





CONCEPTUAL UDC APPLICATION

UPC 104888 Mayo Bridge Replacement

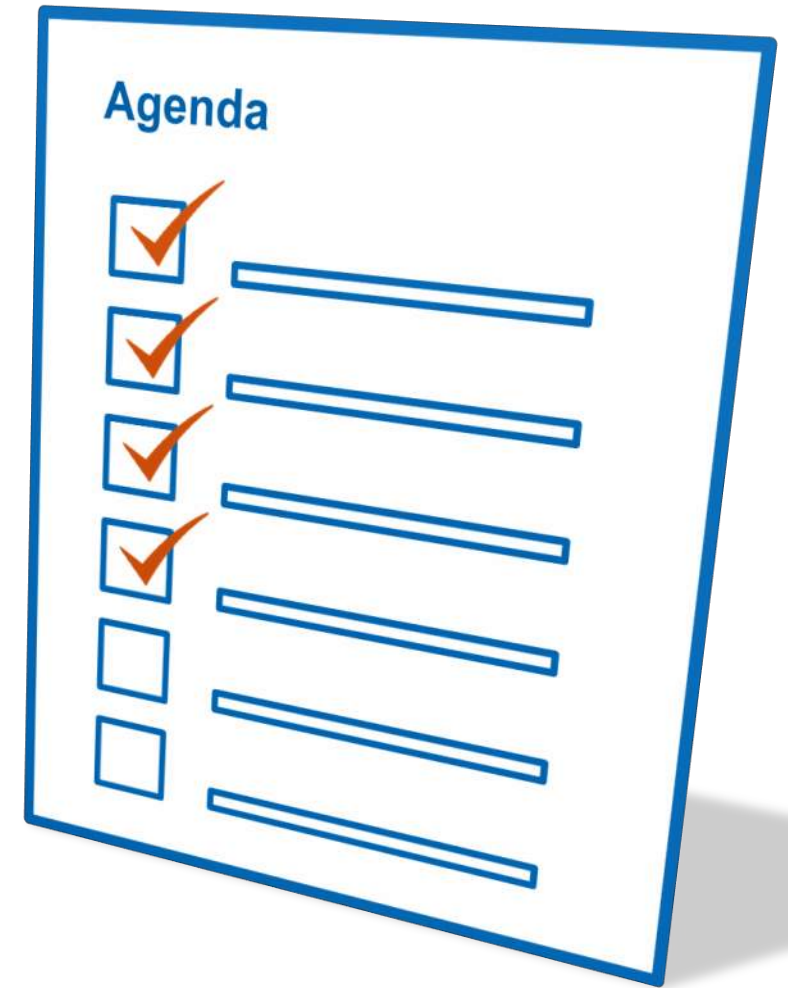


| Will Wheeler, Dr. John Kim

01/15/2026

Agenda

- **Project Information**
- **Existing Bridge**
- **Proposed Concept**
- **Sequence of Construction**
- **Coordination**
- **Recommendation**



PROJECT INFORMATION



Project Goal and Purpose

- **Goal**

- To keep bridge infrastructure safe and operational by meeting all State and Federal Standards and to improve multimodal safety by providing wider sidewalks and bike lanes. In addition, provide a strong multimodal connectivity along this vital transportation corridor

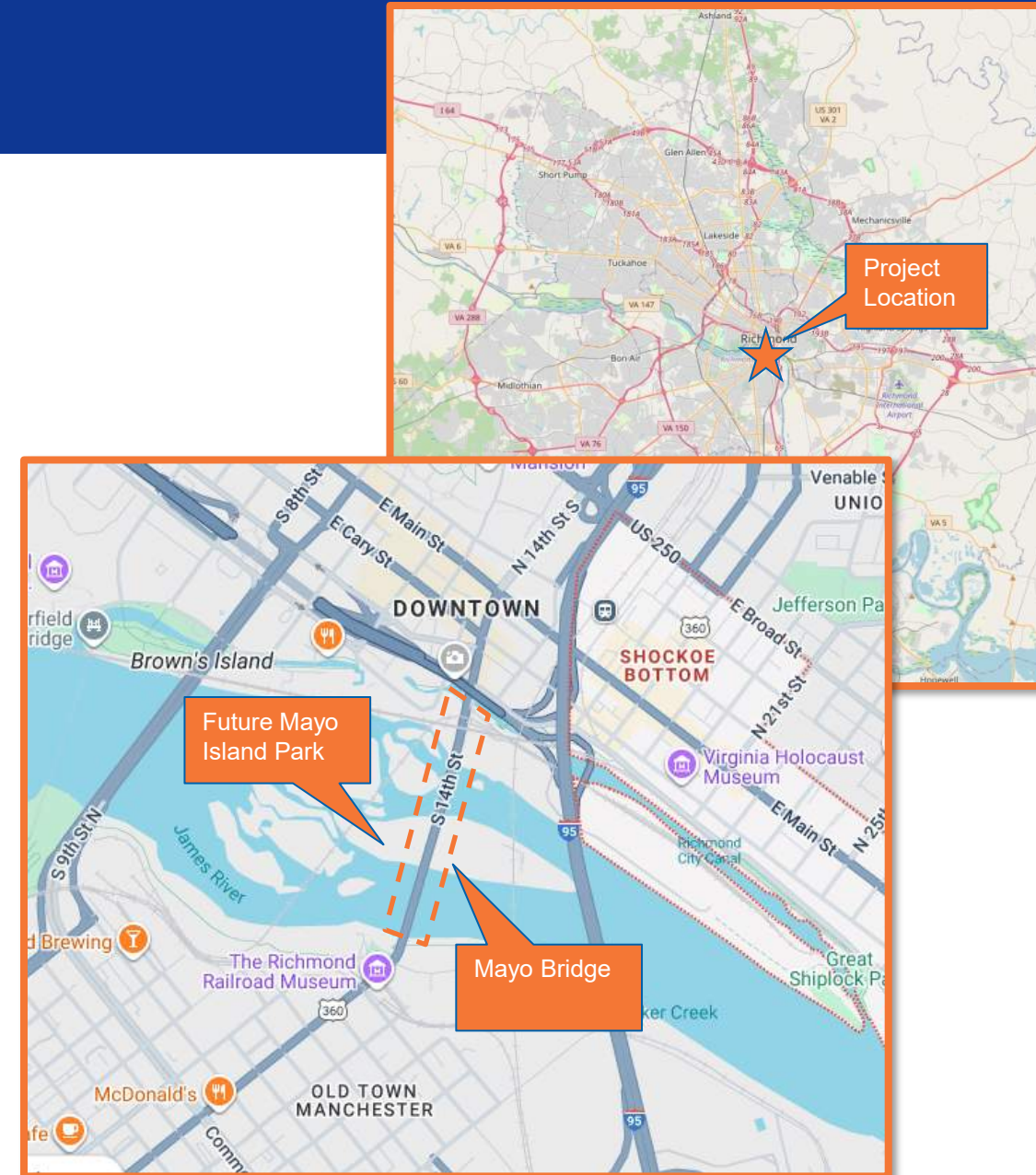
- **Purpose**

- To replace the 112-year-old bridge
- To remove “Poor” condition from City Inventory
- To enhance Multimodal Safety and Mobility



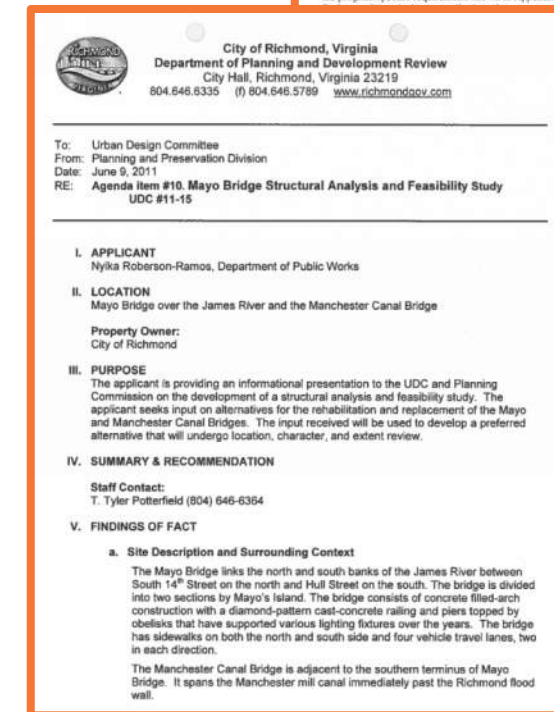
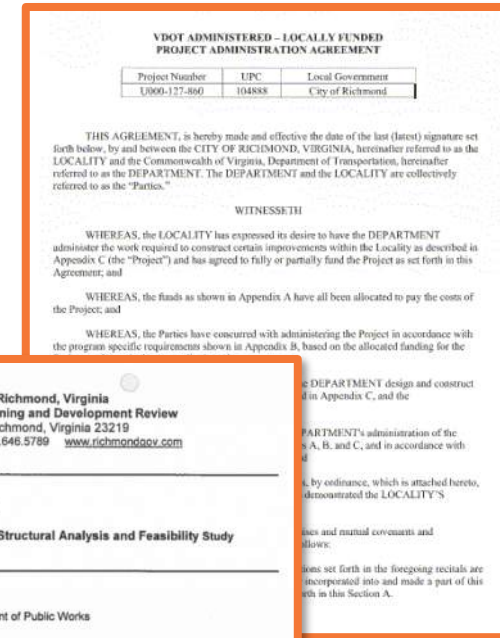
Project Location

- **Project is located along Hull Street and 14th Street, across the James River and Mayo Island Park**
 - Between the Old Town Manchester District and the Shockoe Bottom District
 - Fast developing area
 - Facilitates new public park



Scope History

- **2011: Mayo Bridge Feasibility Study**
 - Administered by City
- **2022: Superstructure Replacement Evaluation**
 - Administered by VDOT
- **2024: Total Bridge Replacement**
 - Result from sub-structure geotechnical finding
 - Island purchase allowed a new alignment to be considered



Current Schedule

Milestone	Planned Finish
City Agreement	January 2022
Initial Public Survey and Public Involvement	June/September 2024
UDC/CPC Conceptual Meeting	January 2026
NEPA and L&D Public Hearing	Fall 2026
UDC/CPC Final Meeting	Early 2027
RFQ Advertise	Early 2027
RFP Advertise	Summer 2027
Award	Late 2027
Construction Complete	Mid-2032

Cost

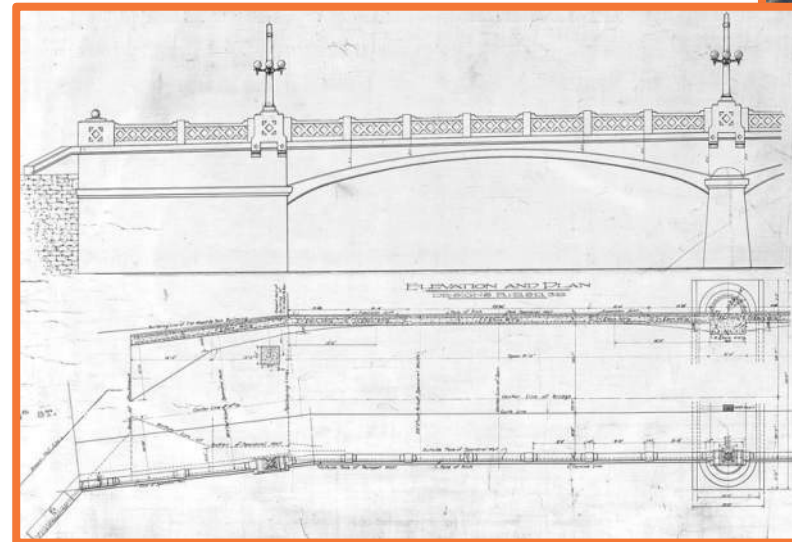
Phase	Estimate	Comments
PE	\$7,775,000	
RW	\$16,172,360	
CN	\$166,702,274	
Total	\$190,649,634	
<i>Funding</i>	<i>\$88,067,313</i>	<i>City exploring additional funding options</i>

EXISTING BRIDGE



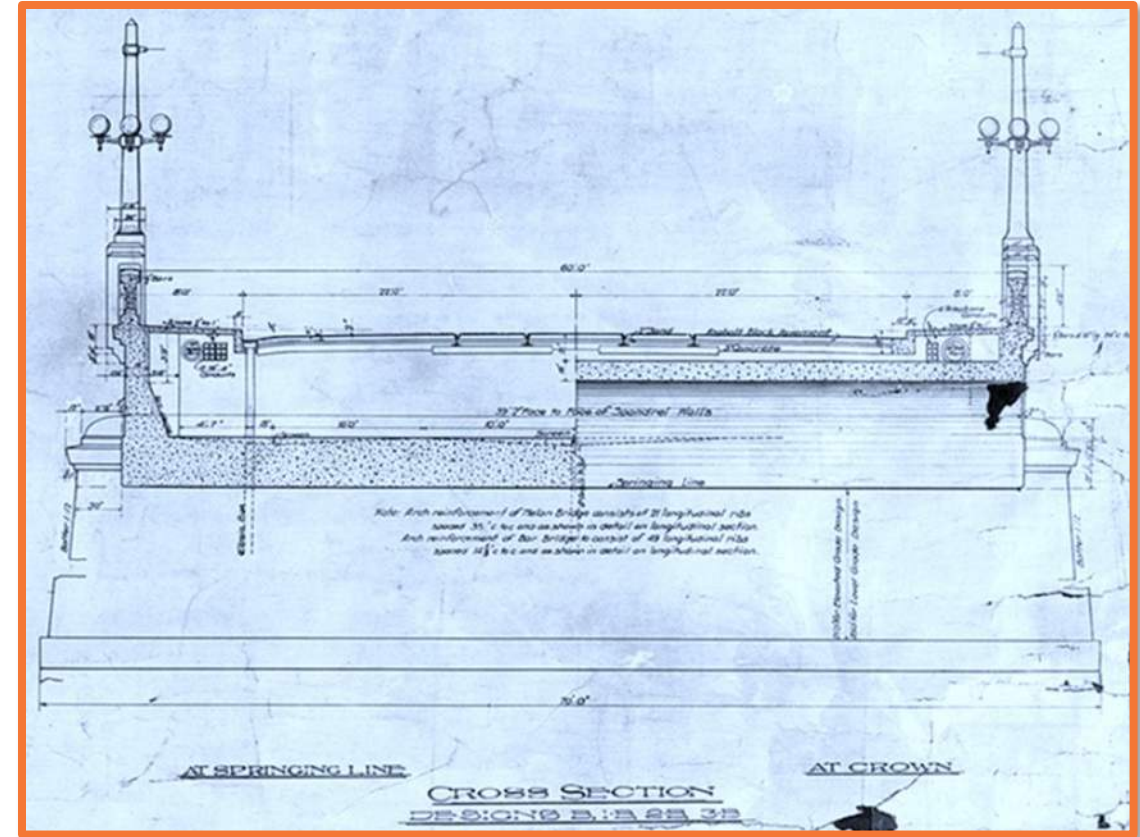
Description

- **Constructed in 1913**
 - Earth filled spandrel arches
- **Two bridges**
 - **North Bridge**
 - 559 ft long
 - Seven (7) spans
 - **South Bridge**
 - 867 ft long
 - Eleven (11) spans



Description (Continued)

