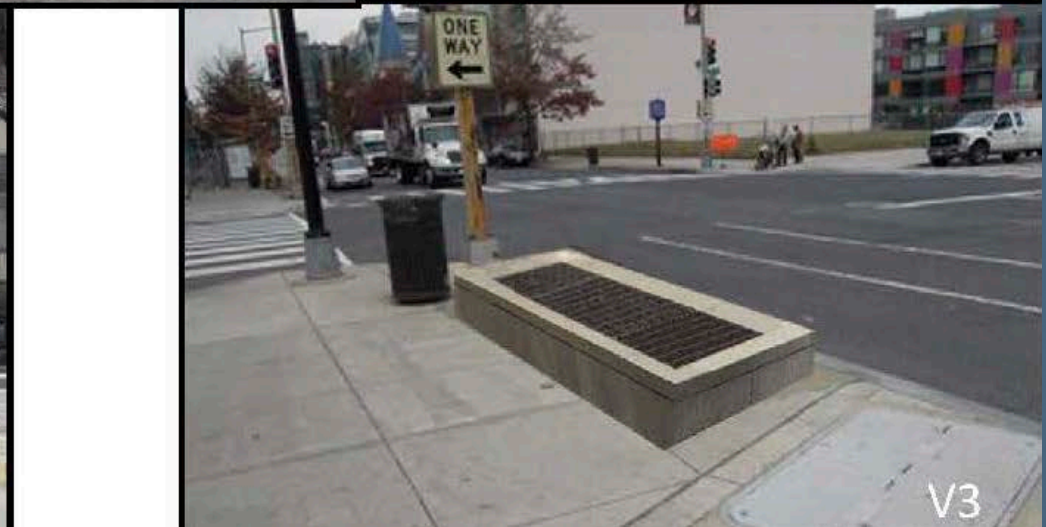
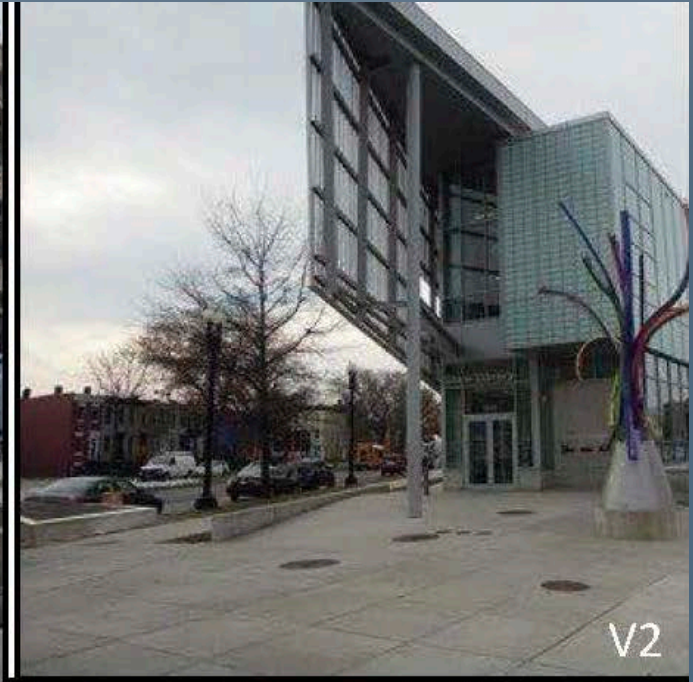


- Street grading on Rhode Island Avenue creates water flow towards 7<sup>th</sup> Street
- The grade on R street creates a flow towards 7<sup>th</sup> Street
- 7<sup>th</sup> Street acts as a north/south bowl and drains into triangle section
- Visual field inspection showed debris on 4 WMATA inlets at the intersection of Rhode Island Ave / R Street / 7<sup>th</sup> Street

