



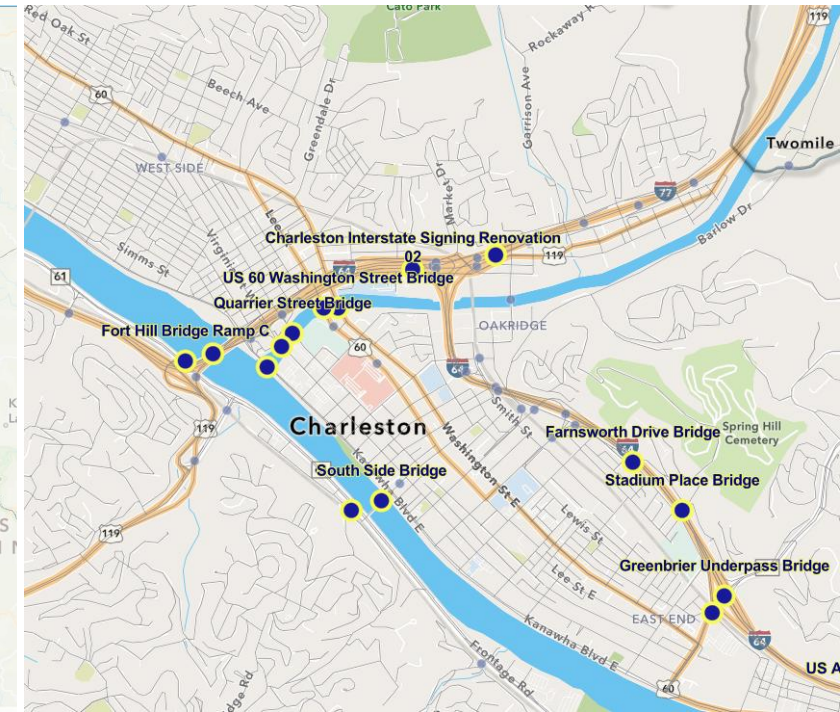
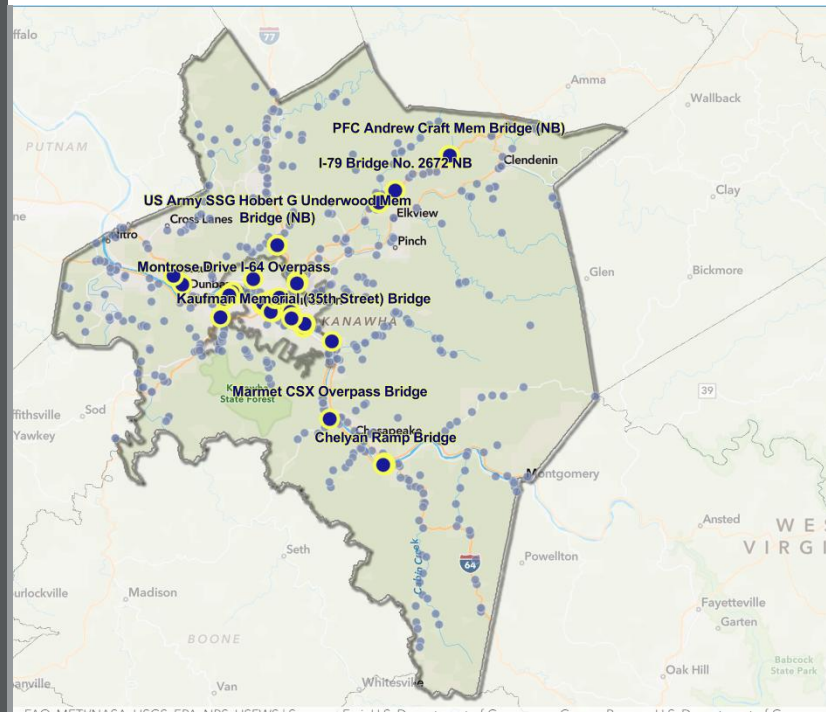
When Multiple Projects Collide:

Managing the Traffic Phasing of the Charleston Metro Bridge Initiative

Bridget Wagner, GISP, HDR

September 29, 2025

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Setting the Stage

- IIJA led to a “*once in a generation*” investment in infrastructure
- IIJA’s impact for West Virginia
 - \$3.8B in funding over the life of IIJA
 - Additional \$109M/year in dedicated funding for addressing aging bridges
 - Additional \$37M/year to expedite completion of the Appalachian Development Highway System, aka Corridor H

35.2% more per year
than received under
the FAST Act



Setting the Stage

- 38,879 miles of public roads
 - 89% owned and operated by WVDOT
 - 7,000 WVDOT-owned bridges
- 6th largest state-maintained highway network in the nation
- 18.6% of the bridges are reported as structurally deficient



WVDOT is a “centralized” DOT – all work statewide is procured and managed by a small DOT Consultant Review Team



How is WVDOT Responding?