- **Typical Section**
 - **60 feet wide out-to-out**
 - **44 ft travel lane**
 - Four (4) Vehicular lanes at 11 ft each
 - **6 ft sidewalk on each side**
 - **National Highway System (US Route 360)**
 - 19,500 ATD (2023 data)



Condition

- **Regular Inspections (yearly)**
 - Super structure: Poor Condition
 - Sub-structure: Fair Condition
- **Geotechnical Investigation 2024**
 - Presence of ASR Confirmed in some piers
 - ASR anticipated in multiple piers
- **Scope changed from superstructure replacement to full bridge replacement**
 - Discovery of ASR in other piers during construction likely, so replacement mitigates risks



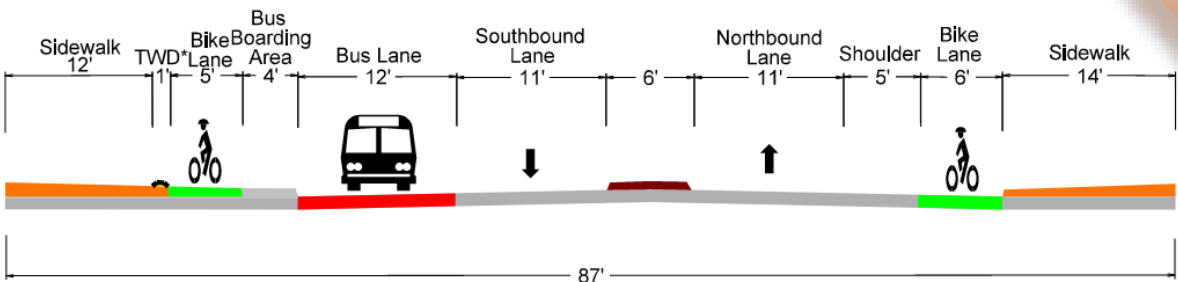
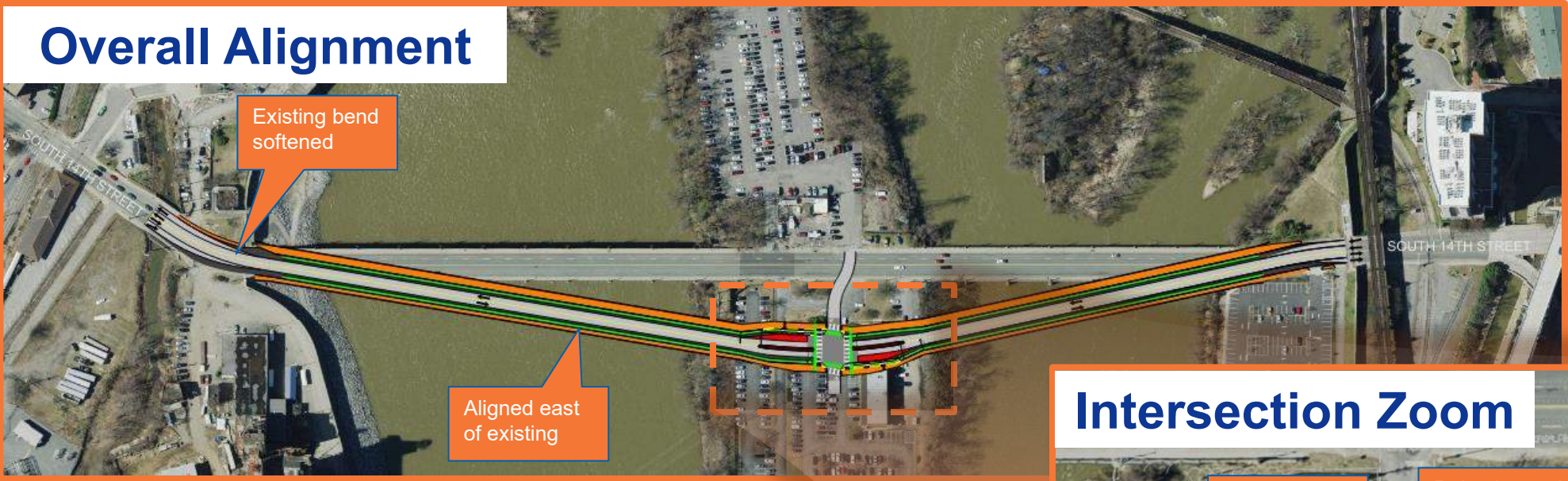
Figure 4a from Sub-structure Analysis Report: Grout leak through pier wall

PROPOSED CONCEPT



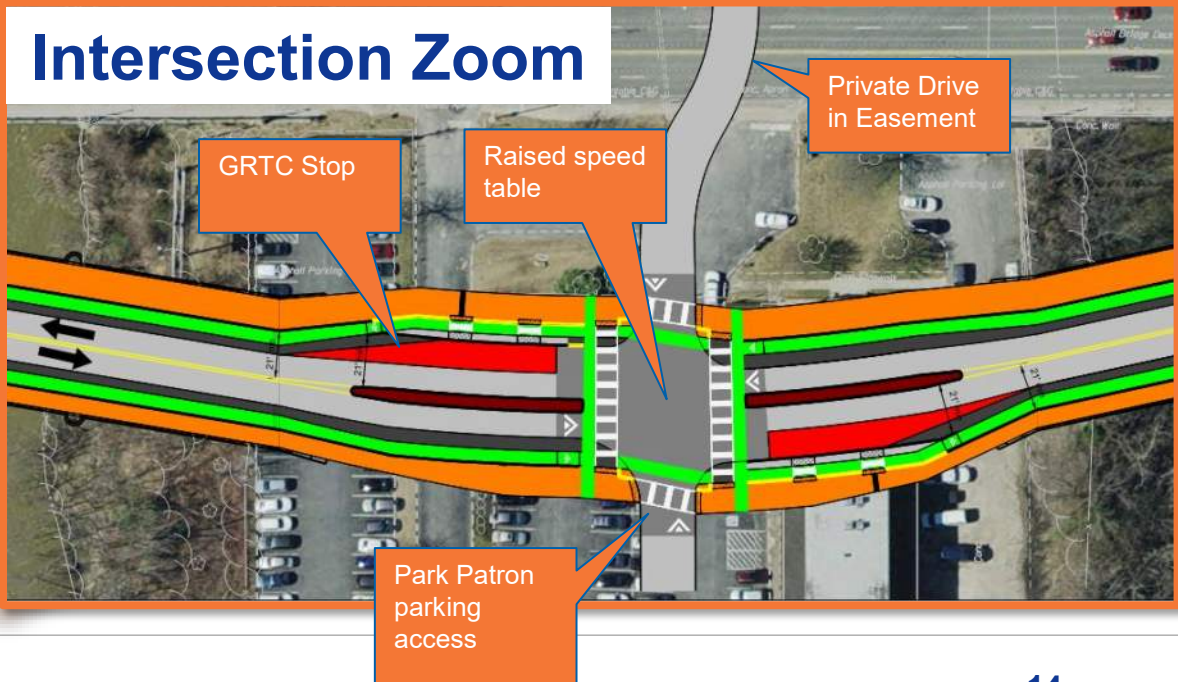
Road Concept

Overall Alignment

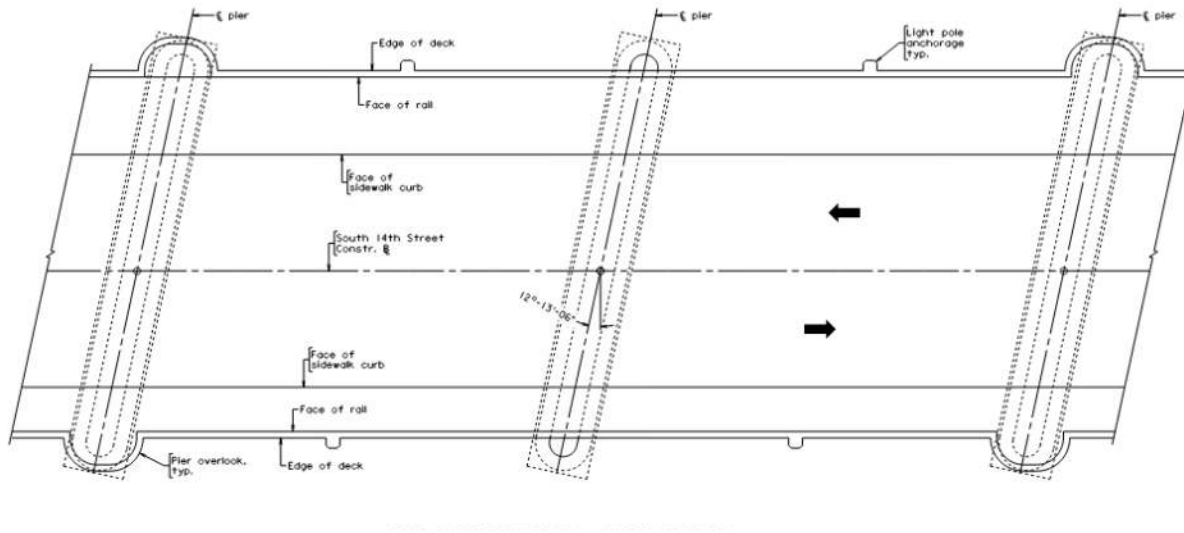


Typical Section (example side)

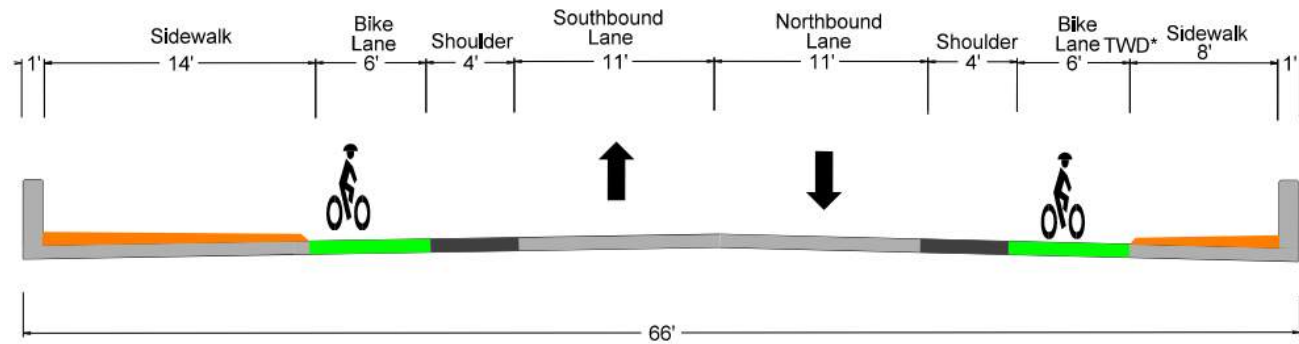
Intersection Zoom



Bridge Concept

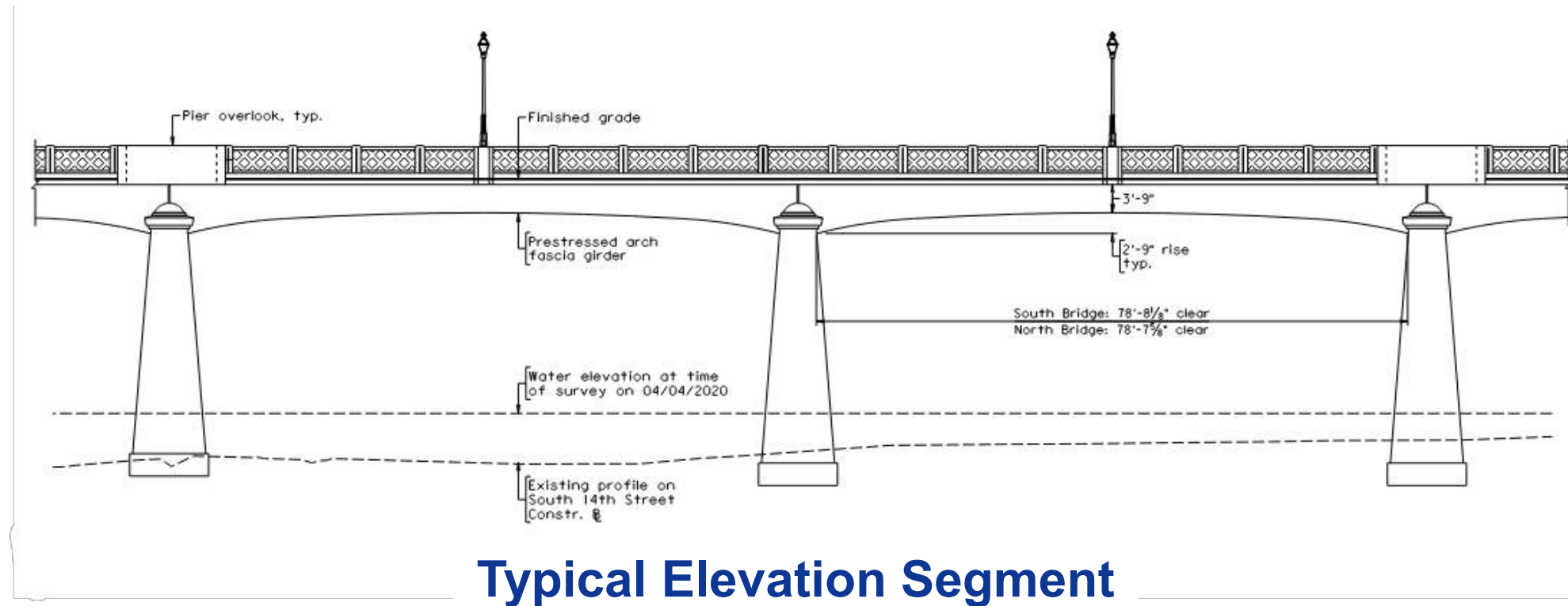


Typical Plan Segment



Typical Section

Bridge Concept (Continued)



