

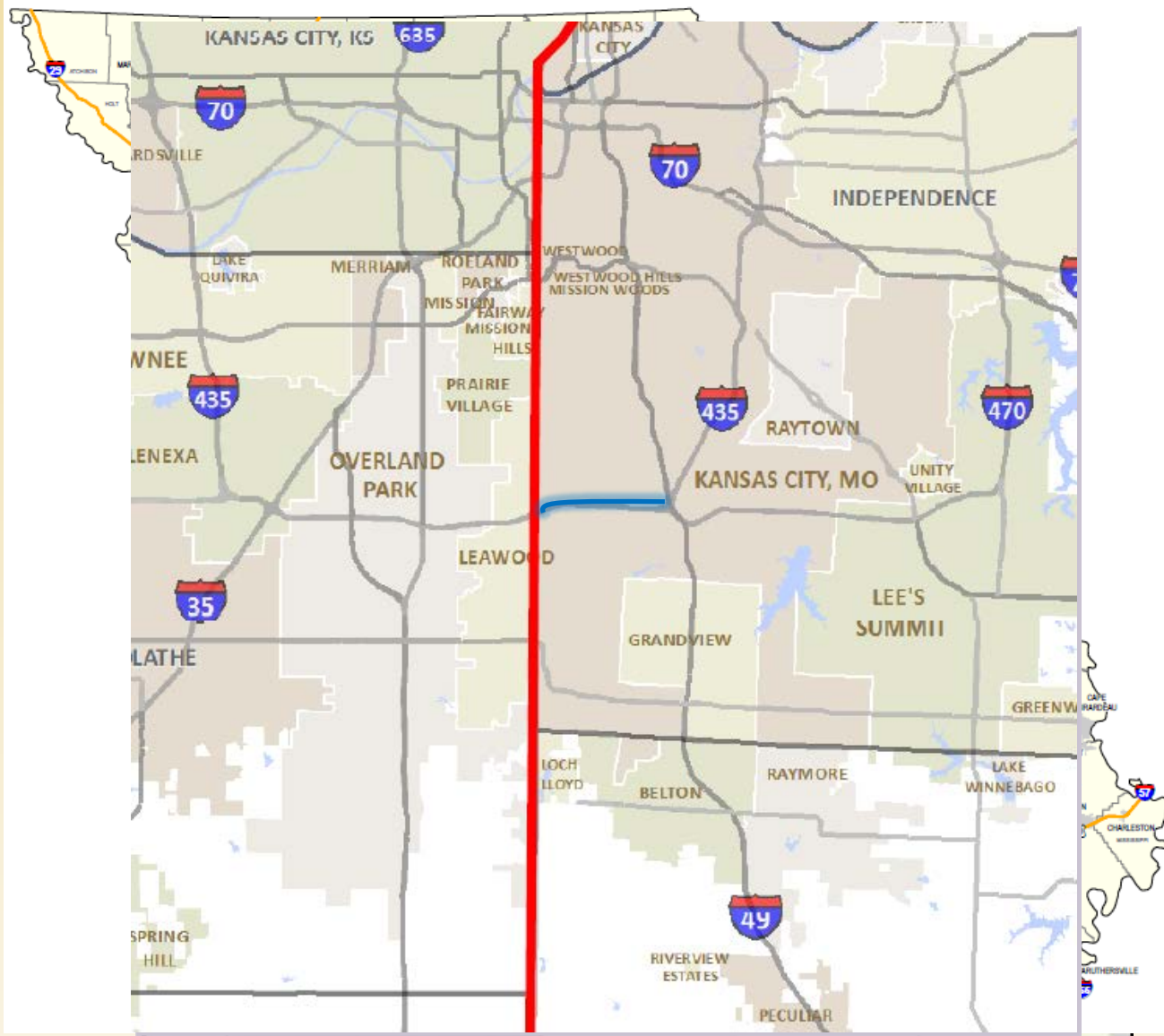


I-435 South Loop Link Design-Build Project





About the Region





Project Location



- Replace/Rehab Bridges
 - Wornall
 - Holmes
 - 104th Street

- Corridor Resurfacing

- Corridor Mobility Study (155,000 VPD)
 - Finding:
 - Add Lanes
 - Remove Loop Ramps at Holmes