- Identified nearly 3,500 bridges that need work
 - 60% Replacements
 - 19% Rehabs
 - 14% Deck rehabs/replacements
- Funding has been committed for 400+ projects thus far
- Procurement, design and construction are on-going for the programmed projects





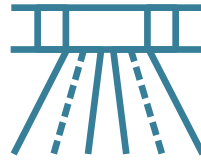
And this
is where
things
get fun!



Project Drivers



Unprecedented
Funding Levels
+
Focus on District 1
Bridge Program



55+ Bridge Projects
in Metro Area
+
On-going
Maintenance
Program
+
Signing
Renovations
+
City Projects



15+ Consultants
+
Varying Project
Types & Schedules
+
Multiple
Contractors &
Subcontractors

Scope Overview

Goals

1. Dynamic process to coordinate projects.
2. Minimize traffic conflicts and delays to the maximum extent possible.
3. Improve safety for traveling public and contractors.
4. Provide timely information to the public.

Design Phase

- Initiate early coordination of consultants and design
- Identify conflict points
- Streamline TMP development
- Peer review of Traffic Control Plans and TMPs

Construction Phase

- Identify conflict points as project schedules change
- Coordination with TMC/511 and mapping providers

- Manage database, dashboard, and website
- Run Conflict Analysis Tool
- Bi-Monthly Call with EORs
- Quarterly Meeting with WVDOT & Stakeholders
- Monthly Summary to WVDOT

The Charleston Metro Area



- WVDOT District 1
- Charleston is at the confluence of I-64, I-77 and I-79
- Significant thru and to traffic
- Kanawha River Bridge ADT is 100,000 vpd

GIS Database

- **Developed in Esri's ArcGIS Online Suite = shared data source**
 - Internal facing dashboards
 - External facing website
- **Database**
 - Initial data request sent to consultants in July 2024
 - Continuous updates as projects progress

Current Database Information

- Consultant
- Location
- Type of work
- Work zones and detours
- Design schedule
- Construction schedule, using Consultant working days
- Award date
- TMP commitments

Potential Expansions?

- Funding type
- Construction cost

Developed standardized Traffic Control Notes

- Allowable closure notes
- Special details
- Stakeholders contact list
- First Responder contact list

- Resources for consultants
 - Provide consistency

9-DEC-2024

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TEMPORARY TRAFFIC CONTROL SUMMARY OF QUANTITIES

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61000073	15'x20' TRUCK AND JUMP	EA		
61000074	15'x20' TRUCK AND JUMP	EA		
61000075	15'x20' TRUCK AND JUMP	EA		
6				

TEMPORARY TRAFFIC CONTROL NOTES (CONT.)

2. TEMPORARY PAVEMENT MARKINGS AND PAINT AND TAPE
CONTRACTOR SHALL PAINT OR APPLY ROADWAY SURFACES AND BRIDGES FOR EXISTING LANE LINES, LANE LINES, TEMPORARY PAVEMENT MARKINGS AND TAPE. SOLID LINES SHALL HAVE A 2" GAP EVERY 50'-0".
TEMPORARY TAPE SHALL BE APPLIED TO NEW CONCRETE ROADWAY AND BRIDGE SURFACES FOR ALL TEMPORARY CLOSURES. TAPE SHALL BE APPLIED TO THE SURFACES OF THE ROADWAY AND BRIDGE SURFACES.
THIS CONTRACTOR IS ENCOURAGED TO EXPEDITE THE CONSTRUCTION OF THIS PROJECT.
THE PROJECT IS TO BE COMPLETED AS SOON AS POSSIBLE. THE INCONVENIENCE TO THE PUBLIC DURING THE CONSTRUCTION OF THIS PROJECT IS TO BE MINIMIZED.

3. TRAFFIC CONTROL

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN A CITY-LEVEL ROAD CLOSURE PERMIT AND A CITY-LEVEL ROAD CLOSURE PERMIT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CITY-LEVEL ROAD CLOSURE PERMIT AND A CITY-LEVEL ROAD CLOSURE PERMIT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CITY-LEVEL ROAD CLOSURE PERMIT AND A CITY-LEVEL ROAD CLOSURE PERMIT.

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5. TEMPORARY PAVEMENT

USE CASE 1X FOR INTERMITTENT CLOSURES WHEN SETTING DEVICES AND STAY IN PLACE FORMS OVER THE ROADWAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CITY-LEVEL ROAD CLOSURE PERMIT AND A CITY-LEVEL ROAD CLOSURE PERMIT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CITY-LEVEL ROAD CLOSURE PERMIT AND A CITY-LEVEL ROAD CLOSURE PERMIT.

6. TEMPORARY PAVEMENT

CONTRACTOR SHALL INSTALL OVERHEAD PROTECTION FOR ALL ROADWAYS WHICH HAVE LIVE TRAFFIC UNDER THE PROTECTION. THE PROTECTION SHALL BE INSTALLED IN ITS ENTIRETY WHEN IT IS NO LONGER NEEDED.