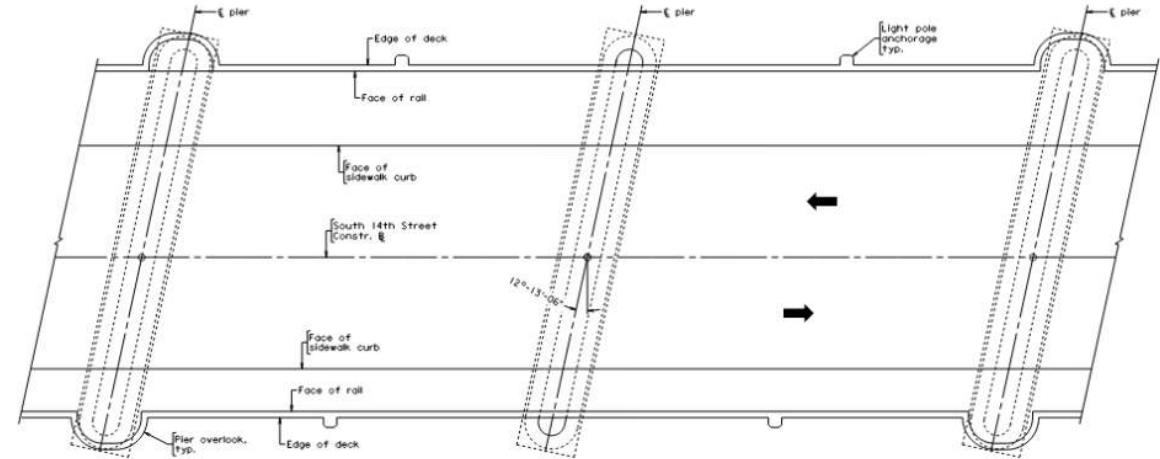
Bridge Superstructure

- **Length**

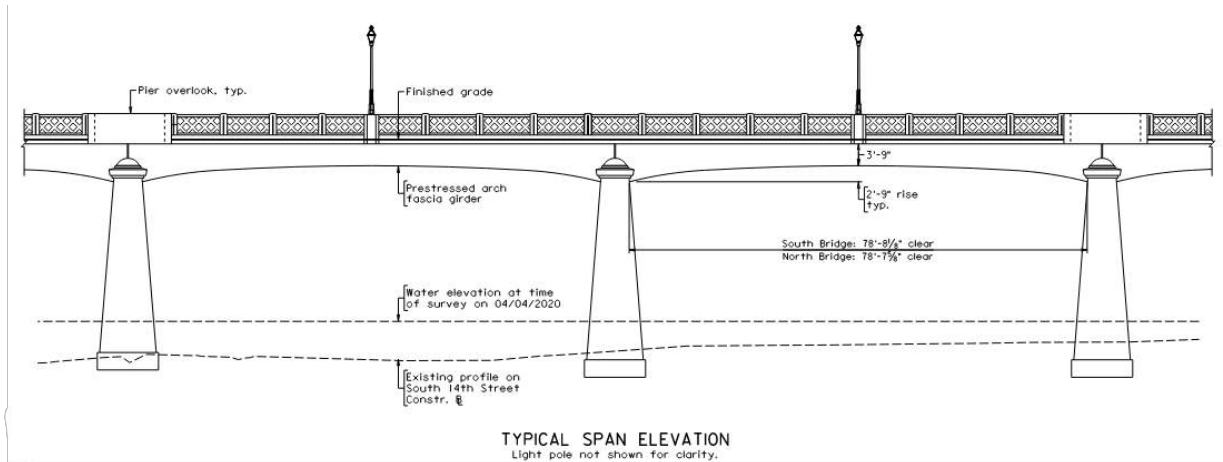
- Approx 590 ft (N) and 850 ft (S)
- Final lengths will be set by design-build team
 - Minimum length will be defined in the procurement documents

- **Structural System**

- Prestressed concrete beam with Arch façade



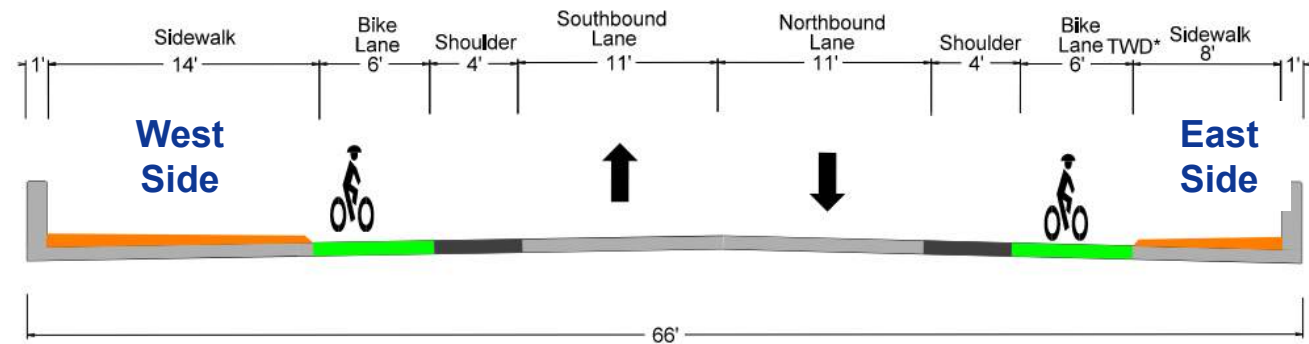
PIER OVERLOOK PLAN - NORTH BRIDGE



TYPICAL SPAN ELEVATION

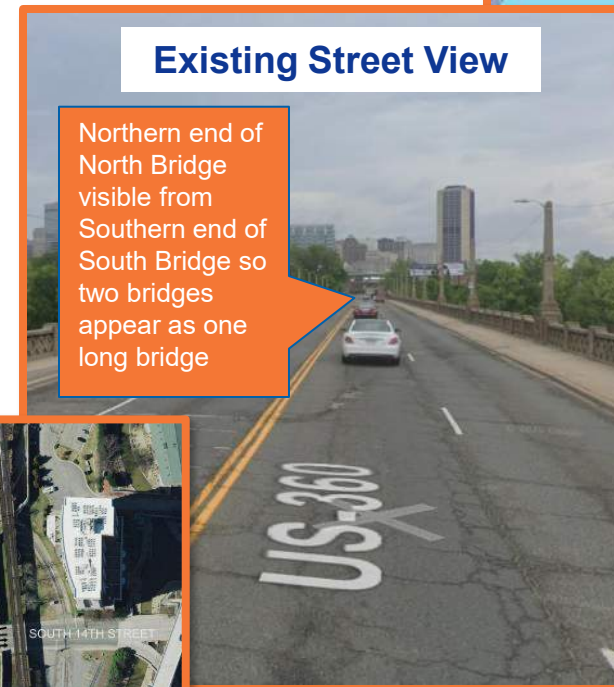
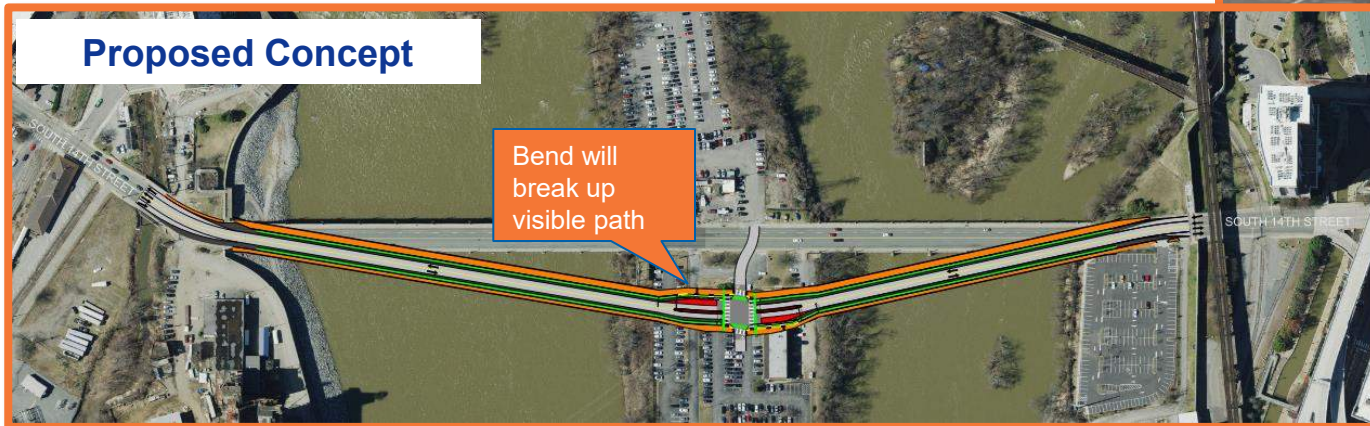
Bridge Superstructure (Continued)

- **Width**
 - 66 Feet out-to-out
- **Capacity**
 - Two travel lanes at 11 ft each (22 ft total)
 - Two bike lanes at 6 ft each (12 ft total)
 - Two Pedestrian paths at 14 ft and 8 ft



Key Roadway Features

- **Traffic Calming**
 - Posted speed reduced to 25 MPH
 - Alignment change (reduces “long bridge” feel that encourages faster speeds)



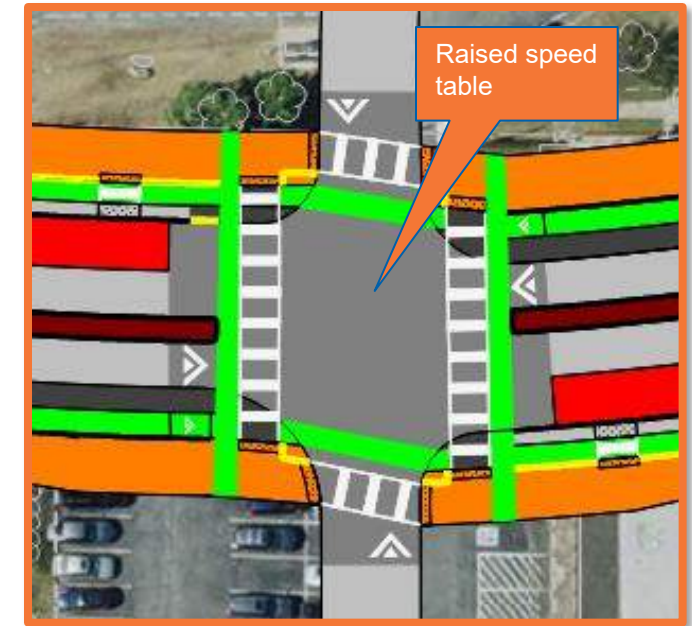
Key Roadway Features (Continued)

- **Traffic Calming (Continued)**
 - Road diet applied (2 lanes v/s 4 lanes)
 - Raised speed table on island intersection with RRFB for pedestrian crossing

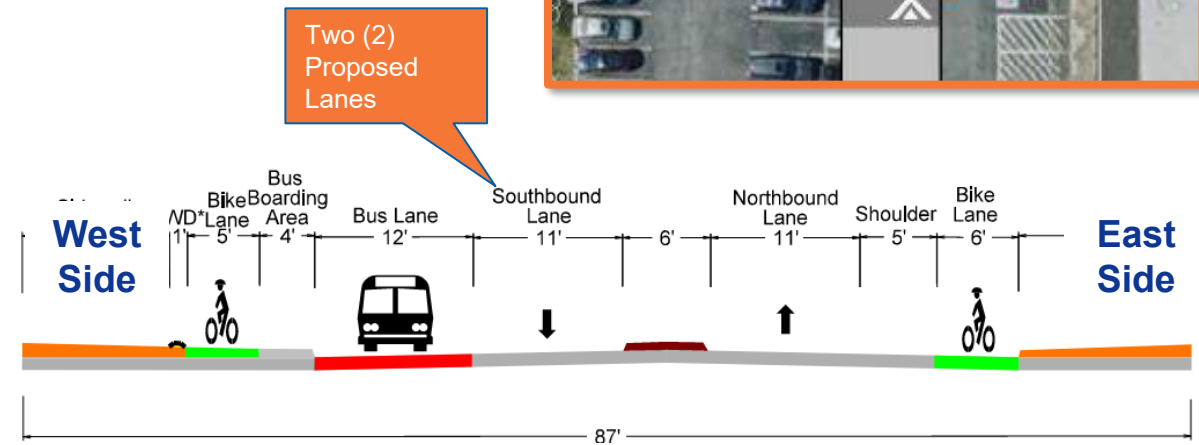


Four (4)
Existing
Lanes

Existing Street View



Raised speed
table

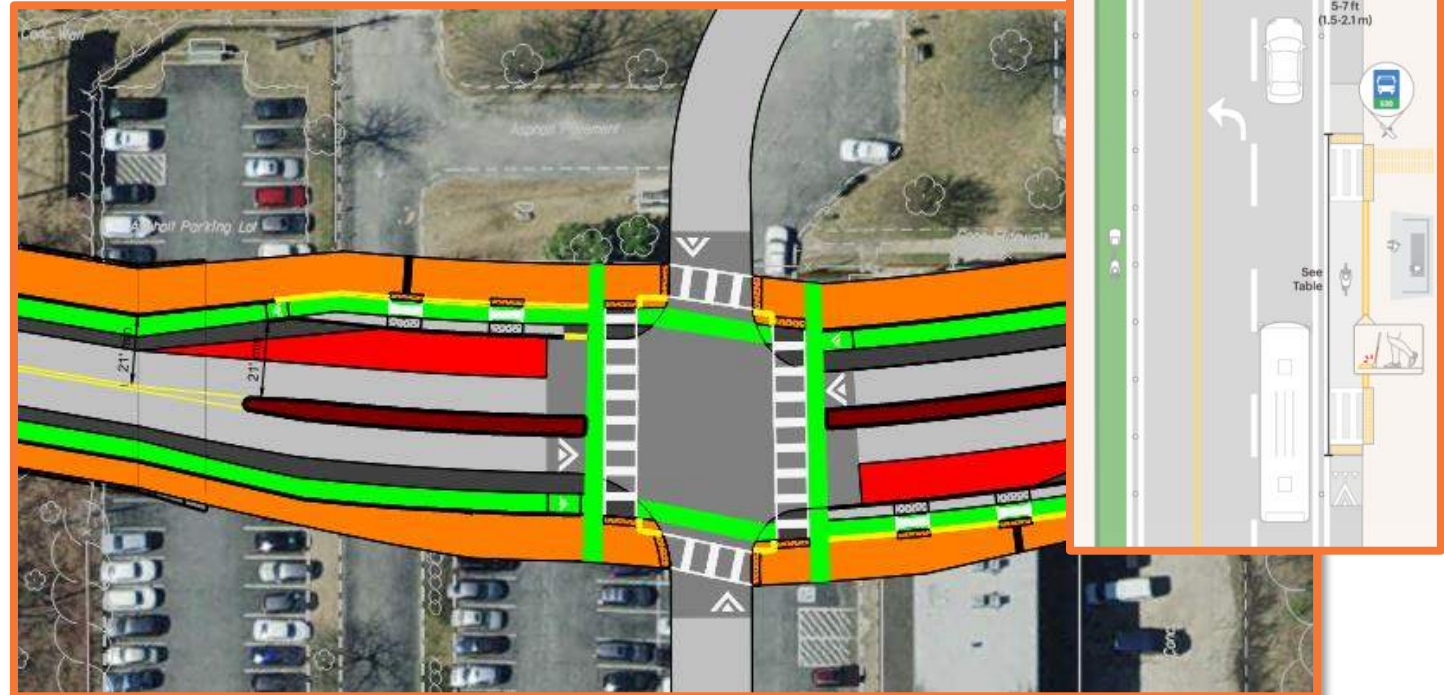


Two (2)
Proposed
Lanes

Proposed Typical Section (Example Side)

