



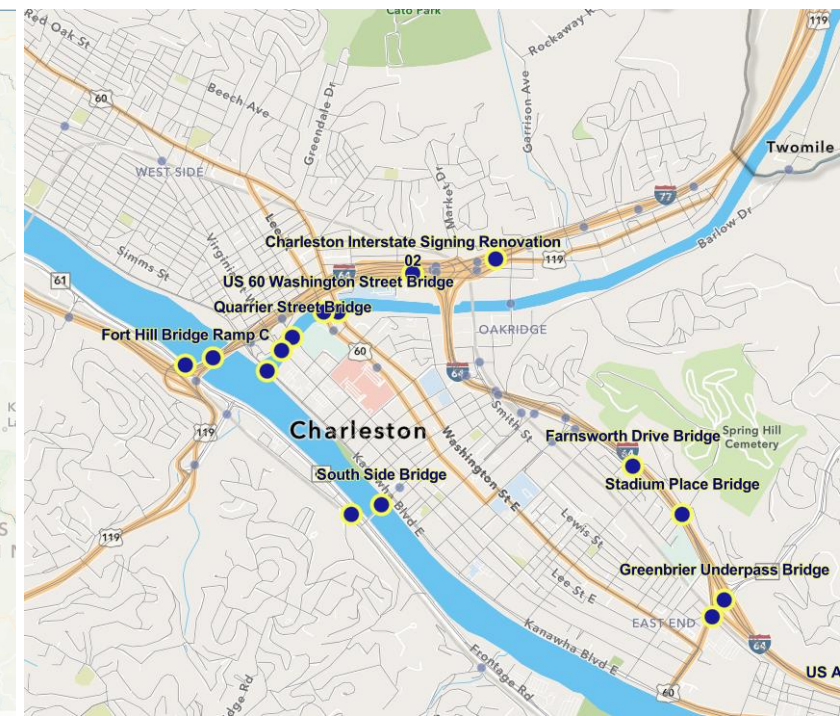
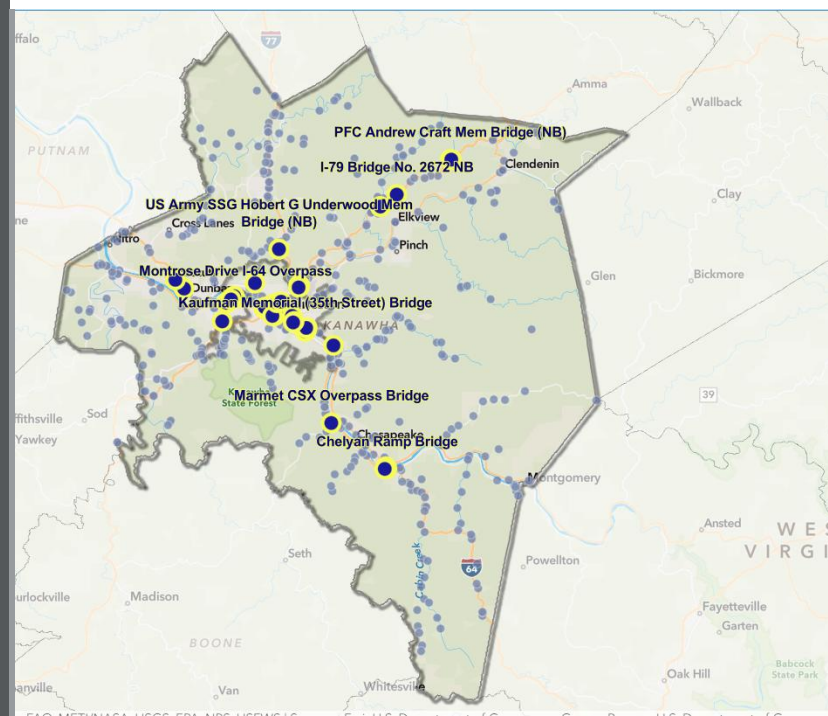
# When Multiple Projects Collide:

## Managing the Traffic Phasing of the Charleston Metro Bridge Initiative

Dirar Ahmad, PE, WVDOT  
Amy Staud, PE, PTOE, RSP1, HDR

June 3, 2026

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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
- 6<sup>th</sup> 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





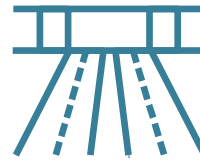
And this is where things get fun!