7. OVERHEAD PROTECTION

A. THIS OVERHEAD PROTECTION SYSTEM IS REQUIRED IN ACCORDANCE WITH ANY CONTINGENCY SYSTEM REQUIRED FOR THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CITY-LEVEL ROAD CLOSURE PERMIT AND A CITY-LEVEL ROAD CLOSURE PERMIT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CITY-LEVEL ROAD CLOSURE PERMIT AND A CITY-LEVEL ROAD CLOSURE PERMIT.

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Dashboard Demonstration



Dashboard

Detours

Conflict Analysis

WVDOH Charleston Bridges Projects Review

PROJECT NAME:
No category selected

CONSULTANT(S):
No category selected

BUNDLE:
No category selected

DEV. RESPONSIBILITY:
No category selected

WORK TYPE:
No category selected

LETTING DATE:
No date selected



 57
Total Projects

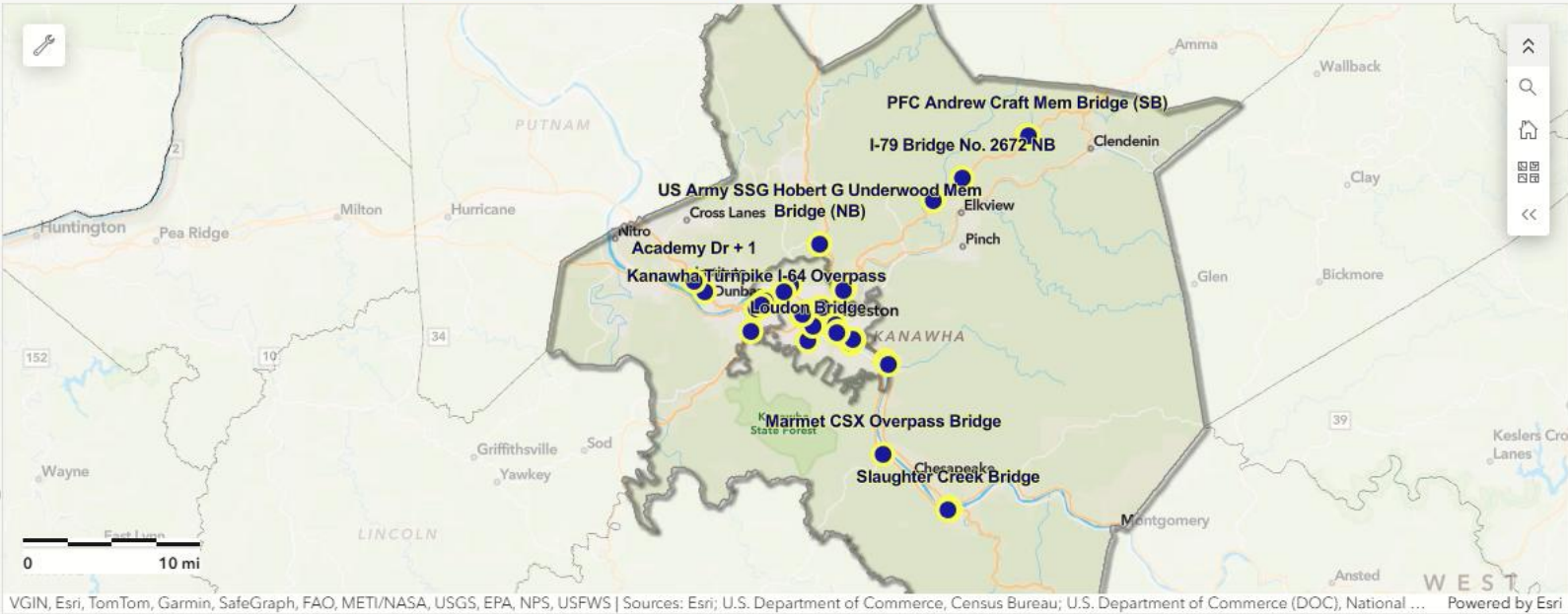
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Projects with Upcoming Submissions:

(Click to Zoom/Receive More Project Information)

-  Eugene A. Carter Memorial Bridge +3
-  I-77 NB Bridge
-  I-77 Wertz Avenue OP Bridge
-  I-79 Bridge No. 2572 SB
-  I-79 Bridge No. 2672 NB
-  Lee Street Bridge
-  Little Sandy Creek Bridge (NB)
-  Little Sandy Creek Bridge (SB)
-  Newhouse Road Op Bridge + 1 NB

Last update: 32 seconds ago



Project Name	State Project	Consultant	LettingDate	AwardDate	PFRDate	FFRDate	FOI
Montrose Drive I-64 Overpass	S320-60/64-0.25 00	HDR	4/15/2025, 8:00 PM	5/15/2025, 8:00 PM	6/27/2024, 8:00 PM		10/31/2025
Kanawha Turnpike I-64 Overpass	S320-61/13-0.03 00	HDR	10/19/2025, 8:00 PM	11/2/2025, 7:00 PM	12/8/2024, 7:00 PM		7/6/2025
US 60 Washington Street Bridge	S320-60-5.59 00	HDR	1/20/2026, 7:00 PM	2/20/2026, 7:00 PM	1/5/2025, 7:00 PM		10/29/2025
Lee Street Bridge	S320-60-16.57 00	HDR	1/20/2026, 7:00 PM	2/20/2026, 7:00 PM	2/8/2025, 7:00 PM		10/29/2025