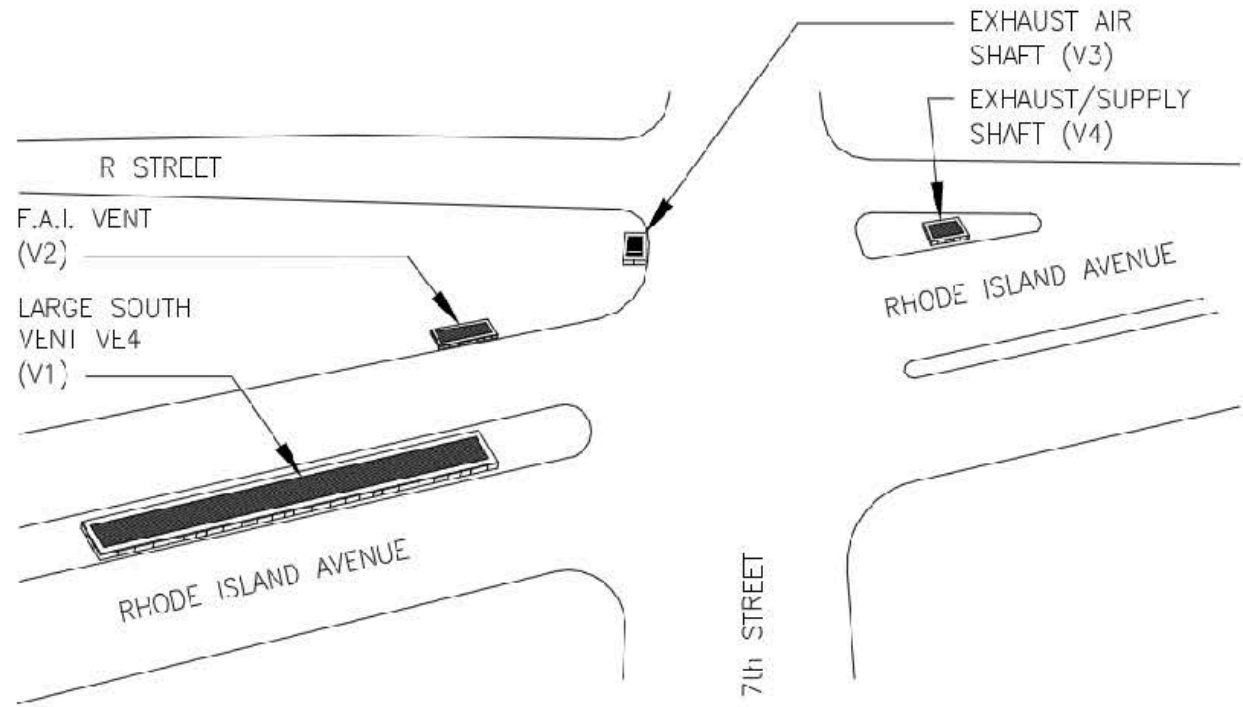
Shaw-Howard U

No.	Location	Size
V1	Median, Rhode Island Avenue	80 ft. x 12 ft.
V2	Sidewalk, Rhode Island Avenue	14 ft. x 5 ft.
V3	Sidewalk, 7 <sup>th</sup> Street	14 ft. x 5 ft.
V4	Triangle Median	13 ft. x 11 ft.