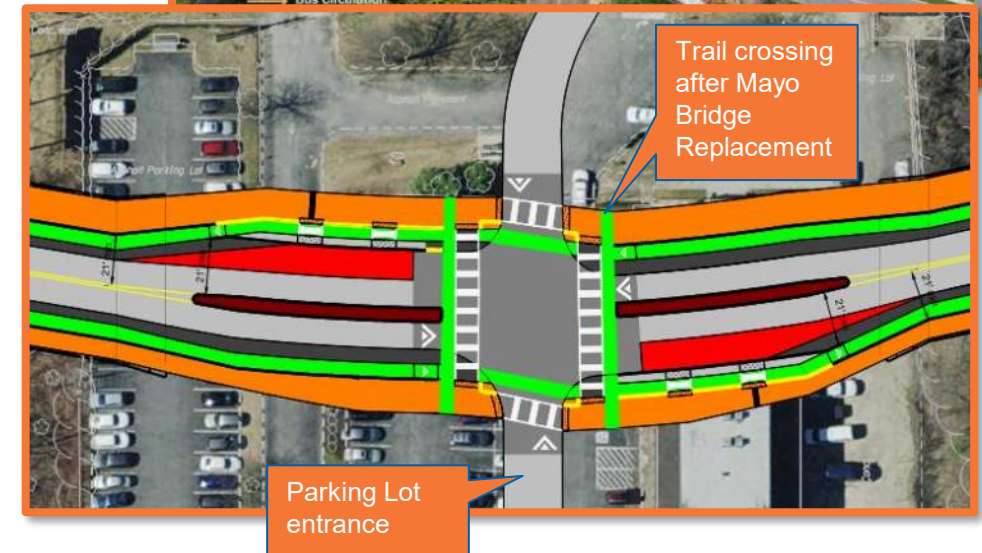
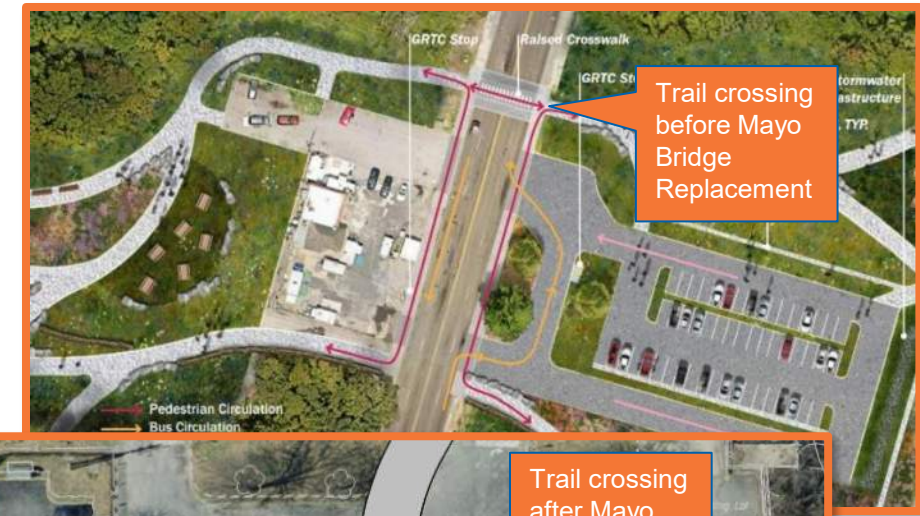
Key Roadway Features (Continued)

- **Multimodal Accommodations**
 - Bike lanes added to connect with trails
 - GRTC Stops for both directions
 - Bike Lane interface with Bus stops and sidewalk per NACTO Guidance



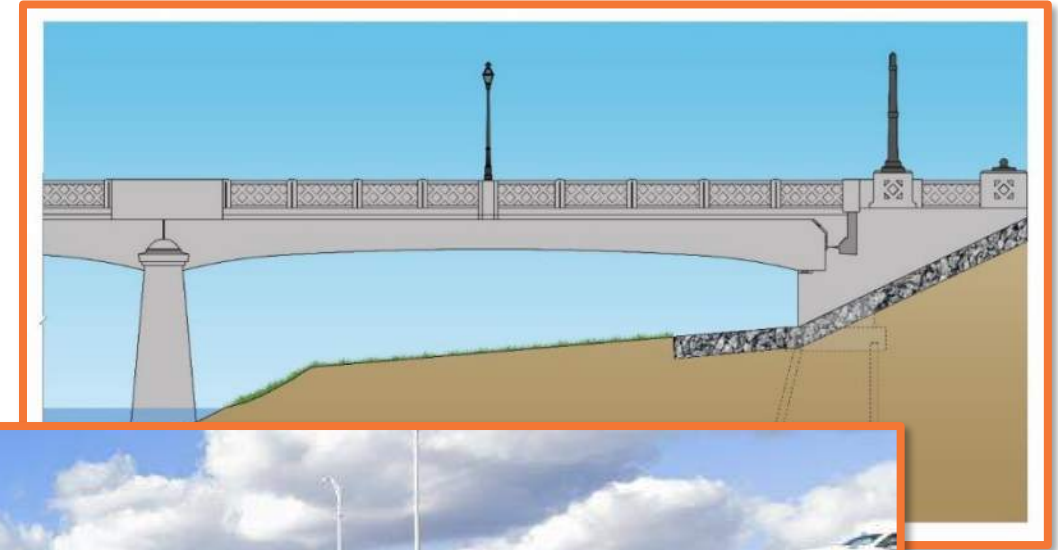
Key Roadway Features (Continued)

- **Integration with new Mayo Island Park**
 - Raised intersection and RRFBs facilitate park patron movement
 - Bus stops and commercial entrance facilitate park as a destination
- **Increased sidewalk width**
 - Up to 26 feet total on Mayo Island Park
 - Facilitates bus stops



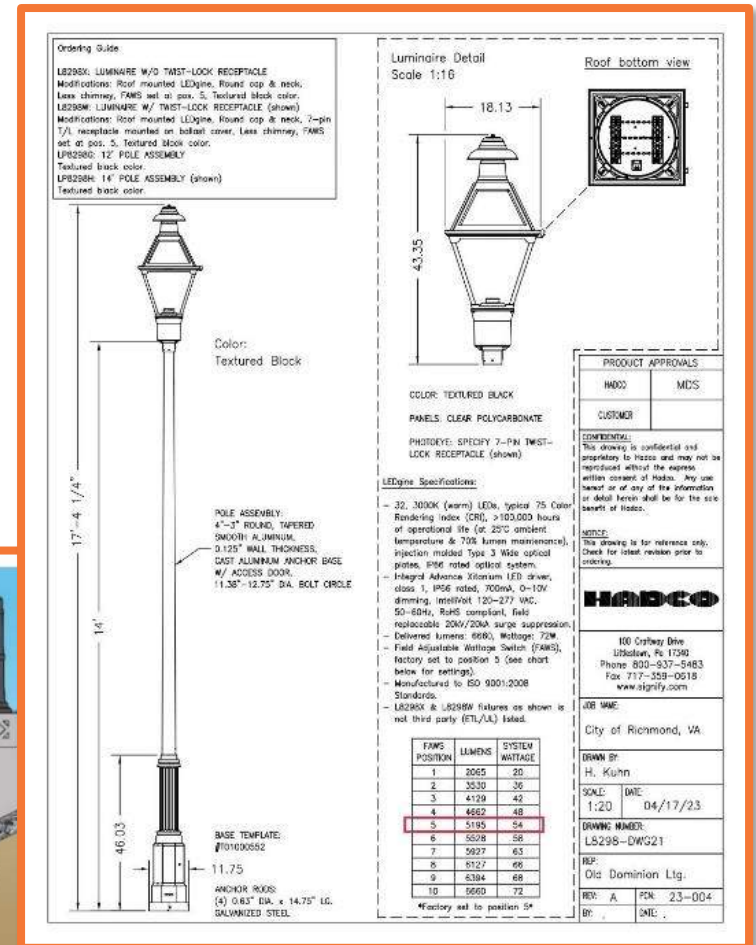
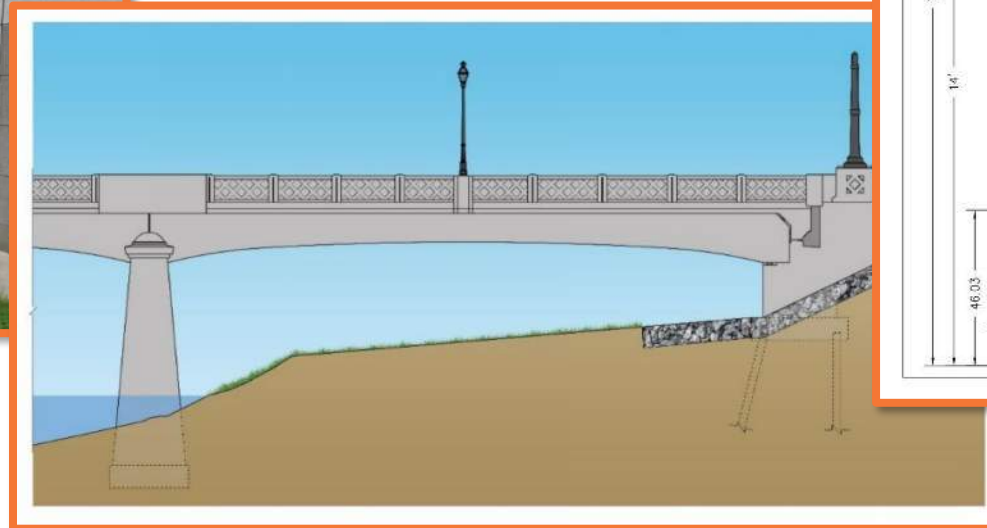
Key Bridge Features

- **Historic Style**
 - Arch between piers
 - Façade similar to US 460 bridge near VA Tech



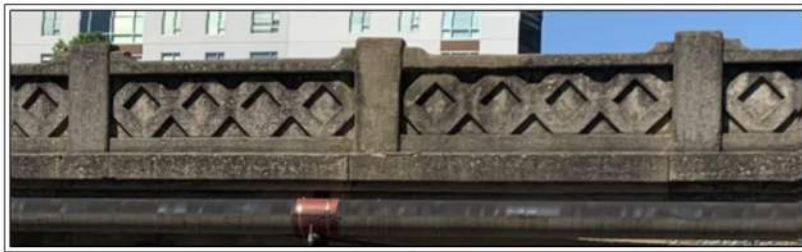
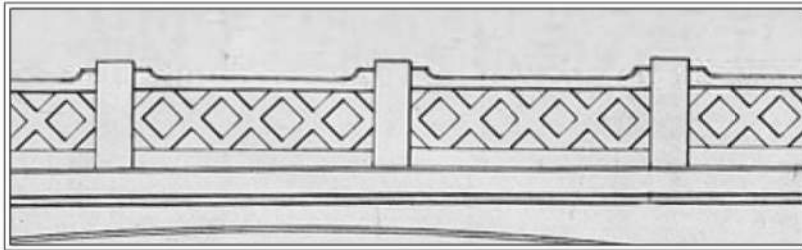
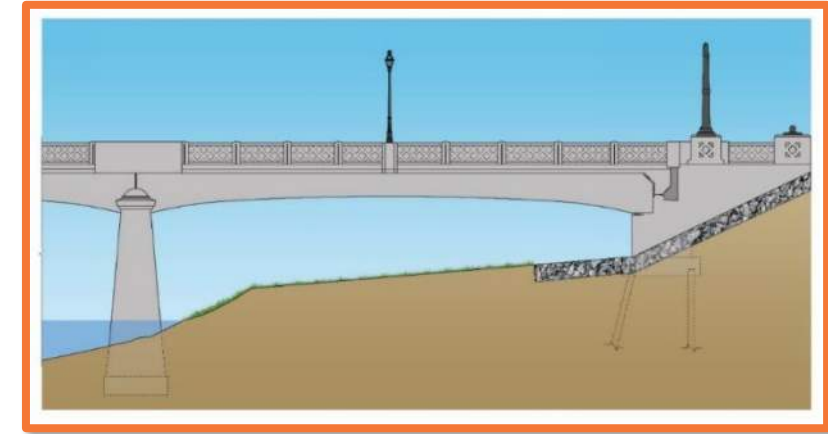
Key Bridge Features (Continued)

- **Historic Style (Continued)**
 - Hanover Luminaire continues historic lighting style along 14th Street

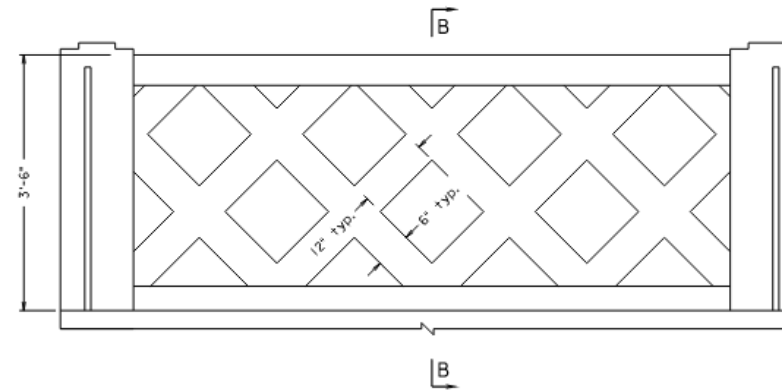


Key Bridge Features (Continued)

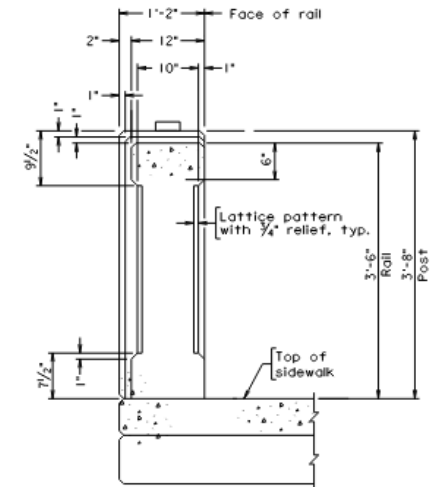
- **Historic Style (Continued)**
 - Rail cross hatching
 - Emulate the existing rail using FHWA approved rail amended with concrete infill



Existing Railing



ELEVATION
Scale: 1" = 1'-0"

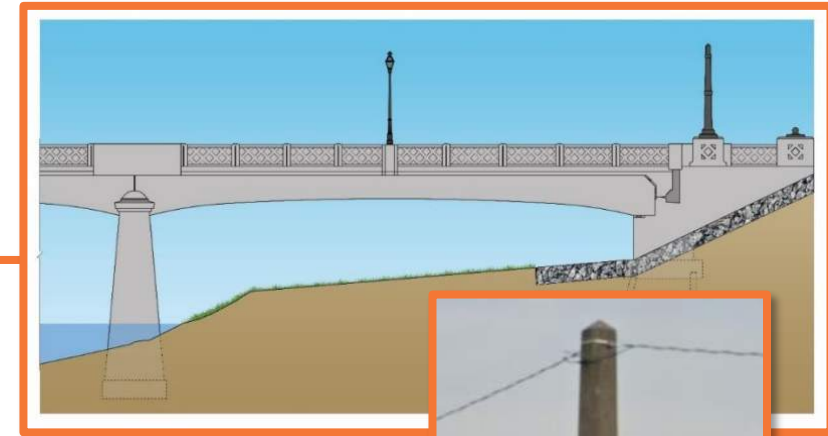
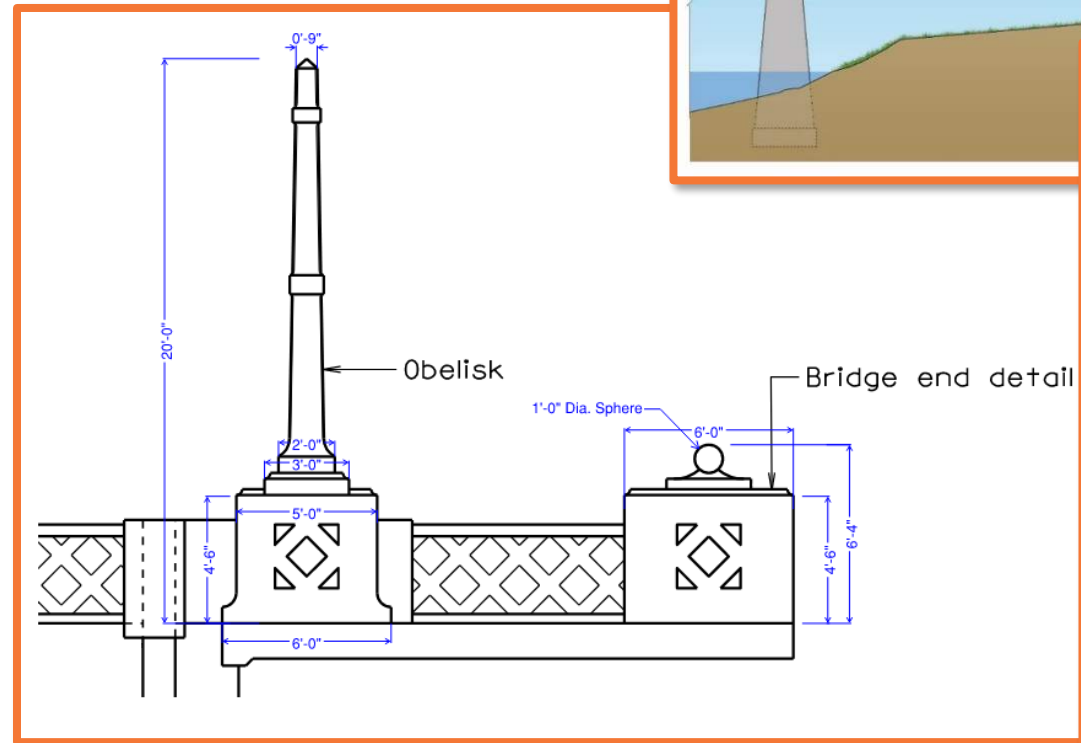