# 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

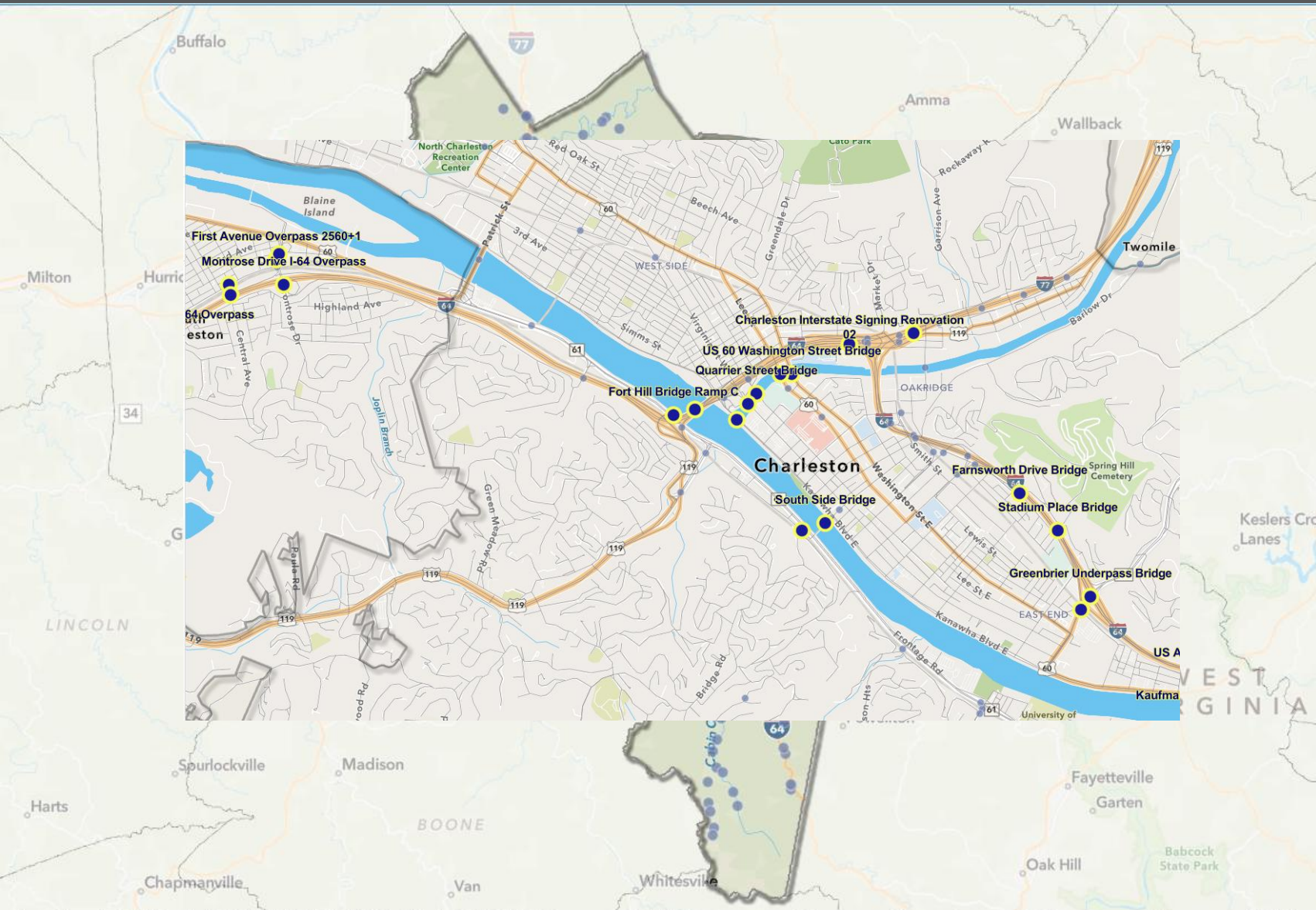
- Initiate early coordination of consultants and design
- Identify conflict points
- Peer review of Traffic Control Plans and TMPs
- **Coordinate with Special Events**