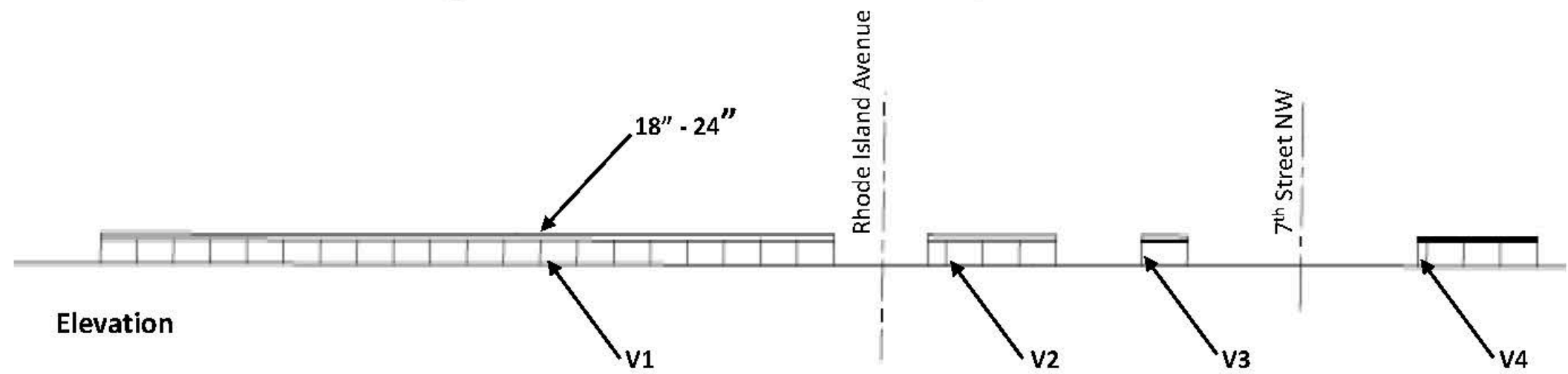
Existing



PROPOSED: Elevate shaft with a 18-24 inch parapet wall. These vents experience localized flooding even though it is not within the 100-year floodplain.