SECTION B-B
Scale: 1" = 1'-0"
Deck and sidewalk steel
omitted for clarity

Proposed Railing

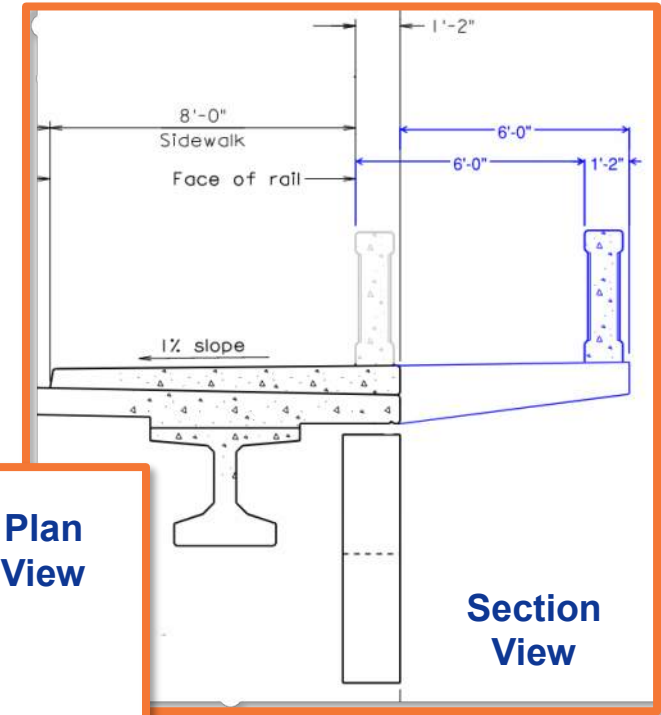
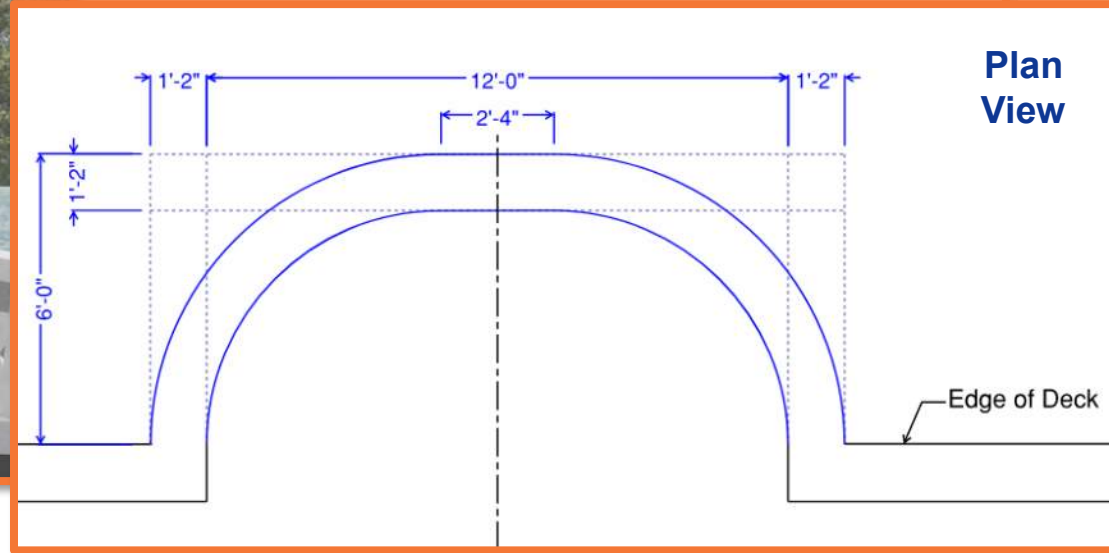
Key Bridge Features (Continued)

- **Historic Style (Continued)**
 - Monuments at corners of each bridge
 - Concrete color will be grey



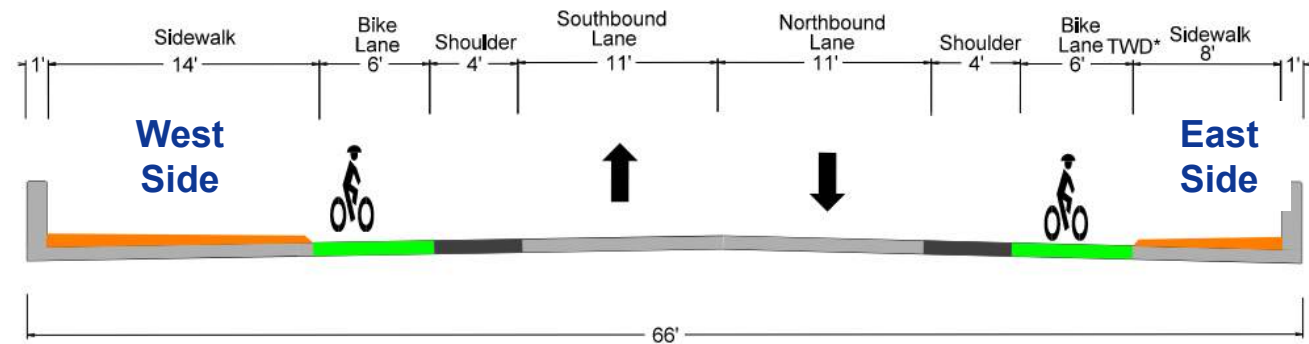
Key Bridge Features (Continued)

- **Overlooks**
 - 6 ft x 12 ft spaced every other pier



Key Bridge Features (Continued)

- **Increased Sidewalk Width**
 - 22 ft total v/s 12 ft total
 - West side larger for groups walking to the trails, the park and park events extending onto the bridge



SEQUENCE OF CONSTRUCTION



Construction Sequence Constraints

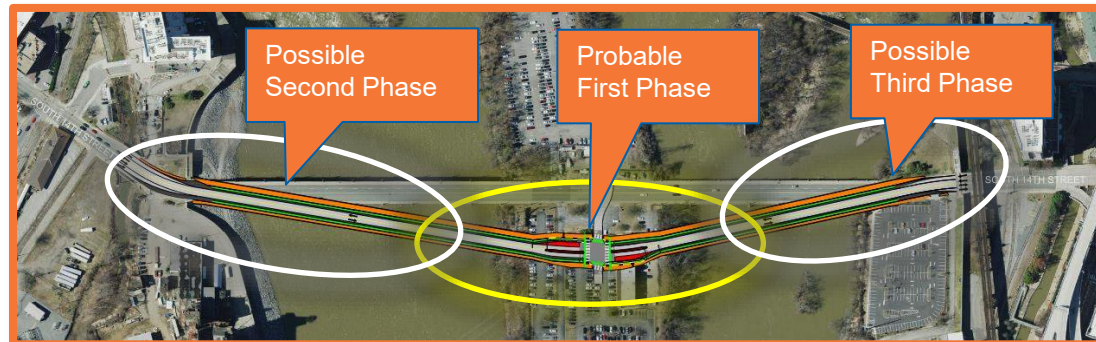
- **Mayo Island Park and Private Property**
 - Island will remain accessible during construction
- **Existing Utilities**
 - City Gas and Verizon Business must remain active across river
 - Other utilities can be back-fed
- **Time of Year Restrictions**
- **Channel Closure Restrictions**



Conceptual Sequence*

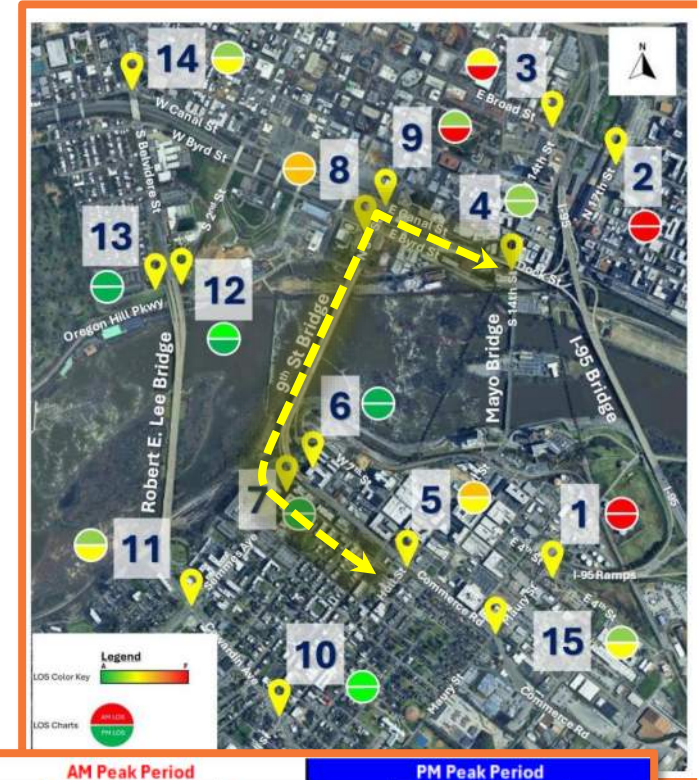
*NOTE: Final sequence will be determined by DB team

- **New alignment facilitates constructing portion of new bridge while existing bridge remains open**
 - Detour not required immediately when construction starts
- **Portion at tie-ins and overlap with existing bridge will require full bridge closure**
 - One bridge will be required to be open to traffic during construction
 - In discussions with GRTC regarding shuttles for pedestrians



Mayo Park Access Detour

- **Commerce Road and 9th Street Bridge Proposed**
 - East Canal and East Byrd could close the loop for local traffic to island
- **General traffic will re-balance to other bridges and roads**
 - Powhite tolls west of RMTA end December 2026
 - Impacts are included in ongoing Detour Study



Location	Direction	AM Peak Period				PM Peak Period			
		Before	After	Difference	% Change	Before	After	Difference	% Change
I-95 Bridge	NB	9325	10137	812	8.7	7389	7684	295	4.0
	SB	5494	5602	108	2.0	9666	10661	995	10.3
Mayo Bridge	NB	2138	0	-2138	-100.0	595	0	-595	-100.0
	SB	512	0	-512	-100.0	2160	0	-2160	-100.0
9th Street Bridge (Commerce Rd.)	NB	3374	3932	558	16.5	1603	1862	259	16.2
	SB	813	1174	361	44.4	3504	4139	635	18.1
Robert E. Lee Bridge	NB	3236	3423	187	5.8	1602	1590	-12	-0.7
	SB	1039	1037	-2	-0.2	3356	3441	85	2.5

Redistribution during construction

Mayo Park Construction Coordination

- **Parking lot will be made available for staging**
 - Bridge relocation crosses parking lot, and changes configuration
 - CN access will be through a right-of-entry from the City
- **Completing the parking lot renovations**
 - CN Staging expected to damage parking, so Park construction is limiting improvements
 - Final bisected parking lot layout and area for staging still in discussion

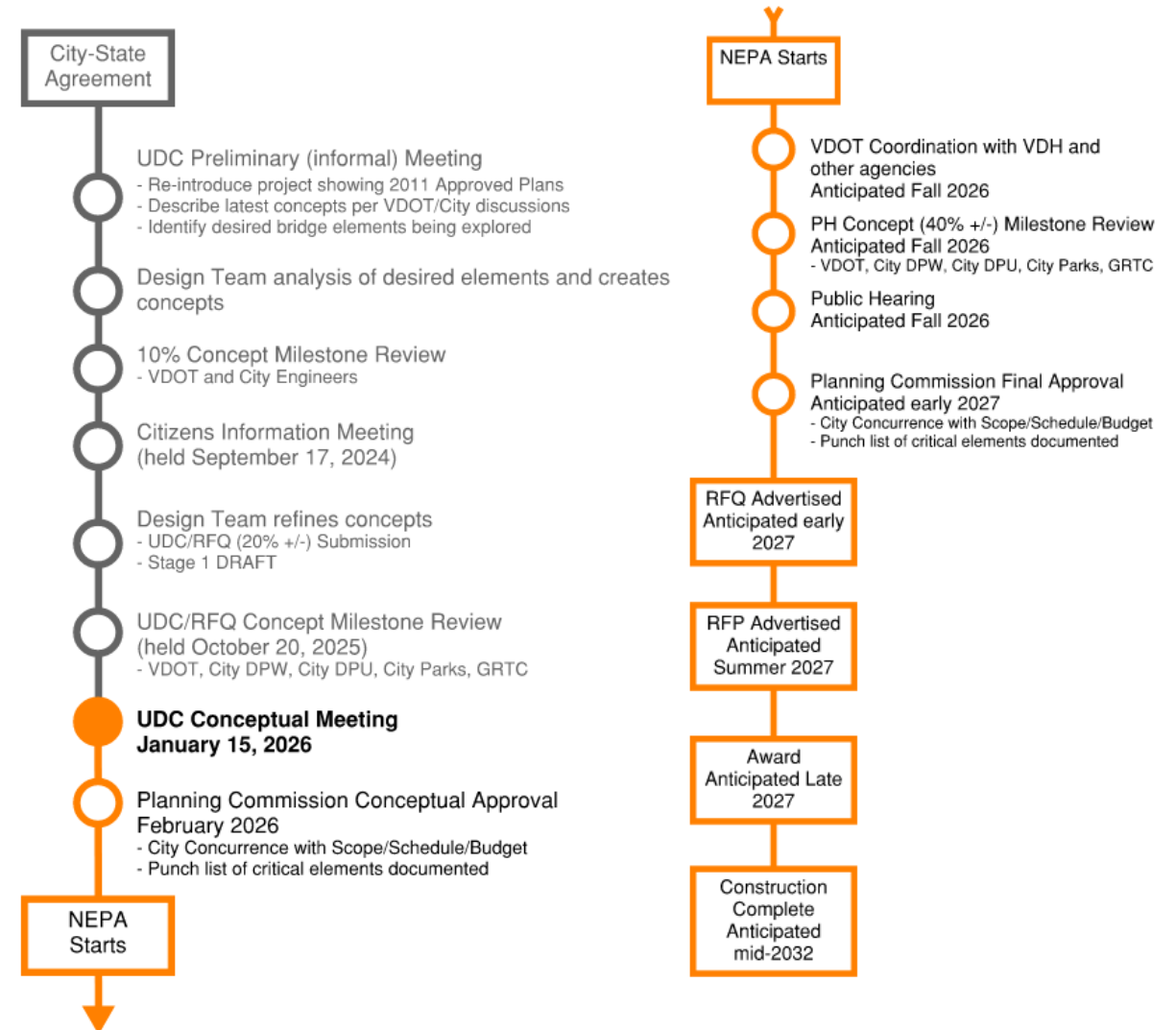


COORDINATION



City Planning and VDOT DB Process Coordination

- **VDOT and City discussed process coordination January 2023**
 - Preliminary approval allows NEPA to start
 - Concept logistics will be finalized while NEPA is underway
- **Planning Commission approvals will establish contractual requirements**
 - Design-build team completes design