## 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

# Additional Coordination Efforts – Peer Reviews

## What is being Reviewed?

- Temporary Traffic Control Plans
- Transportation Management Plans
- Traffic Analysis for temporary conditions, if part of project scope

### Purpose

- Help feed the database
- Look at individual projects through the lens of the regional initiative

**HDR**

**Review Memo**

Date: Tuesday, September 10, 2024

Project: Kanawha Bridge Bundle  
S320-060/63-0.06 00 23  
NHPP-6063(009)D

Consultant:

Reviewer: Amy Staud

Document	Level	Date	✓
Plans for Review	N/A	N/A	-
Transportation Management Plan (TMP)	Draft	9/4/24	✓
Operational Analysis	Draft	9/4/24	✓

*Disclaimer: These comments represent a high-level review of the submitted documents and are for the benefit of the WVDOH. The Consultant takes on full professional responsibility for the design. WVDOH and the Consultant waive all claims against HDR and the Reviewer. Any comment which constitutes out-of-scope work should be approved by WVDOH prior to initiating additional work.*

**Plan Review**

1. N/A

**Transportation Management Plan**

Item	Comments
1. General	
a. Confirm appropriate level designation	Agree - Level III Significant Project.
2. Traffic Control Plan	
a. Lane closures consistent with WVDOH requirements	N/A - No lane closures on I-64/I-77 planned.  Single-lane closures on 35 <sup>th</sup> and 36 <sup>th</sup> Street bridges are listed in Table 4; these routes are not listed on WVDOH's Lane Closure Map.
b. List of strategies	Table 1 provides a robust list of strategies which will be incorporated into the TTCP.

1

Indicates Greenbrier I/C will be used for ... No map is provided; expect to be future TMP submission and TTCP.

notes that no restrictions are ... Any over-width vehicles will be through WVDOH permitting

existing pedestrian facilities on the 35<sup>th</sup> St.

3 indicates the existing 35<sup>th</sup> Street accommodation, including spiral (to be accessible during Phase 1 (expected in future TMP submission and TTCP)). It will not be usable during Phase 2 and accommodations will be needed. A barrier-path is being considered to maintain the bridge during Phase 2.

is in the vicinity of several adjacent

Wetz Avenue OP Bridge (GAI)  
Army PFC Teddy Ray Chandler Memorial Bridge (GAI)  
Greenbrier Street Bridge (GPI)  
Greenbrier Underpass Bridge (GPI)  
Signing Renovation (HDR)

at lead-in signing may overlap and Street may be under construction at the 35<sup>th</sup>/36<sup>th</sup> Street detours.

s:  
plan notes with specific references to the projects and need for contractor coordination.  
potential conflicts in TMP narrative. Continue to coordinate design/schedules HDR for inclusion in the Charleston to database and conflict analysis.

and 7 include a listing of primary

s.