(Click a row to zoom to project)

Last update: 33 seconds ago

 18

Consultant Submissions in Next 60 Days

Last update: 32 seconds ago

 0

PFR Submission in Next 60 Days

Last update: 32 seconds ago

 1

FFR Submission in Next 60 Days

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 17

FOR Submission in Next 60 Days

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 3

Final Submission in Next 60 Days

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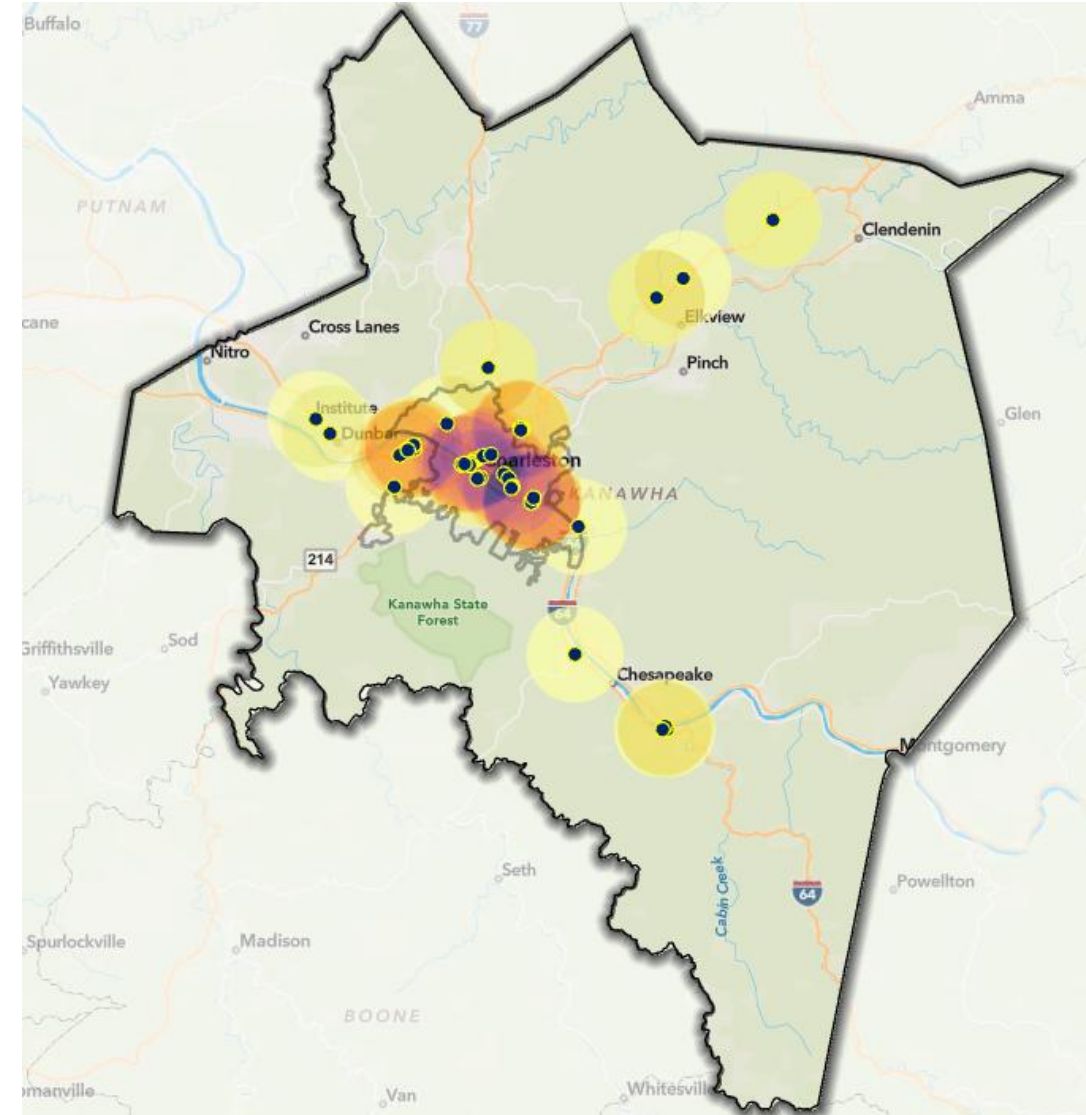
Conflict Analysis

**“Chaos is merely order waiting
to be deciphered”**

- *Jose Saramago*

Conflict Analysis

- Multi-faceted approach
 - GIS conflict tool
 - Conflict “RYG” matrix
 - 2-mile signing overlaps
- Spatial and temporal approach, with key focus areas:
 - Overlapping work zones
 - Detour conflicts
 - Schedules of adjacent projects