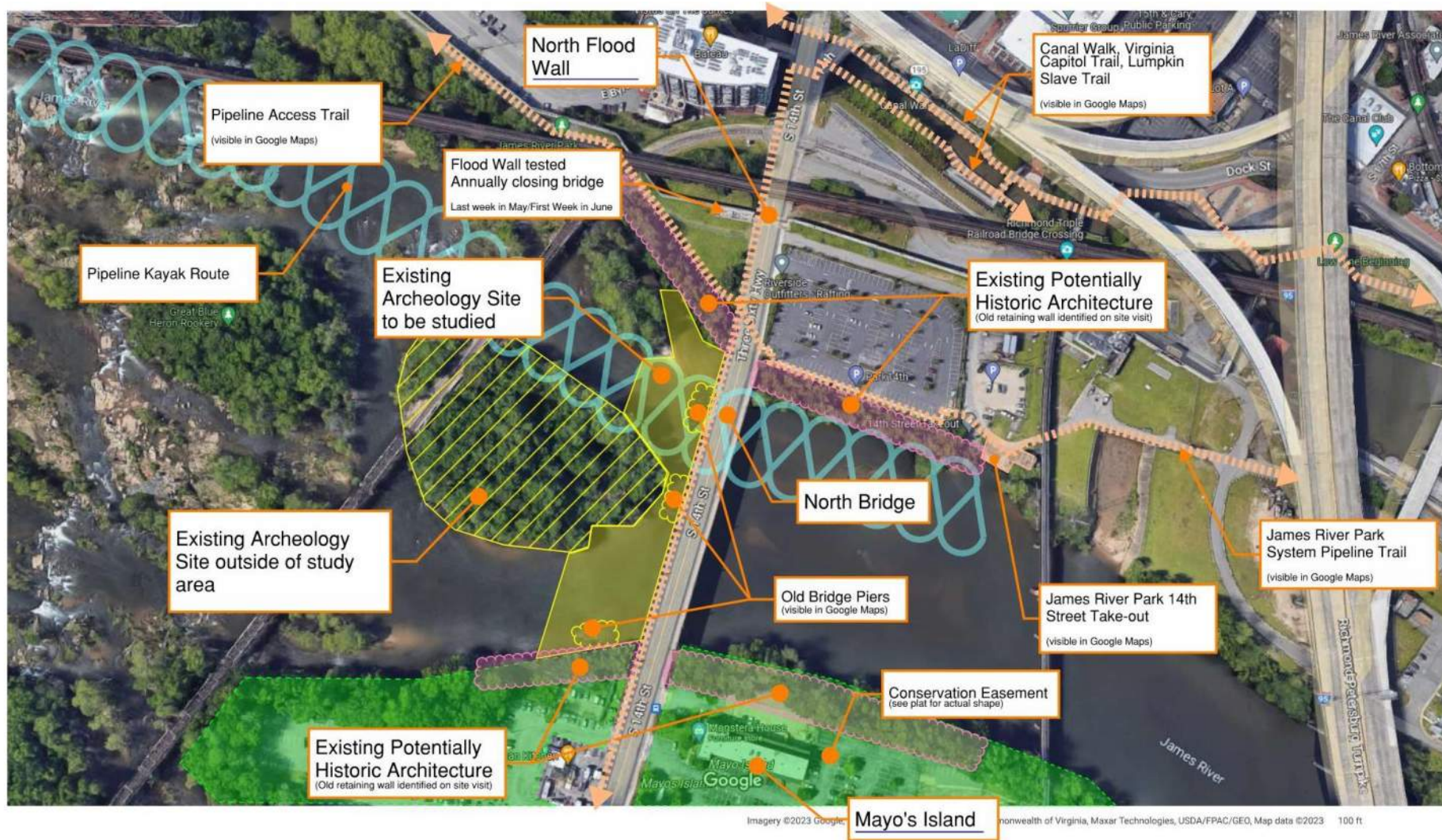


City Inter-Department Coordination

- **Design Charette September 2024**
 - Multiple City departments attended
- **Regular monthly coordination meetings with DPW, Parks, and DCR during 2025**
- **Onboard milestone review meeting with DPW, Parks, and DCR held October 2025**



Environmental Concern Coordination North Bridge



Environmental Concern Coordination South Bridge



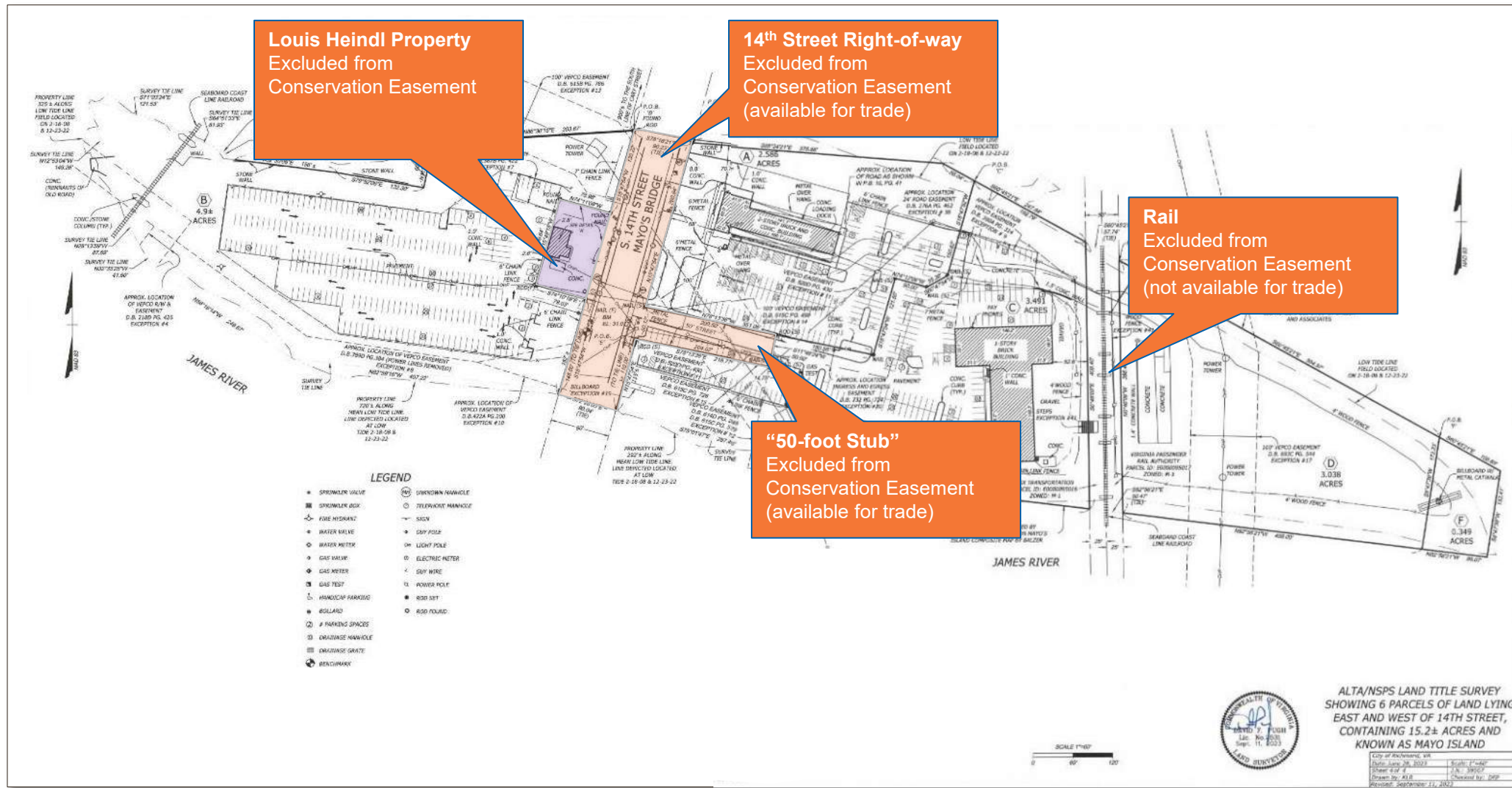
Imagery ©2023 Google, Imagery ©2023 CNES / Airbus, Commonwealth of Virginia, Maxar Technologies, USDA/FPAC/GEO, Map data ©2023 100 ft

City Park Coordination

- **Purchase of island facilitated new alignment**
- **Involved in Charette, monthly coordination meetings, on-board review meeting, etc**
 - Worked with DPW to determine typical section and intersection approach
 - Working with VDOT to provide staging area and establish contract requirements for “leave condition”
- **Part of NEPA discussions**

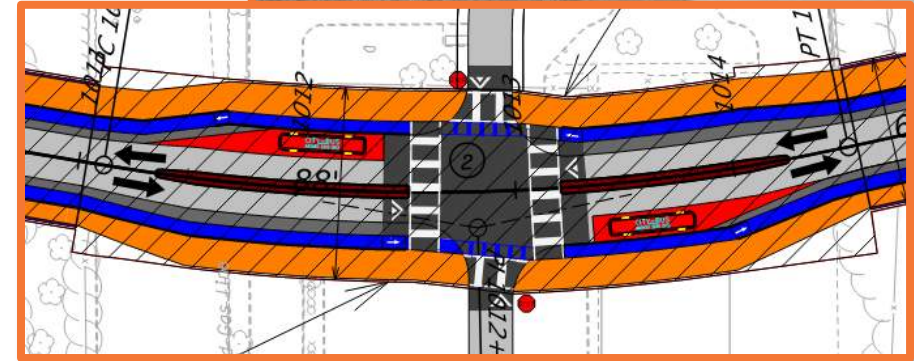
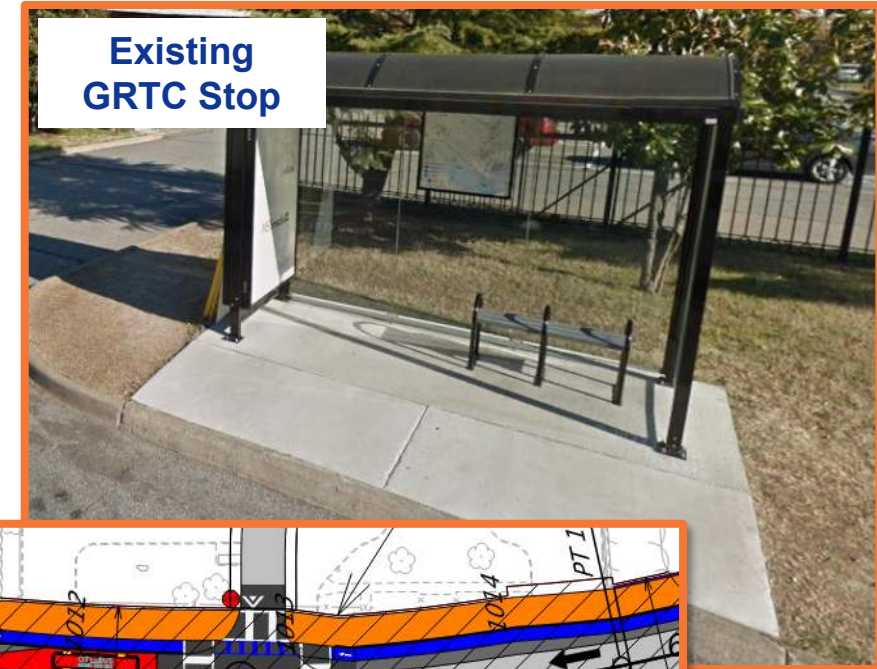


DCR Coordination



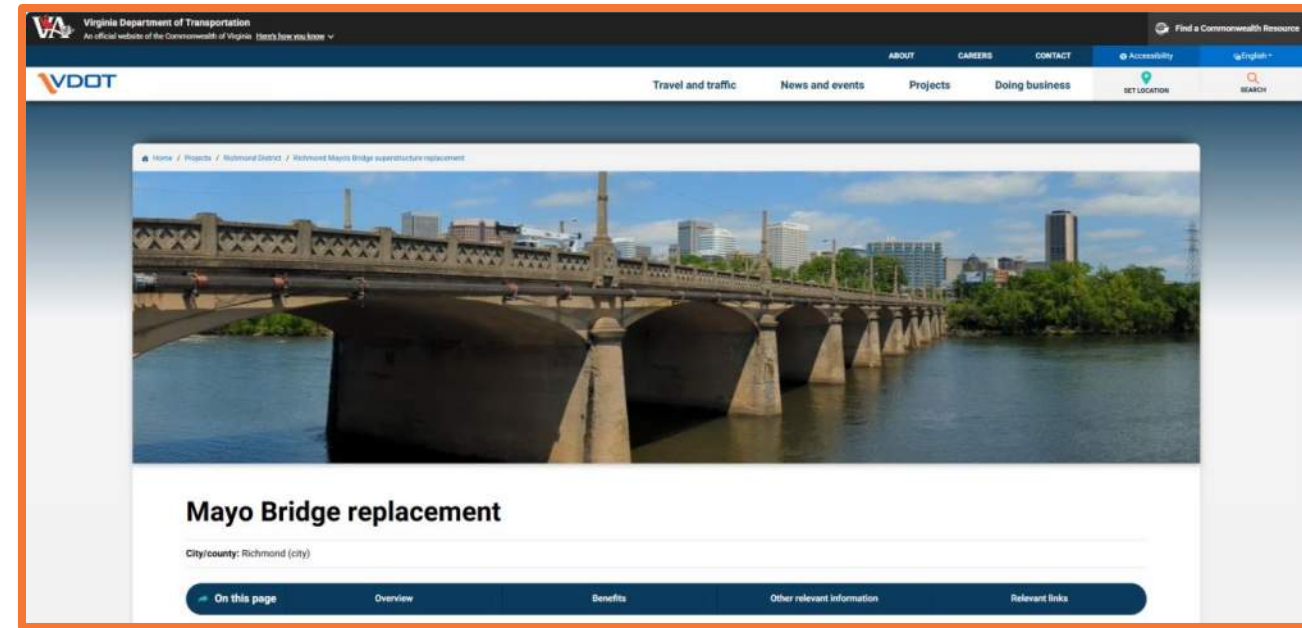
GRTC Coordination

- Bus stop exists on the island, and will need to be replaced
- GRTC provided input on island intersection
- GRTC working with VDOT to determine pedestrian shuttle options