2

filed notification

Charleston Metro

the Charleston

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# Dashboard Demonstration

# GIS Database

- **Developed in 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
  - Live linkage to WVDOT's "HUB" Project Controls software

## 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



## 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

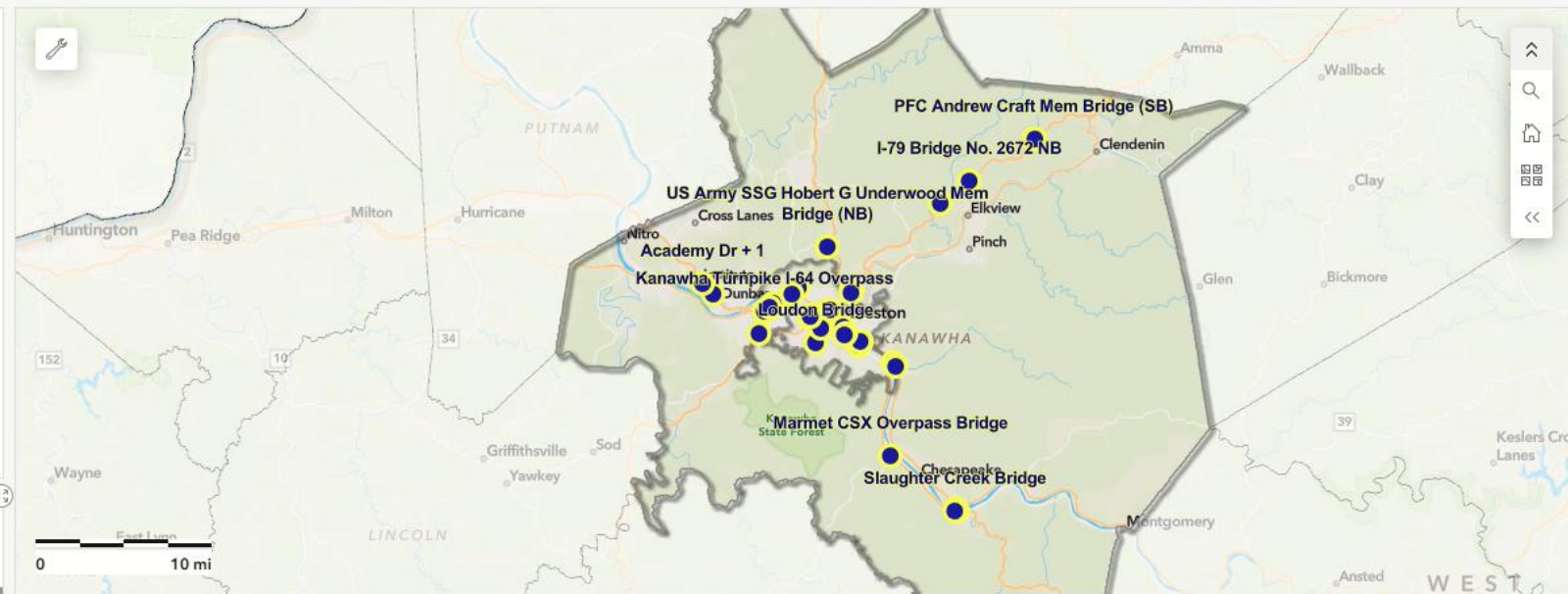
**WORK TYPE:**  
No category selected

**LETTING DATE:**  
No date selected



# 57

Total Projects



Last update: 33 seconds ago

### 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

VGIN, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS | Sources: Esri; U.S. Department of Commerce, Census Bureau; U.S. Department of Commerce (DOC), National ... Powered by Esri

Project Name	State Project	Consultant	LettingDate	AwardDate	PFRDate	FFRDate	FO
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  
Last update: 32 seconds ago