Conflict Analysis Tool

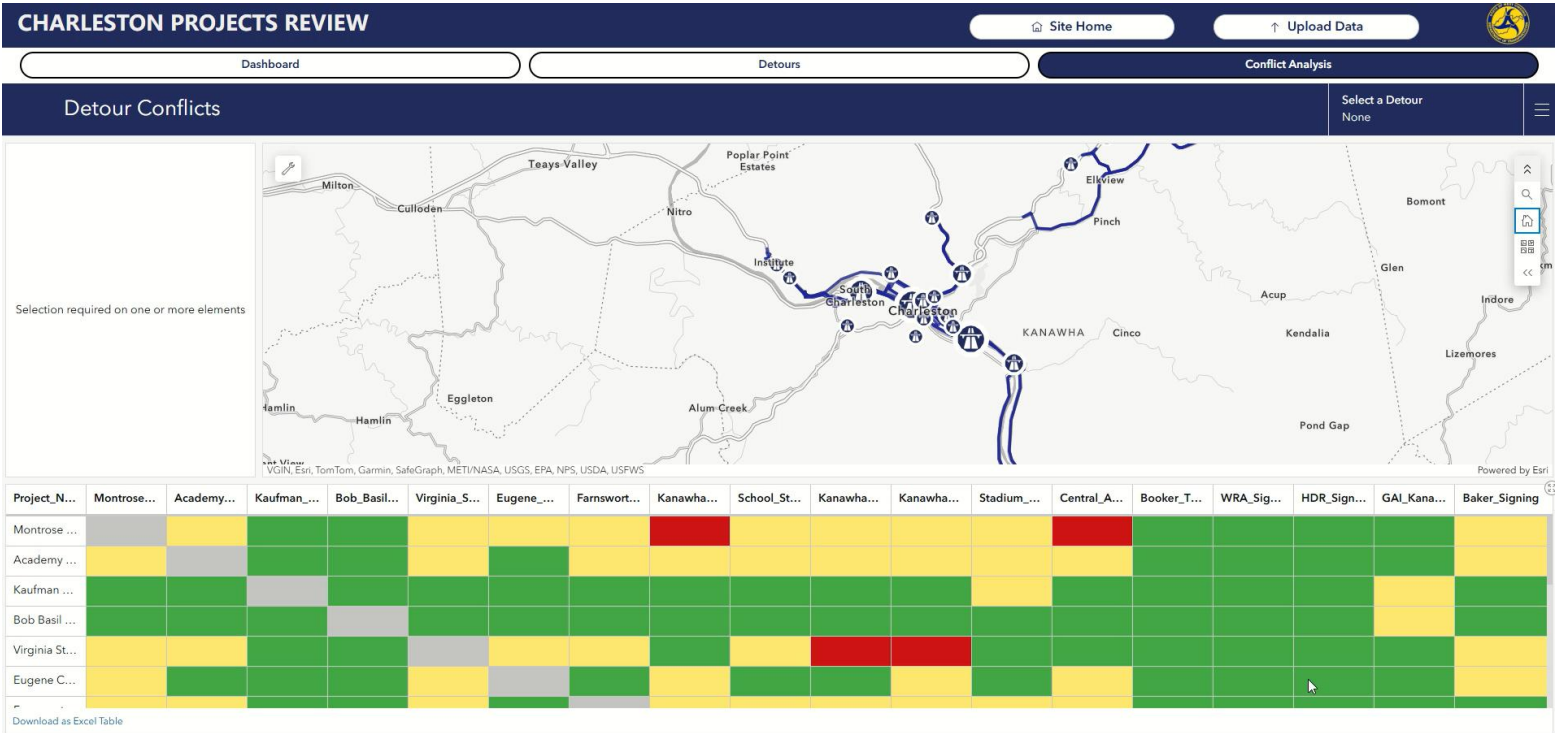
- Classify projects for risk:

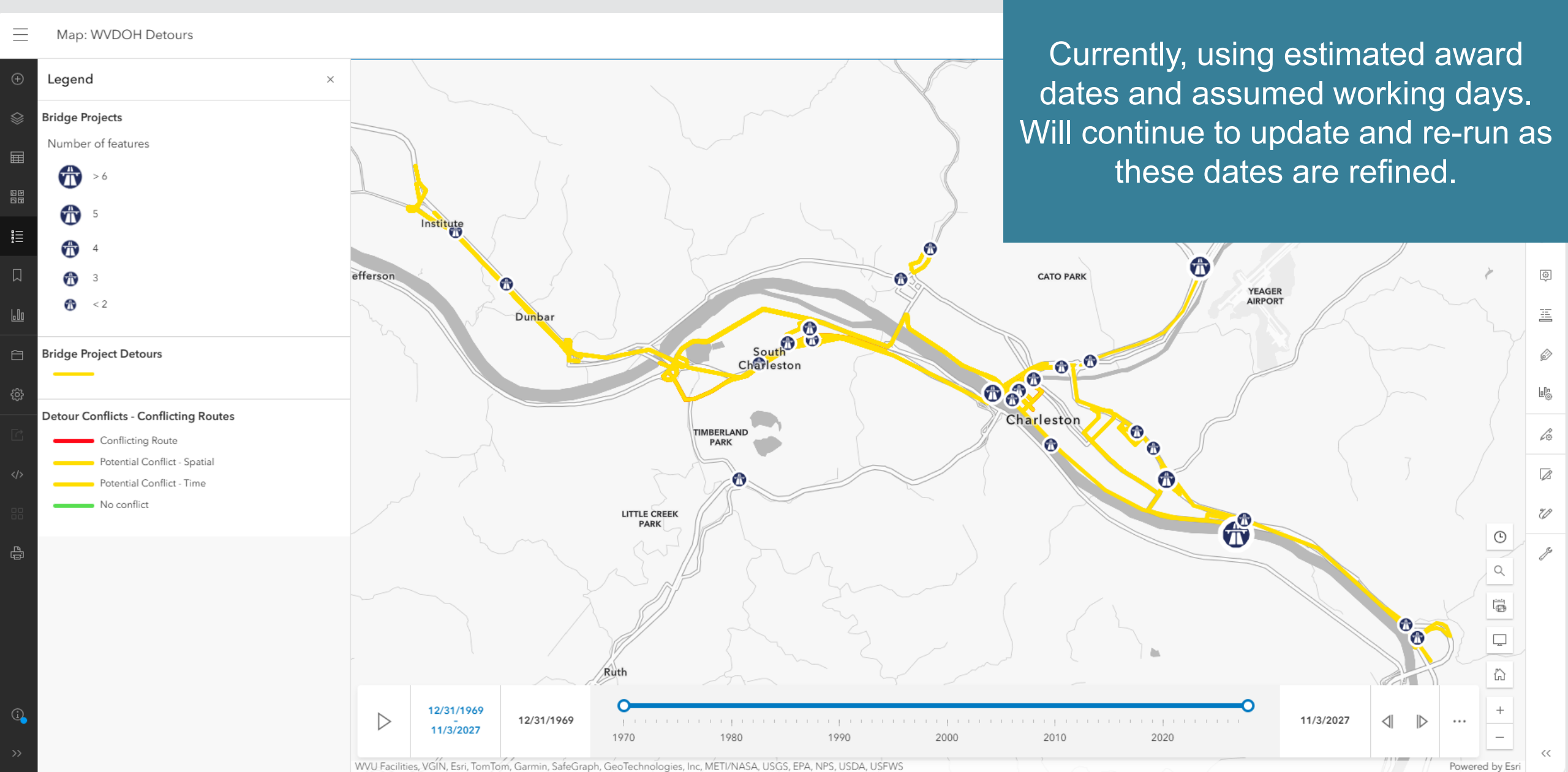


- Red = Need to resolve overlaps and conflicts
- Yellow = Investigate potential for conflicts
- Green = No conflicts

- Current challenges

- Award dates are estimated based on Final Plan date + 90 days
- Working days are estimated
- Classifying “short-term” detour, e.g. beam setting





Conflict Dashboard

Metro Bridges Conflict Analysis (Spatial Only)		West of Bigley										Downtown										East of Bigley														
		Academy Drive (Cont. Detour)	Kanawha Tpk OP (Detour)	Dunbar Toll	Montrose Drive OP, 1st, 2nd (Detour - Beam Setting)	Eugene Carter (Ramps + Cont. Detour)	Fort Hill Ramp C	Central Avenue (Detour)	Central Avenue OP	I-64 Signing	Kanawha Blvd (Detour)	Virginia Street (Truck Detour)	Quarrier Street	Lee Street	Washington Street	South Side Bridge	South Side CSX Ramp	Littlepage Bridge	School Street Bridge (Detour)	Capitol Connector	Farnsworth Bridge (Local Detour)	Stadium Place Bridge (Cont. Detour)	Greenbrier UP	Greenbrier Street	35th/36th Street & Ramps (Detour)	Wertz Avenue OP	Teddy Ray Chandler	Booker T Washington (Trk Detour, Ph 2, Cont. Detour)	Belle Ramp over Piedmont	Belle Ramp over US 60	Marmet CSX	TJ Lopez (Cheylan)	Cheyman Ramp	Slaughter Creek	I-77 Signing	
West of Bigley	Academy Drive (Cont. Detour)	N/A																																		
	Kanawha Tpk OP (Detour)		N/A				TBD																													
	Dunbar Toll			N/A																																
	Montrose Drive OP, 1st, 2nd (Detour - Beam Setting)				N/A		TBD																													
	Eugene Carter (Ramps + Cont. Detour)					N/A	TBD																													
	Fort Hill Ramp C		TBD		TBD	TBD	N/A	TBD																												
	Central Avenue (Detour)							TBD																												
	Central Avenue OP								N/A																											
I-64 Signing									N/A																											
Downtown	Kanawha Blvd (Detour)									N/A																										
	Virginia Street (Truck Detour)										N/A																									
	Quarrier Street											N/A																								
	Lee Street												N/A																							
	Washington Street													N/A																						
	South Side Bridge															N/A																				
	South Side CSX Ramp																N/A																			
	Littlepage Bridge																	N/A																		
	School Street Bridge (Detour)																		N/A																	
	Capitol Connector																			N/A																
East of Bigley	Farnsworth Bridge (Local Detour)																				N/A															
	Stadium Place Bridge (Cont. Detour)																					N/A														
	Greenbrier UP																						N/A													
	Greenbrier Street																							N/A												
	35th/36th Street & Ramps (Detour)																								N/A											
	Wertz Avenue OP																									N/A										
	Teddy Ray Chandler																										N/A									
	Booker T Washington (Truck Detour - Ph 2, Cont. Detour)																											N/A								
	Belle Ramp over Piedmont																												N/A							
	Belle Ramp over US 60																													N/A						
	Marmet CSX																															N/A				
	TJ Lopez (Cheylan)																																N/A			
	Cheyman Ramp																																	N/A		
	Slaughter Creek																																	N/A		
	I-77 Signing																																		N/A	