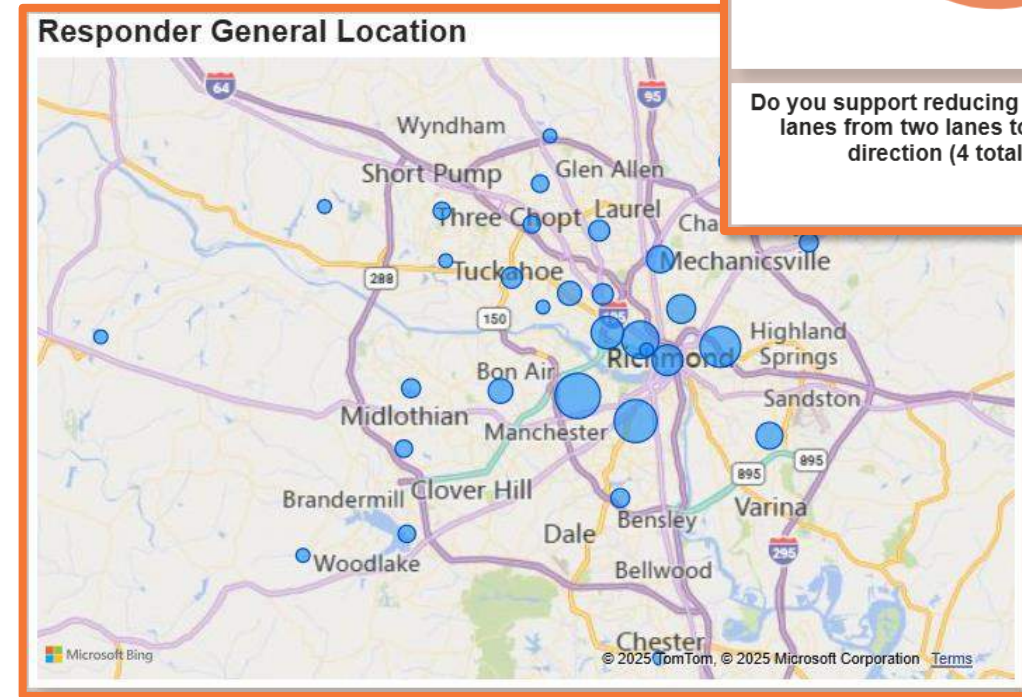
Public Outreach/Input

- **Project Website**
- **Public Survey June 2024**
 - Results from survey provided to the Charette team and summary of results made public on website
- **CIM September 2024**
 - 100+ participants attended in-person and summary of results made public on website
 - Comments incorporated in typical section
- **Stakeholder meetings before UDC meeting**

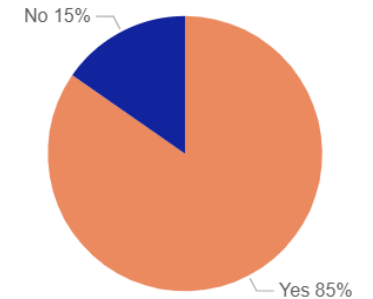


Public Outreach/Input (Continued)

- **Public interest spans Richmond area**
- **Lane Reduction Supported**
- **Safety for pedestrian and bikes is a concern**
 - Speed reduction, vehicular lane reduction, bike lanes added, wider sidewalks, and raised intersection facilitates safety



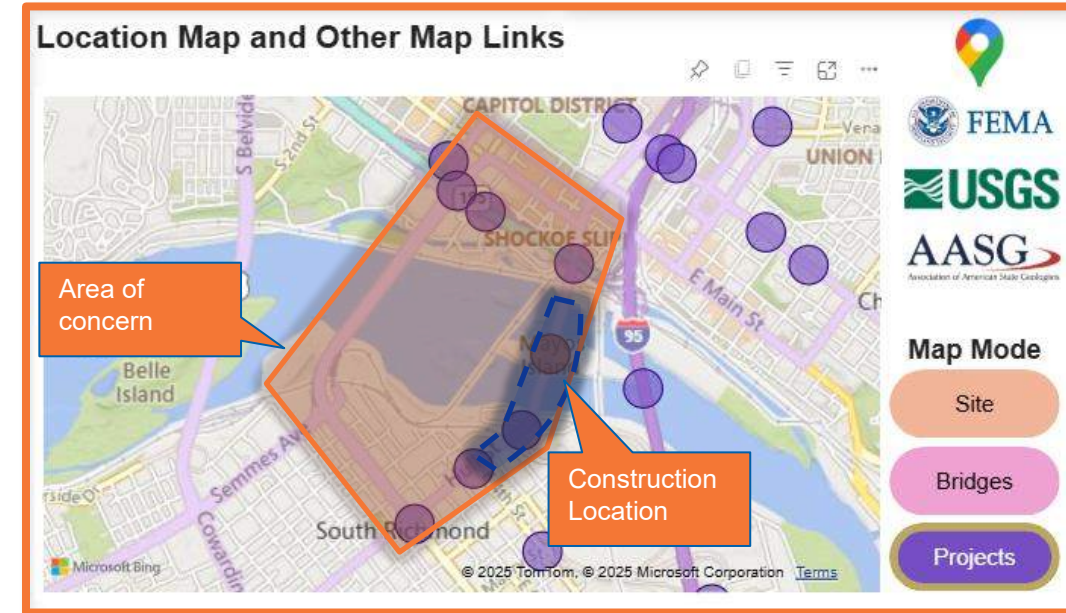
Support Lane Reduction



Do you support reducing the number of travel lanes from two lanes to one lane in each direction (4 total to 2 total)?

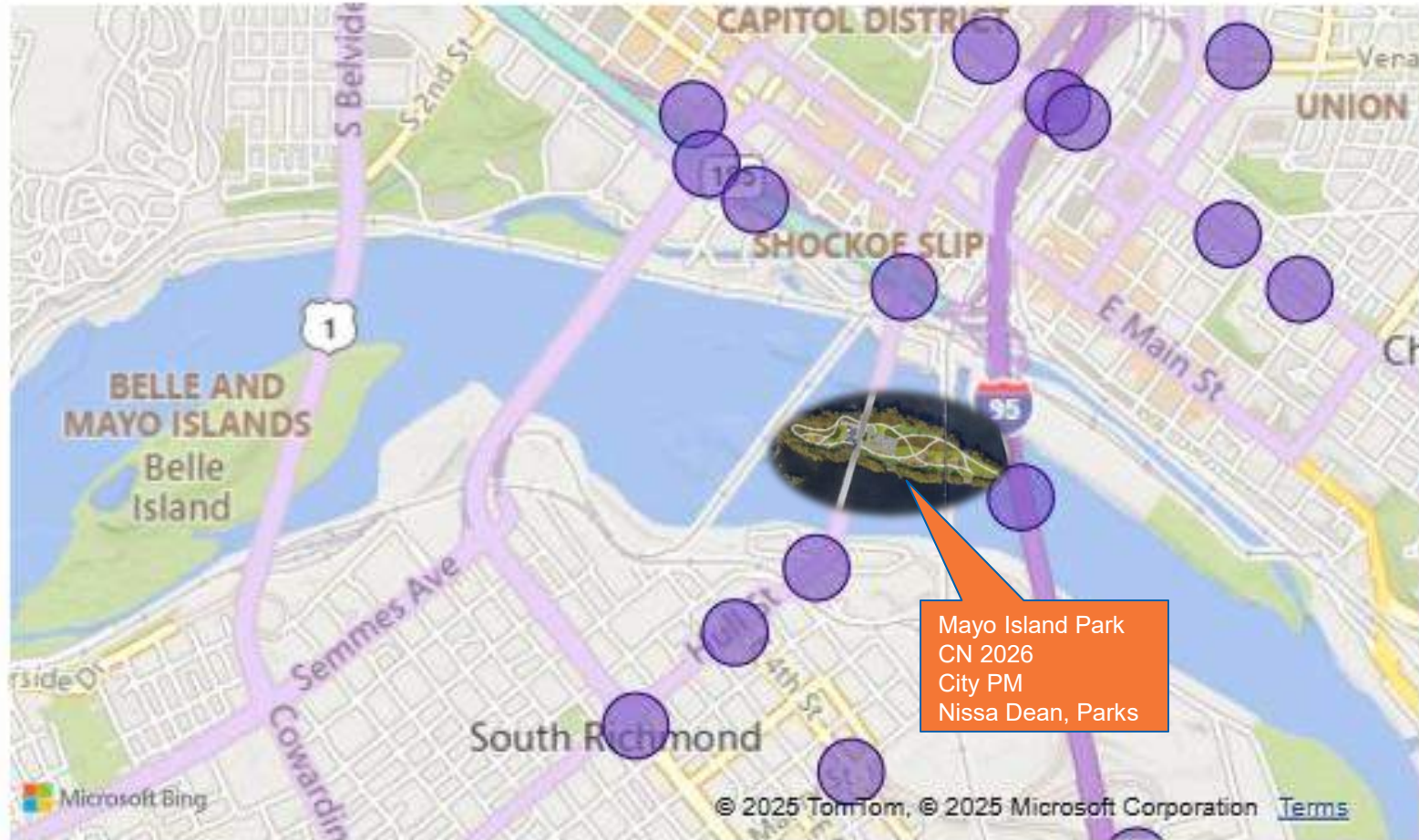
Adjacent Project Coordination


- **Mayo Island Park:** CN end 2026
- **Canal Walk PII:** CN end 2025
- **US60/DTE Gateway:** CN end 2029
- **Commerce Road Streetscape:** CN end 2030
- **Hull Street Streetscape:** CN end December 2027
- **Manchester Canal Bridge:** CN end December 2027





Mayo Island Park


Location Map and Other Map Links





 **FEMA**

 **USGS**

 **AASG**
Association of American State Geologists

Map Mode

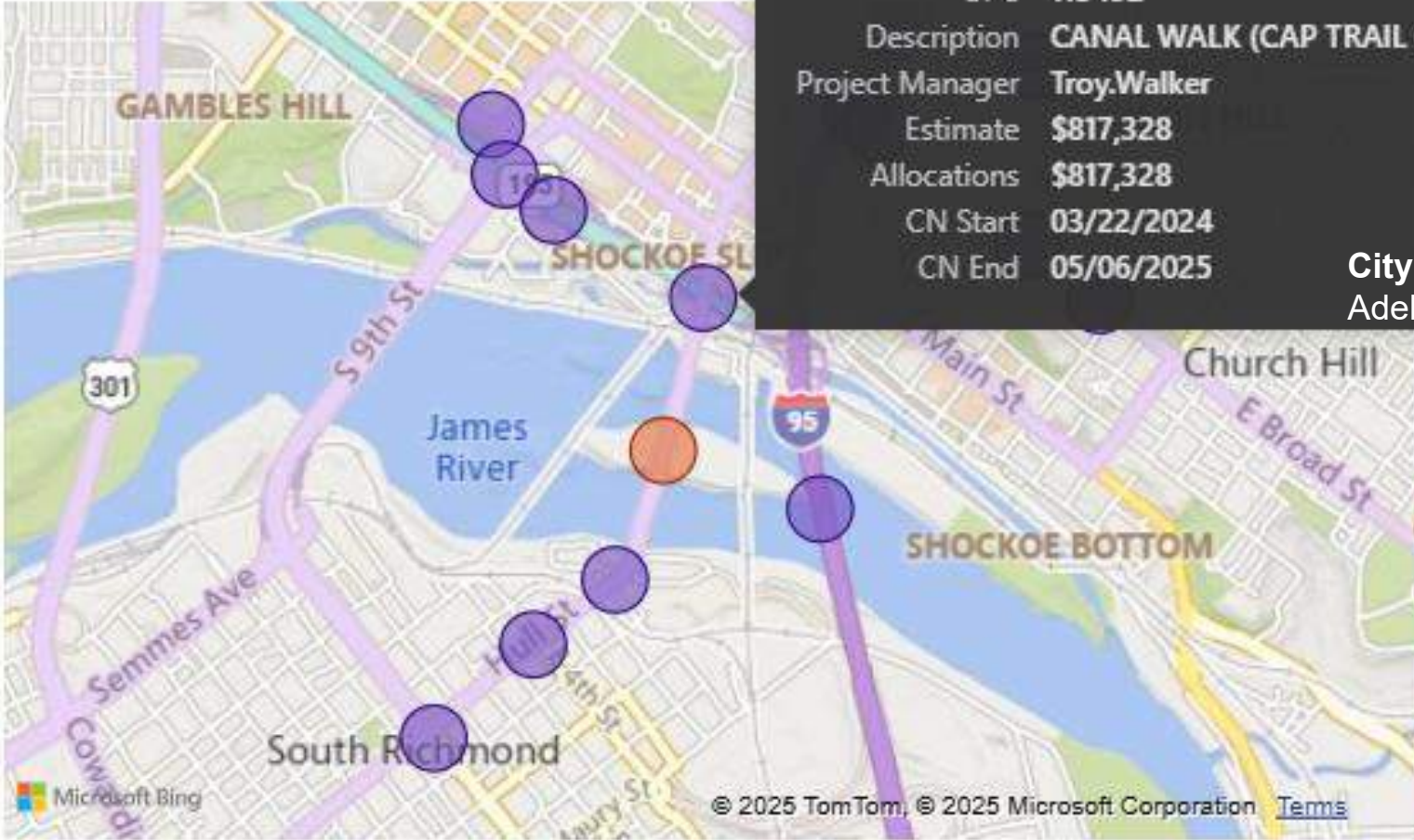
[Site](#)

[Bridges](#)

[Projects](#)

Canal Walk (Capitol Trail Connector) Phase II

Location Map and Other Map Links



Microsoft Bing

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Latitude	37.53305790
Longitude	-77.43282266
UPC	113492
Description	CANAL WALK (CAP TRAIL CONN) PH II
Project Manager	Troy.Walker
Estimate	\$817,328
Allocations	\$817,328
CN Start	03/22/2024
CN End	05/06/2025