# 17

FOR Submission in Next 60 Days  
Last update: 33 seconds ago

# 3

Final Submission in Next 60 Days  
Last update: 32 seconds ago

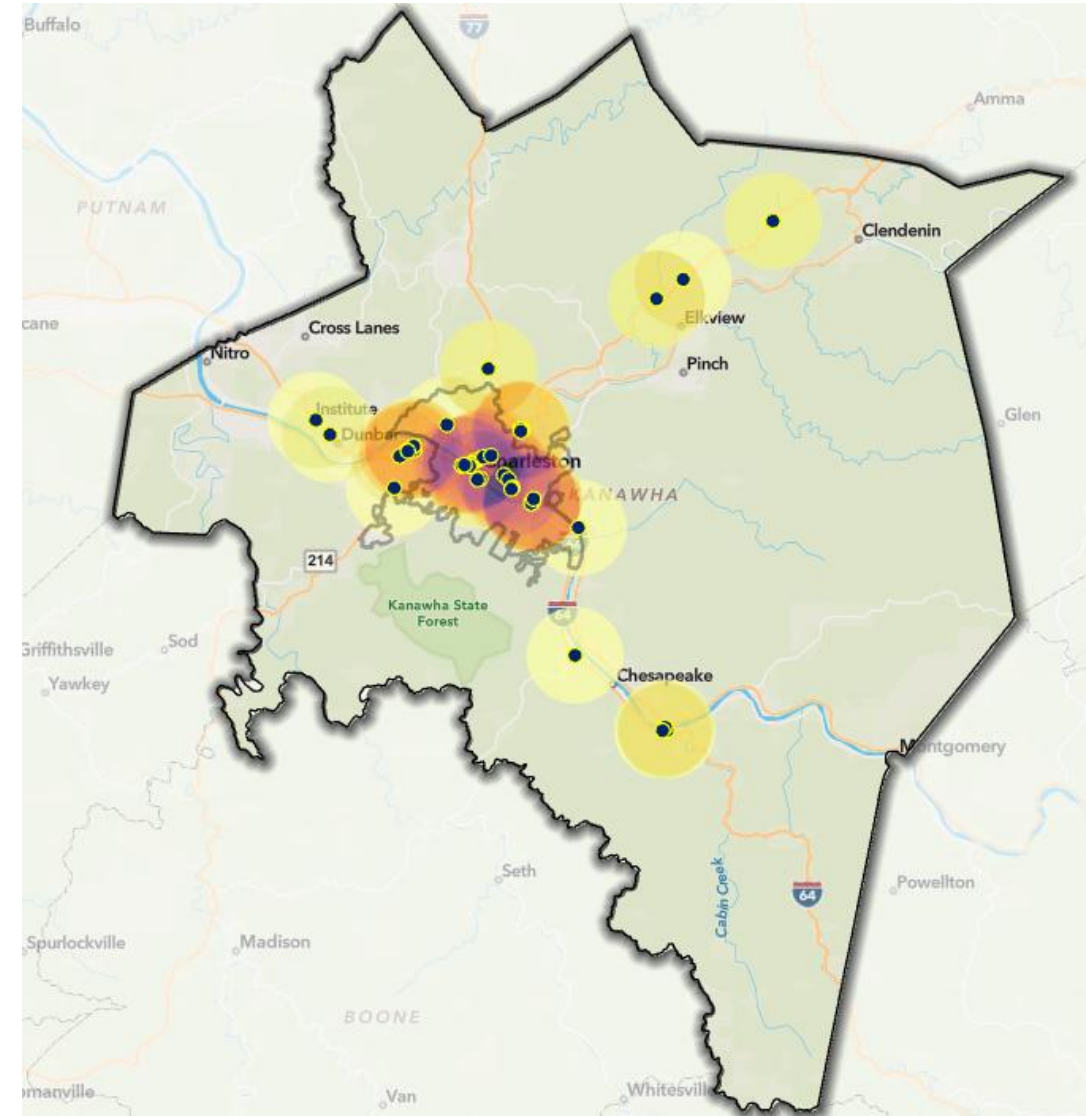
# Conflict Analysis

**“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

**CHARLESTON PROJECTS REVIEW** Site Home Upload Data

Dashboard Detours **Conflict Analysis**

Detour Conflicts Select a Detour: Kanawha Turnpike I-64 Overpass

- Montrose Drive I-64 Overpass Conflict with Kanawha Turnpike I-64 Overpass
- Baker Signing Potential Conflict - Spatial with Kanawha Turnpike I-64 Overpass
- Academy Dr + 1 Potential Conflict - Time with Kanawha Turnpike I-64 Overpass
- Eugene Carter Memorial Bridge-Rehab Study Potential Conflict - Spatial with Kanawha Turnpike I-64 Overpass
- Farnsworth Drive Bridge Potential Conflict - Time with Kanawha Turnpike I-64 Overpass

Project_N...	Montrose...	Academy...	Kaufman_...	Bob_Basil...	Virginia_S...	Eugene_...	Farnswort...	Kanawha...	School_St...	Kanawha...	Kanawha...	Stadium_...	Central_A...	Booker_T...	WRA_Sig...	HDR_Sign...	GAI_Kana...	Baker_Signing
Kanawha...																		