Color	Definition
	- Detour overlaps with another project's detour - Detour overlaps with another project
	- Contingent detour overlaps another project or detour - Other potential conflict, e.g. diversions
	- No apparent conflict in space or time

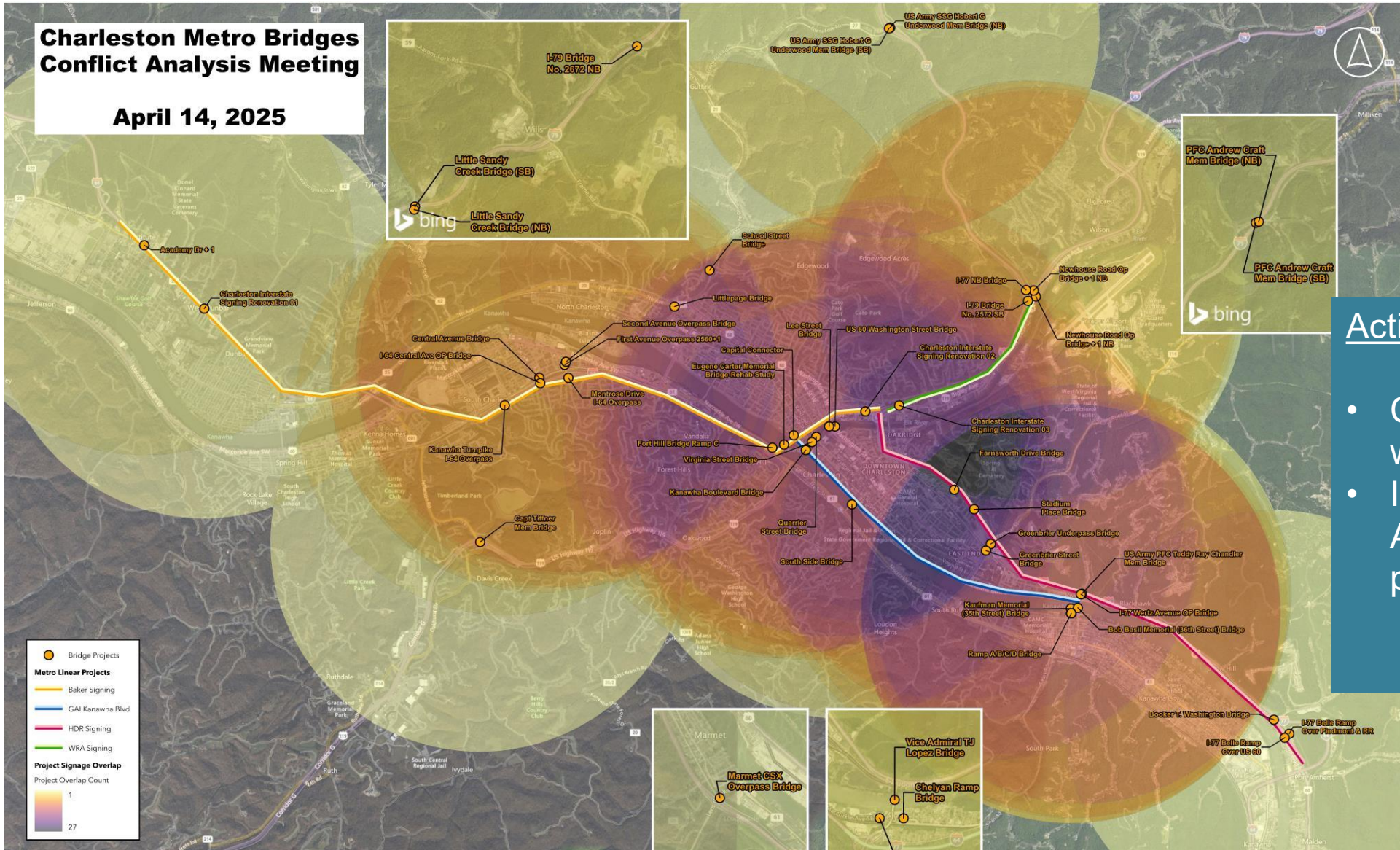
Currently, “RYG” matrix assumes all projects on the same schedule for “worst-case” scenario