City PM:
Adel Edward

Map Mode

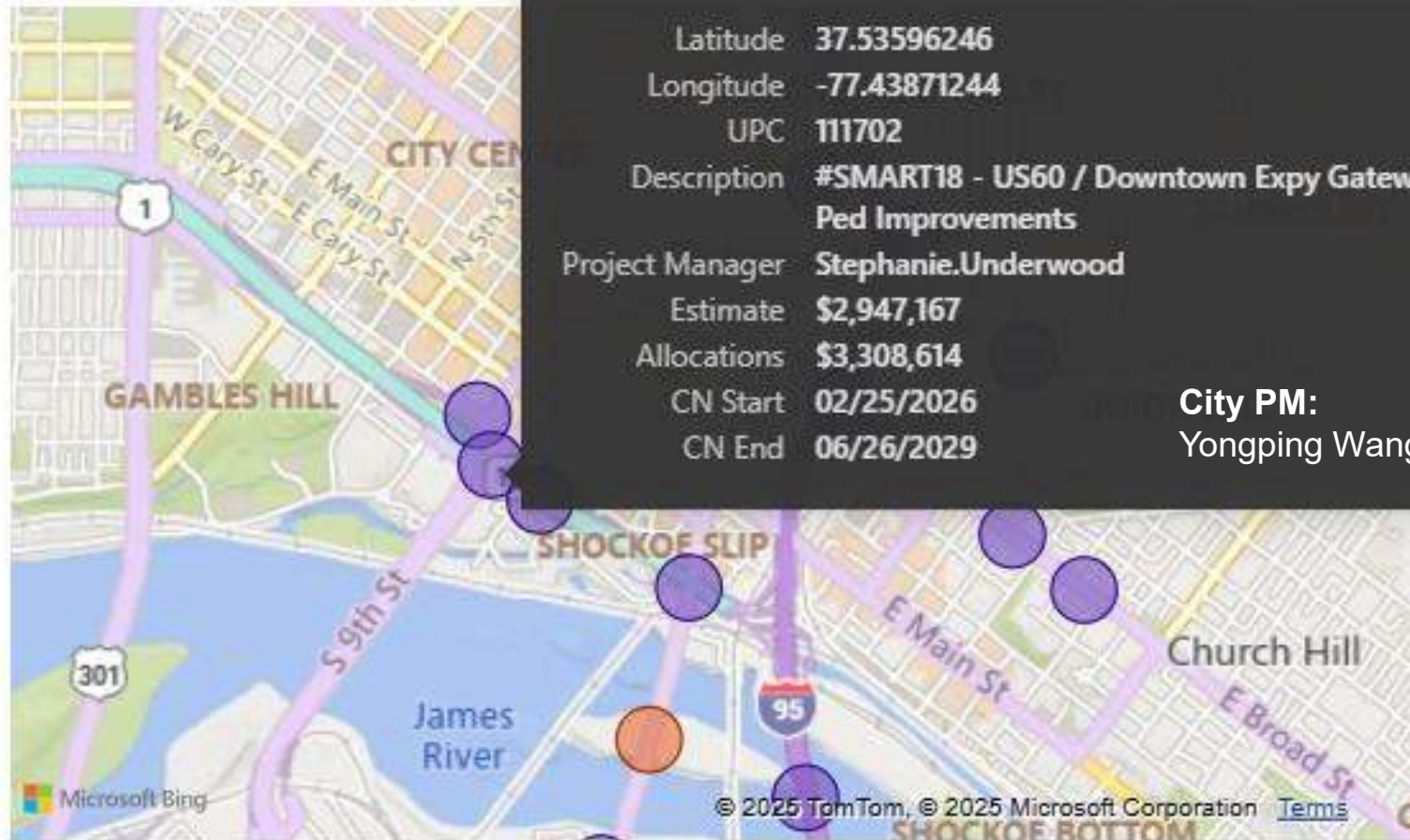
Site

Bridges

Projects

US 60/Downtown Expressway Gateway

Location Map and Other Map Links



Map Mode

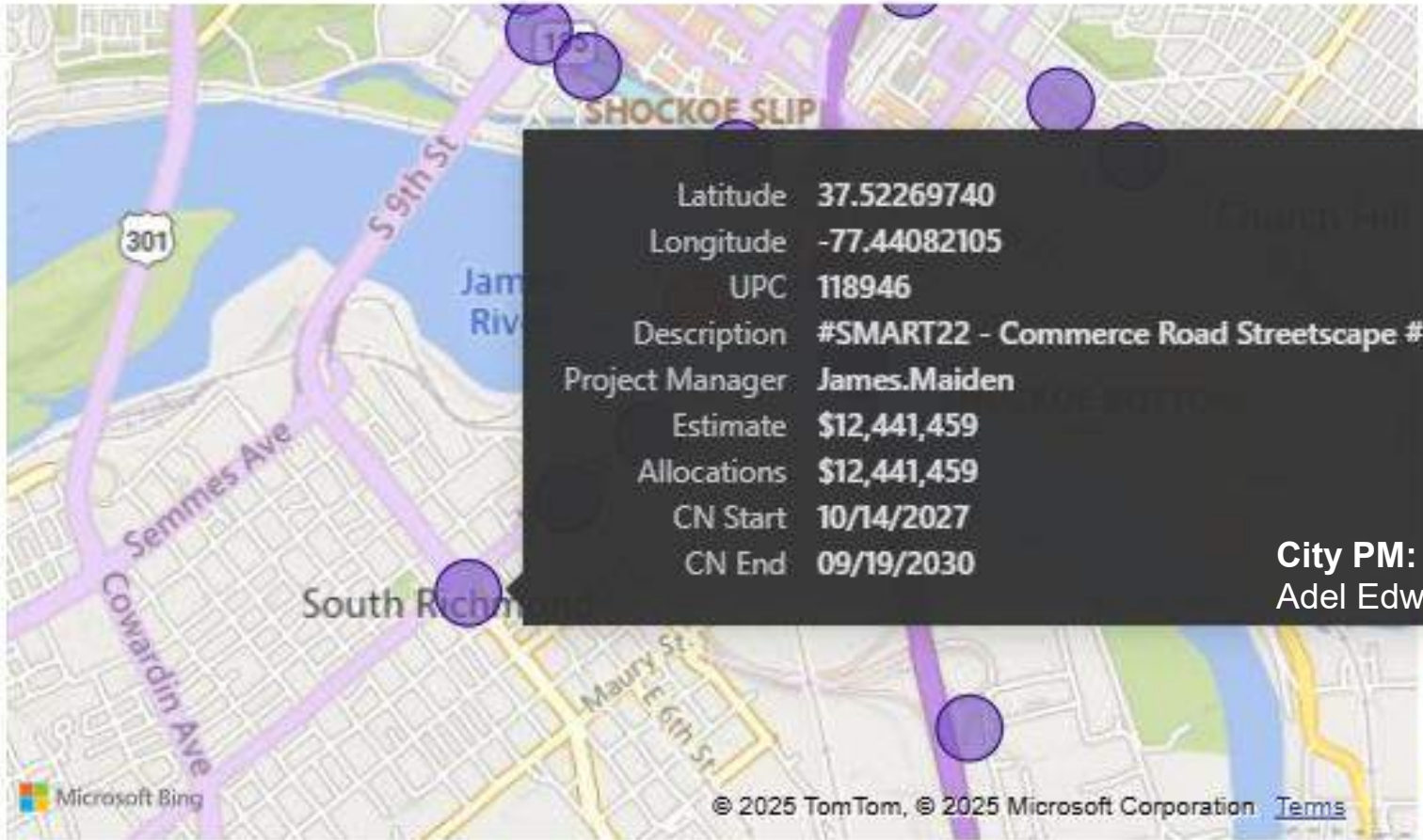
Site

Bridges

Projects

Commerce Road Streetscape

Location Map and Other Map Links



Latitude	37.52269740
Longitude	-77.44082105
UPC	118946
Description	#SMART22 - Commerce Road Streetscape #FLT
Project Manager	James.Maiden
Estimate	\$12,441,459
Allocations	\$12,441,459
CN Start	10/14/2027
CN End	09/19/2030

City PM:
Adel Edward

Map Mode

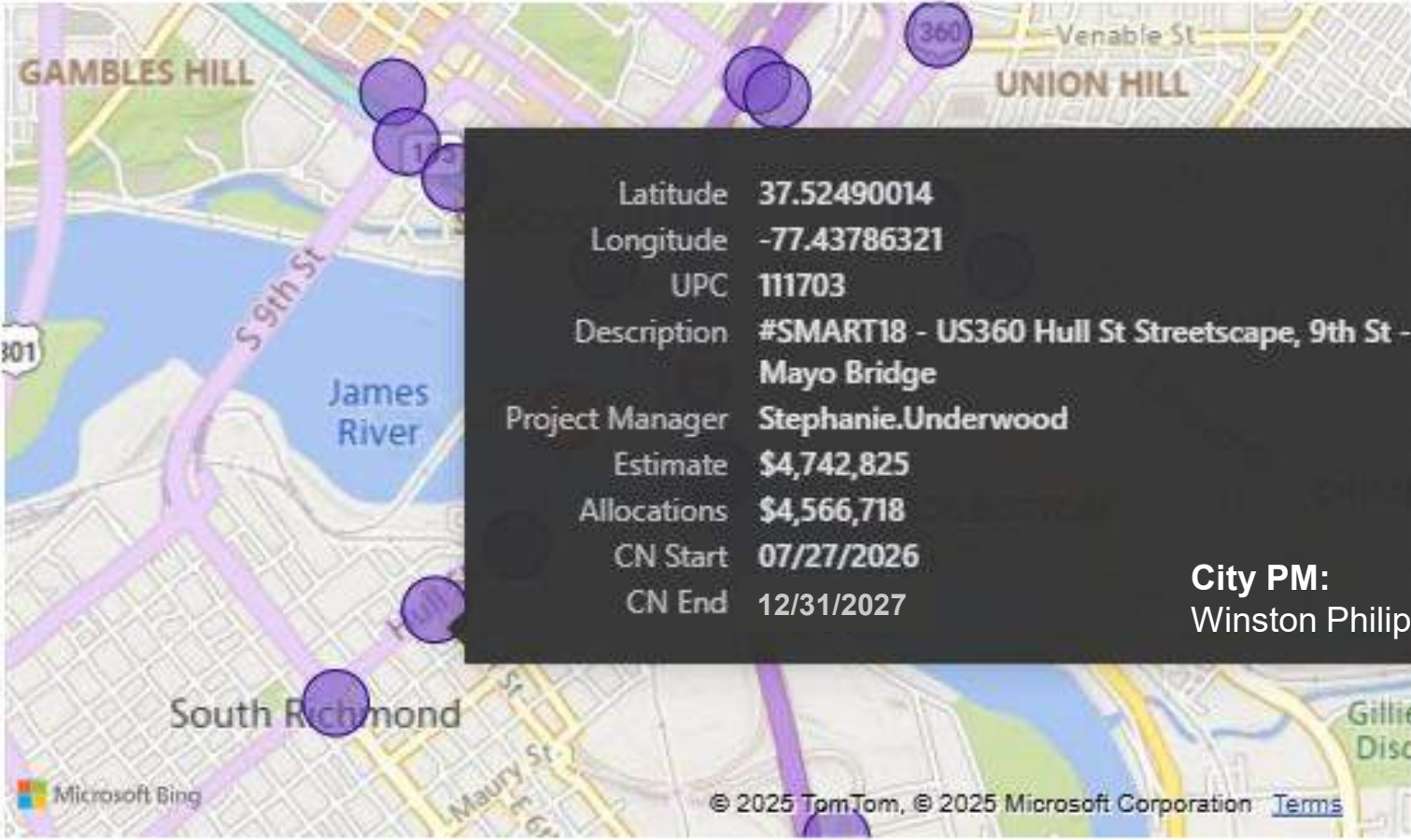
- Site
- Bridges
- Projects

Logos: FEMA, USGS, ASG, Microsoft Bing

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Hull Street Streetscape

Location Map and Other Map Links



Latitude 37.52490014
Longitude -77.43786321
UPC 111703
Description #SMART18 - US360 Hull St Streetscape, 9th St - Mayo Bridge
Project Manager Stephanie.Underwood
Estimate \$4,742,825
Allocations \$4,566,718
CN Start 07/27/2026
CN End 12/31/2027

City PM:
Winston Philips



Map Mode

Site

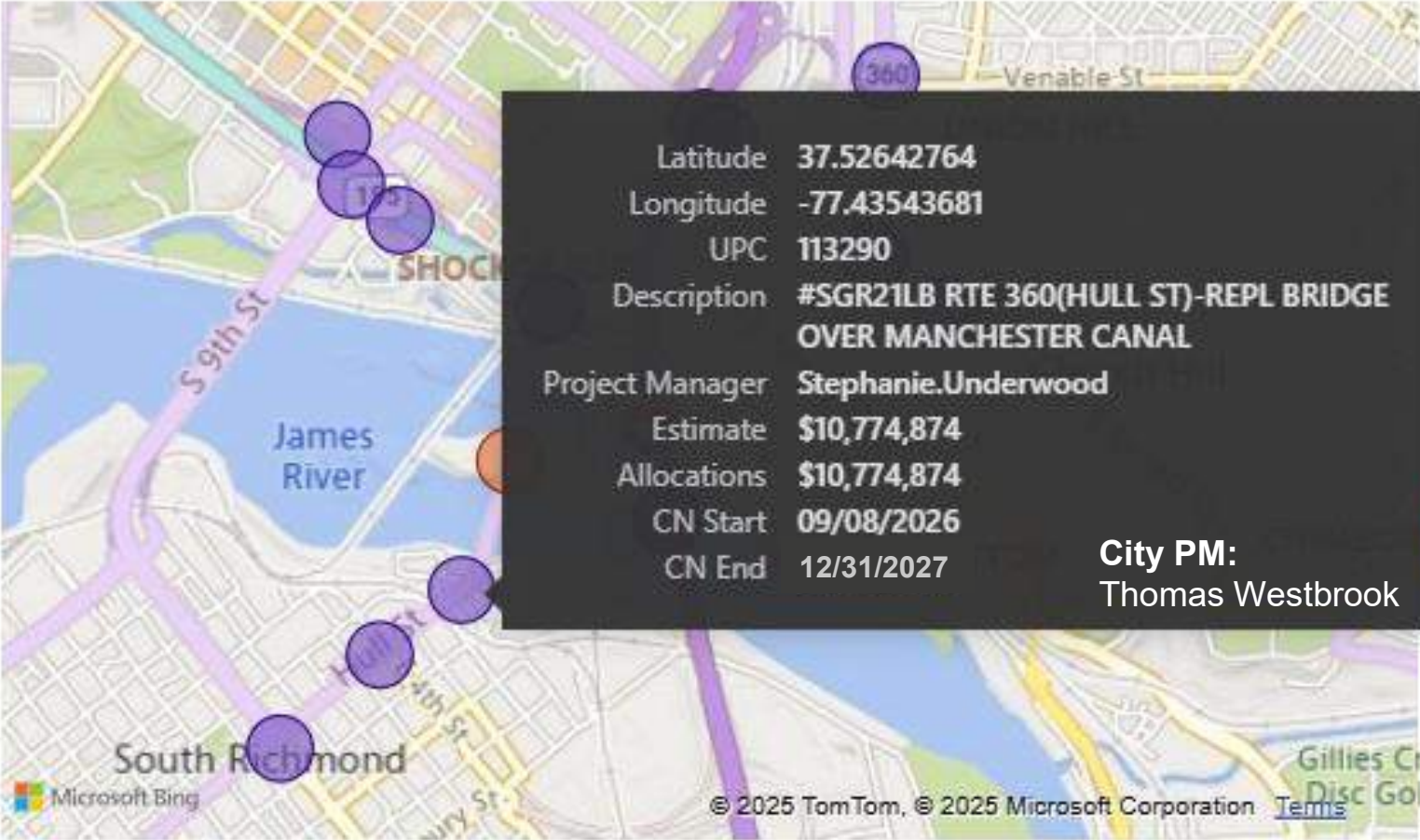
Bridges

Projects

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Manchester Canal Bridge Replacement

Location Map and Other Map Links



Latitude	37.52642764
Longitude	-77.43543681
UPC	113290
Description	#SGR21LB RTE 360(HULL ST)-REPL BRIDGE OVER MANCHESTER CANAL
Project Manager	Stephanie.Underwood
Estimate	\$10,774,874
Allocations	\$10,774,874
CN Start	09/08/2026
CN End	12/31/2027

City PM:
Thomas Westbrook

**FEMA****USGS****AASG**
Association of American State Geologists
Map Mode

Site

Bridges

Projects

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CONCEPTUAL RECOMMENDATION

**Construct the Mayo Bridge per current
section, alignment and detailing**