Powered by Esri

Currently, using WVDOT "HUB" data for project start/end. Database updates weekly and generates new conflicts.

Legend

Bridge Projects

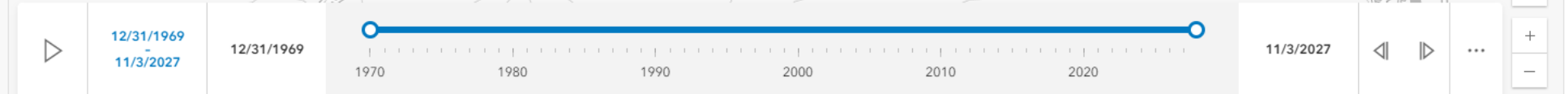
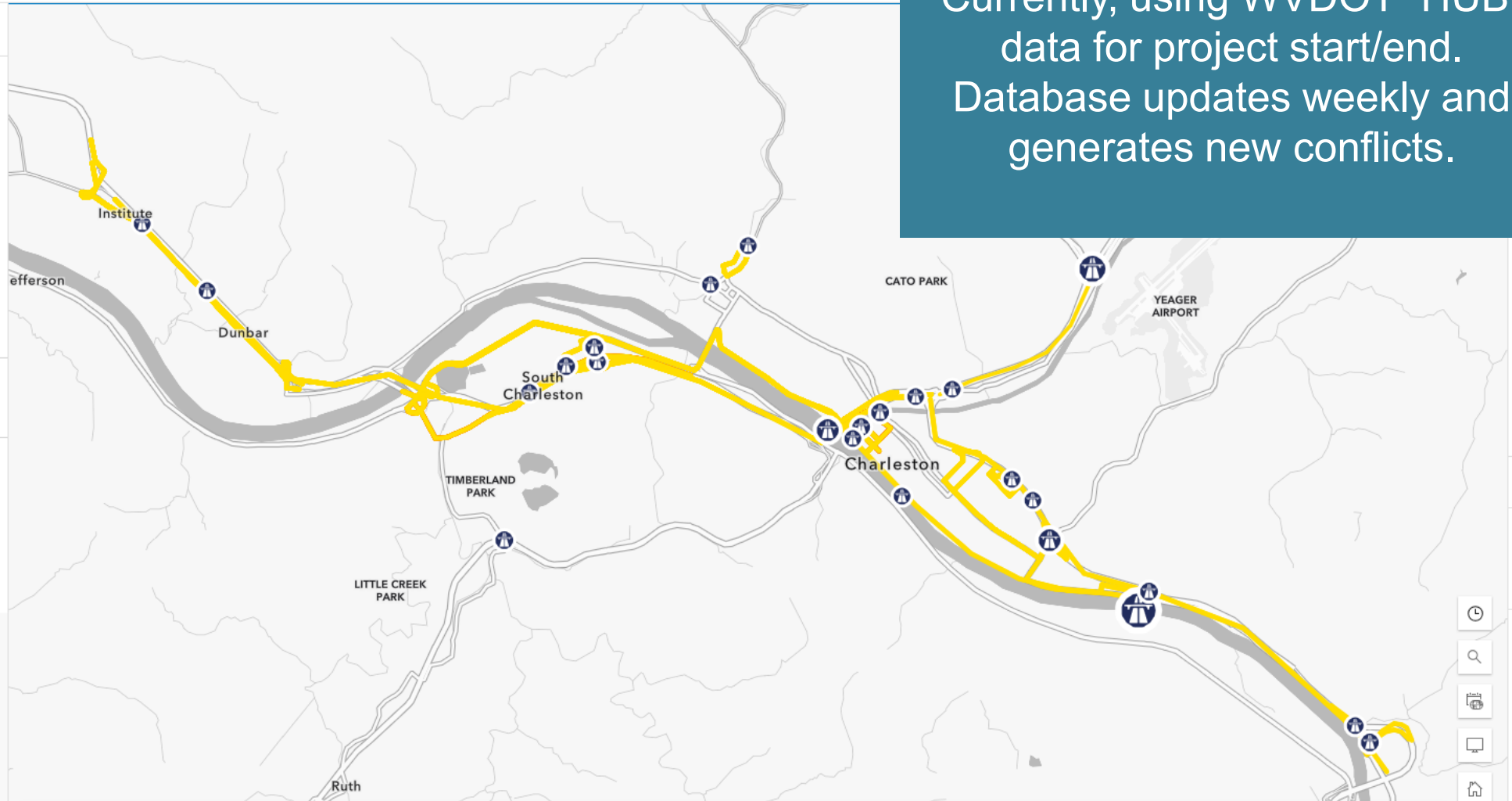
- Number of features
- > 6
  - 5
  - 4
  - 3
  - < 2