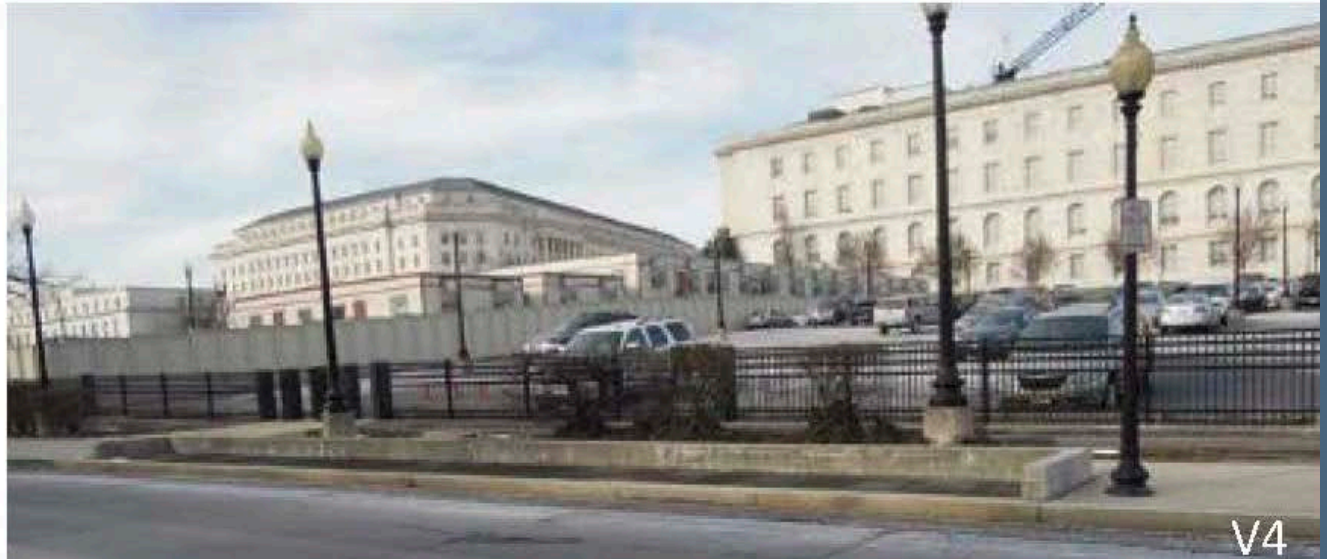


Perspective



Elevation

# Capitol South Metro Station - Existing Conditions



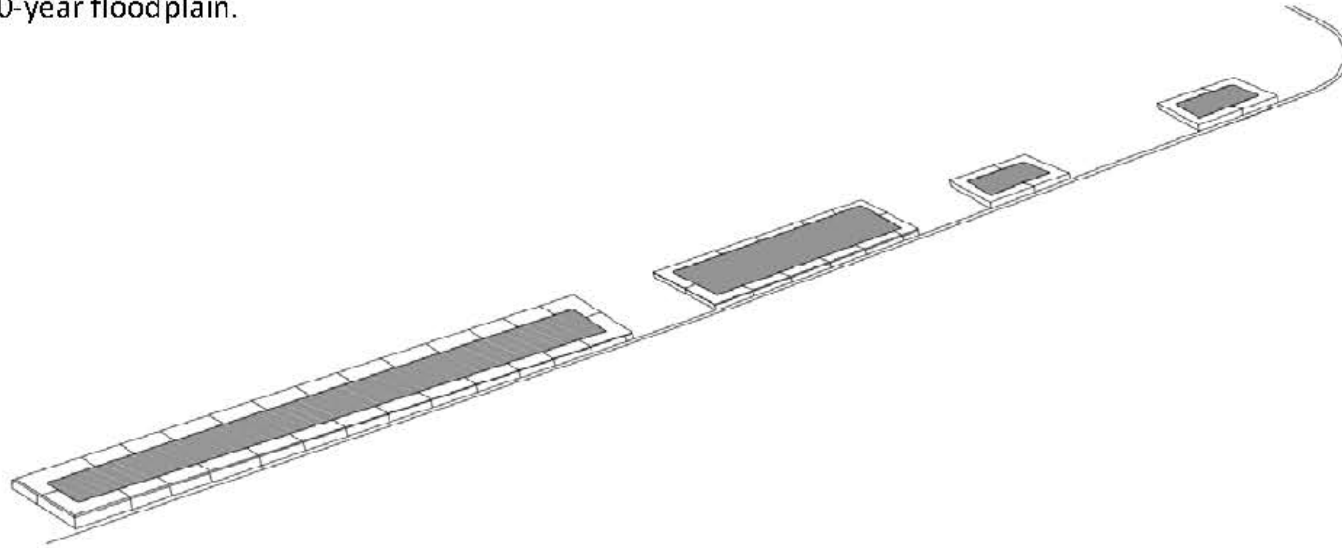




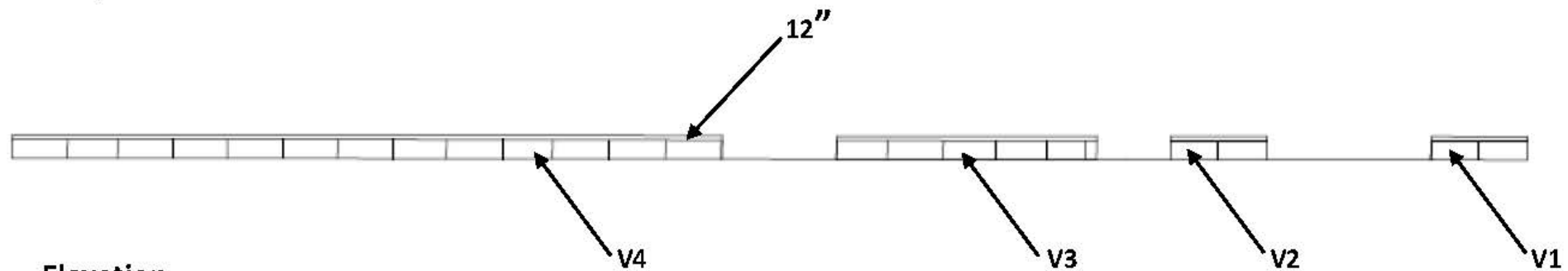
Raise concrete wall and grates 12 inches



PROPOSED: Elevate shaft with a 12-inch parapet wall. These vents experience localized flooding even though it is not within the 100-year floodplain.



Perspective



Elevation