Deconflicting Projects

Red Conflicts	Yellow Conflicts
Ways to deconflict: • Bundle individual projects • Modify planned award dates/offset project schedules	Ways to deconflict: • Work zone restrictions • Incentive/disincentive clauses • Contractor coordination notes

Charleston Metro Bridges Conflict Analysis Meeting

April 14, 2025



Action Items

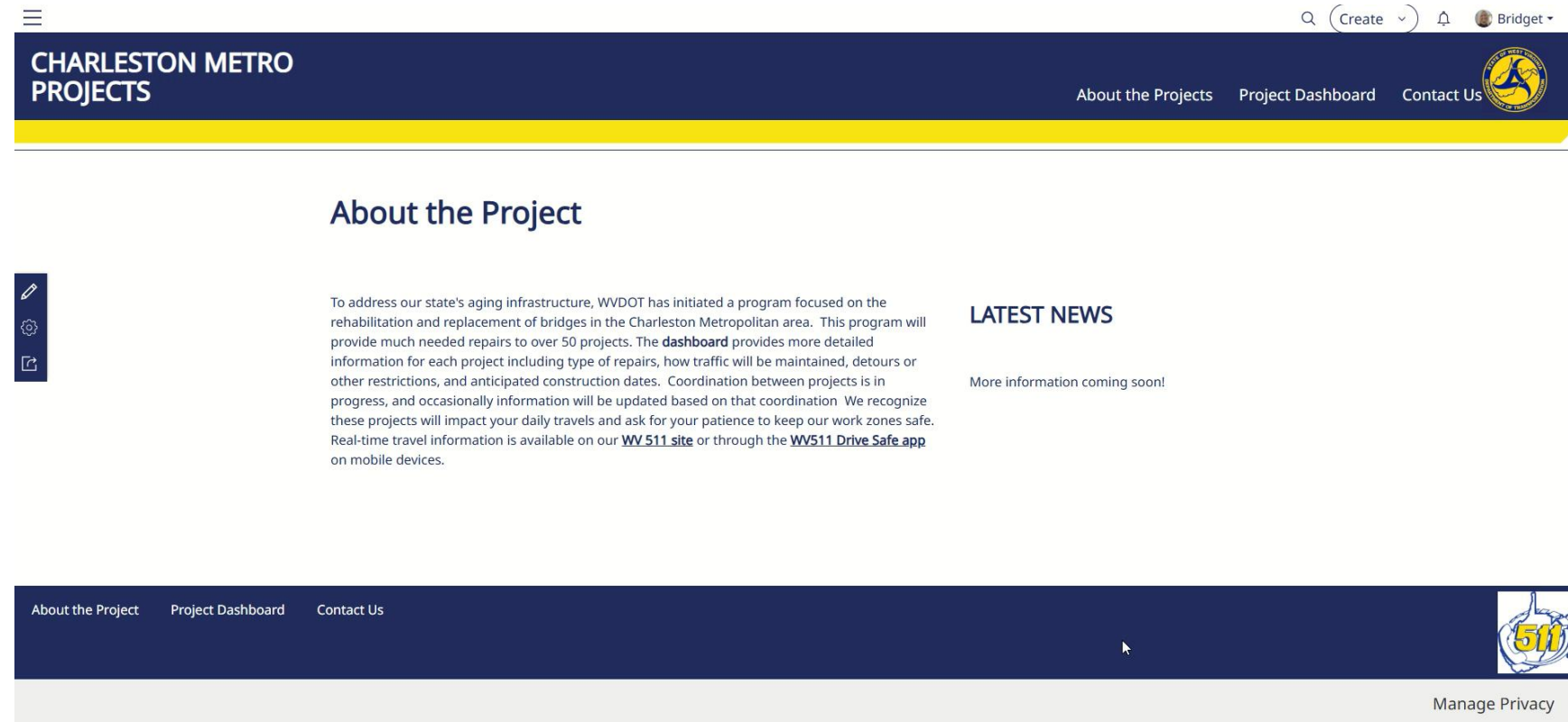
- Coordinate lead-in signing with consultants
- Incorporate “Road Work Ahead XX Miles” into projects

2-Mile Signing Overlaps

Public Website Overview

Public Website Overview

- Fed from GIS database, but limited information
- Branded for WVDOH





Summary

- Approximately 150 planned submissions for review
- Database and conflict analysis tool will continue to evolve as projects advance
- Public-facing website will launch soon

Questions?