Bridge Project Detours



Detour Conflicts - Conflicting Routes

- Conflicting Route
- Potential Conflict - Spatial
- Potential Conflict - Time
- No conflict





# Deconflicting Projects

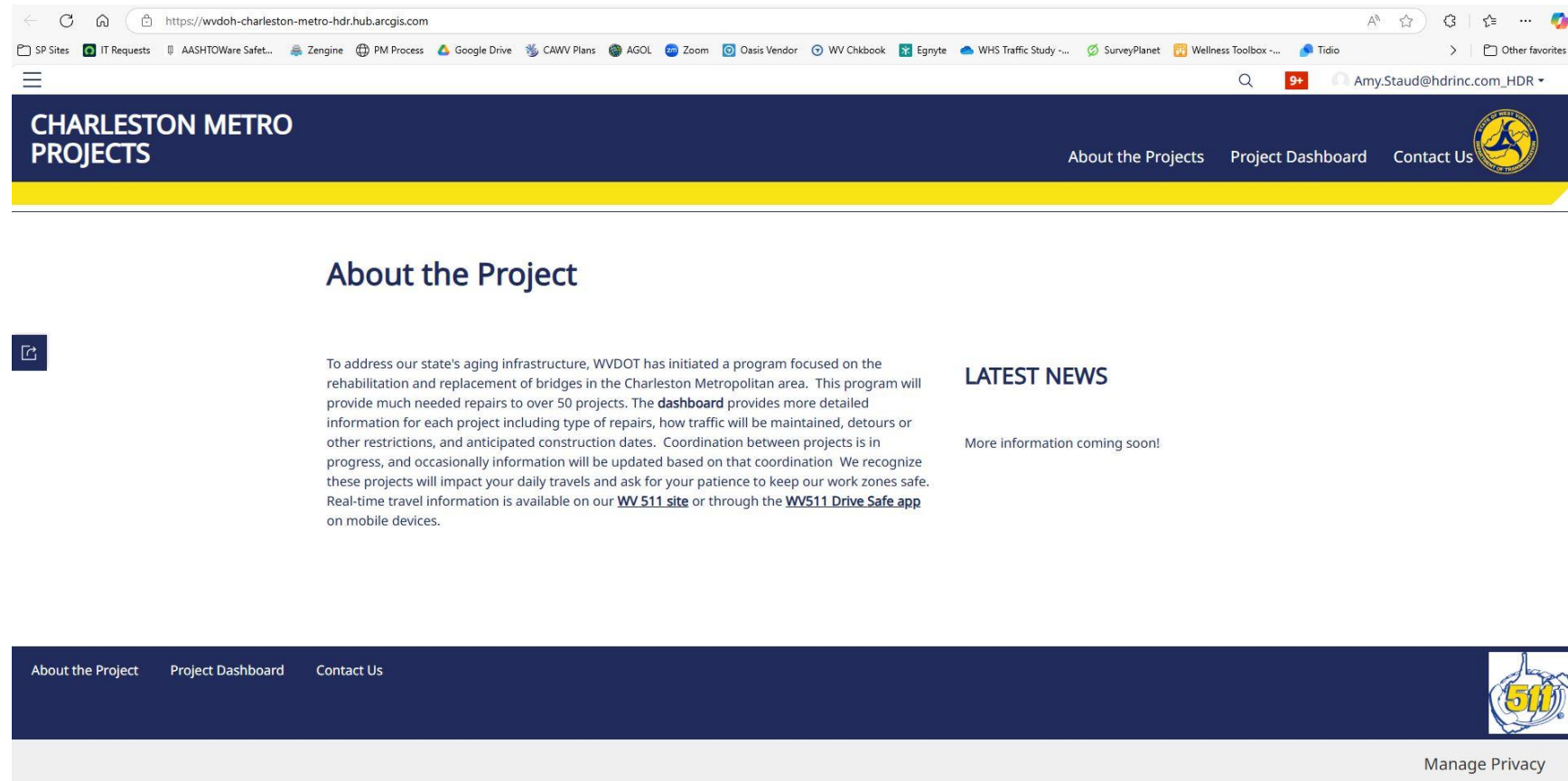
<b>Red Conflicts</b>	<b>Yellow Conflicts</b>
<p>Ways to deconflict:</p> <ul style="list-style-type: none"><li>• Bundle individual projects</li><li>• Modify planned award dates/offset project schedules</li></ul>	<p>Ways to deconflict:</p> <ul style="list-style-type: none"><li>• Work zone restrictions</li><li>• Incentive/disincentive clauses</li><li>• Contractor coordination notes</li></ul>



# Public Website Overview

# Public Website Overview

- Streaming from ArcGIS database, but with limited information
- Hosted by HDR
- Branded for WVDOT



The screenshot displays a web browser window with the URL <https://wvdoh-charleston-metro-hdr.hub.arcgis.com>. The browser's address bar and tabs are visible at the top. The website's header features the text "CHARLESTON METRO PROJECTS" on the left and navigation links for "About the Projects", "Project Dashboard", and "Contact Us" on the right, accompanied by the WVDOT logo. The main content area is titled "About the Project" and includes a small icon of a document with a checkmark. The text describes a program for bridge rehabilitation and replacement in the Charleston Metropolitan area, mentioning a dashboard for project details and coordination. A "LATEST NEWS" section follows, with the text "More information coming soon!". The footer contains navigation links for "About the Project", "Project Dashboard", and "Contact Us", along with a "511" logo and a "Manage Privacy" link.

CHARLESTON METRO PROJECTS

About the Projects Project Dashboard Contact Us

## About the Project

To address our state's aging infrastructure, WVDOT has initiated a program focused on the rehabilitation and replacement of bridges in the Charleston Metropolitan area. This program will provide much needed repairs to over 50 projects. The **dashboard** provides more detailed information for each project including type of repairs, how traffic will be maintained, detours or other restrictions, and anticipated construction dates. Coordination between projects is in progress, and occasionally information will be updated based on that coordination. We recognize these projects will impact your daily travels and ask for your patience to keep our work zones safe. Real-time travel information is available on our [WV 511 site](#) or through the [WV511 Drive Safe app](#) on mobile devices.

## LATEST NEWS

More information coming soon!

About the Project Project Dashboard Contact Us

511

Manage Privacy



## Summary

- Reviewed 50+ TMPs and Traffic Control Plan to date...*less than 50 planned submissions left to review!*
- Public-facing website is live
- Continue deconflicting projects as schedules, detours, etc. change