Project Area



435EB @ STATELINE (23)





Project Area



PM Peak Hour Congestion





Project Goals



- 1. Deliver the project utilizing a diverse workforce by May 1, 2020 within the program budget of \$74.8 million.**
- 2. Minimize impacts to the traveling public during construction.**
- 3. Maximize safety and peak period travel speeds on the I-435 corridor.**
- 4. Minimize future maintenance needs.**



Configuration Requirements



- **Deal Breakers:**
- Reconstruct Bridges over Wornall and Holmes.
- Replace the deck and rehabilitate the bridge over 104th.
- Provide a new riding surface on I-435 and ramps.
- Improve mobility and safety along the I-435 corridor.
- Construct new sidewalk along Stateline Road.



Awarded as the Best Value Proposer

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- Heavy Highway
- Water & Sewer Treatment Plants
- Industrial/Power

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Challenges and Solutions





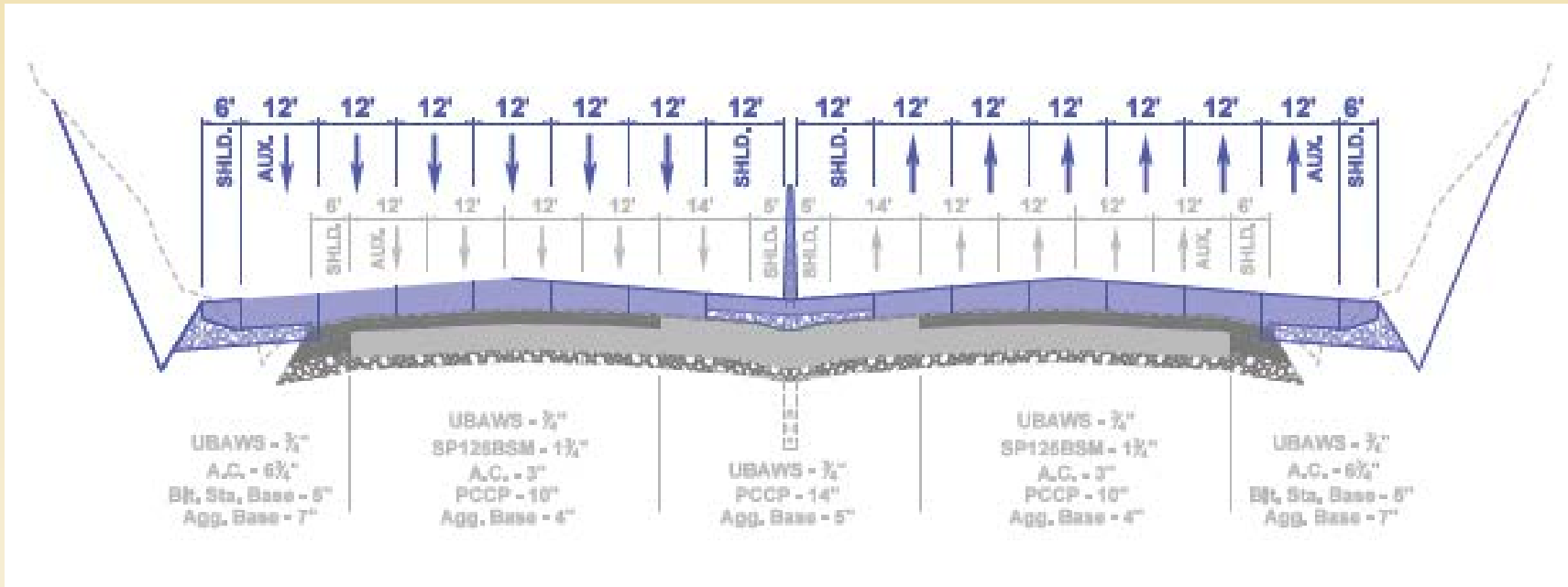
Project Goals



- Minimize Impacts to Traffic During Construction
- Minimize Future Maintenance
- Maximize Safety and Peak Period Travel Speeds



Concrete Overlay





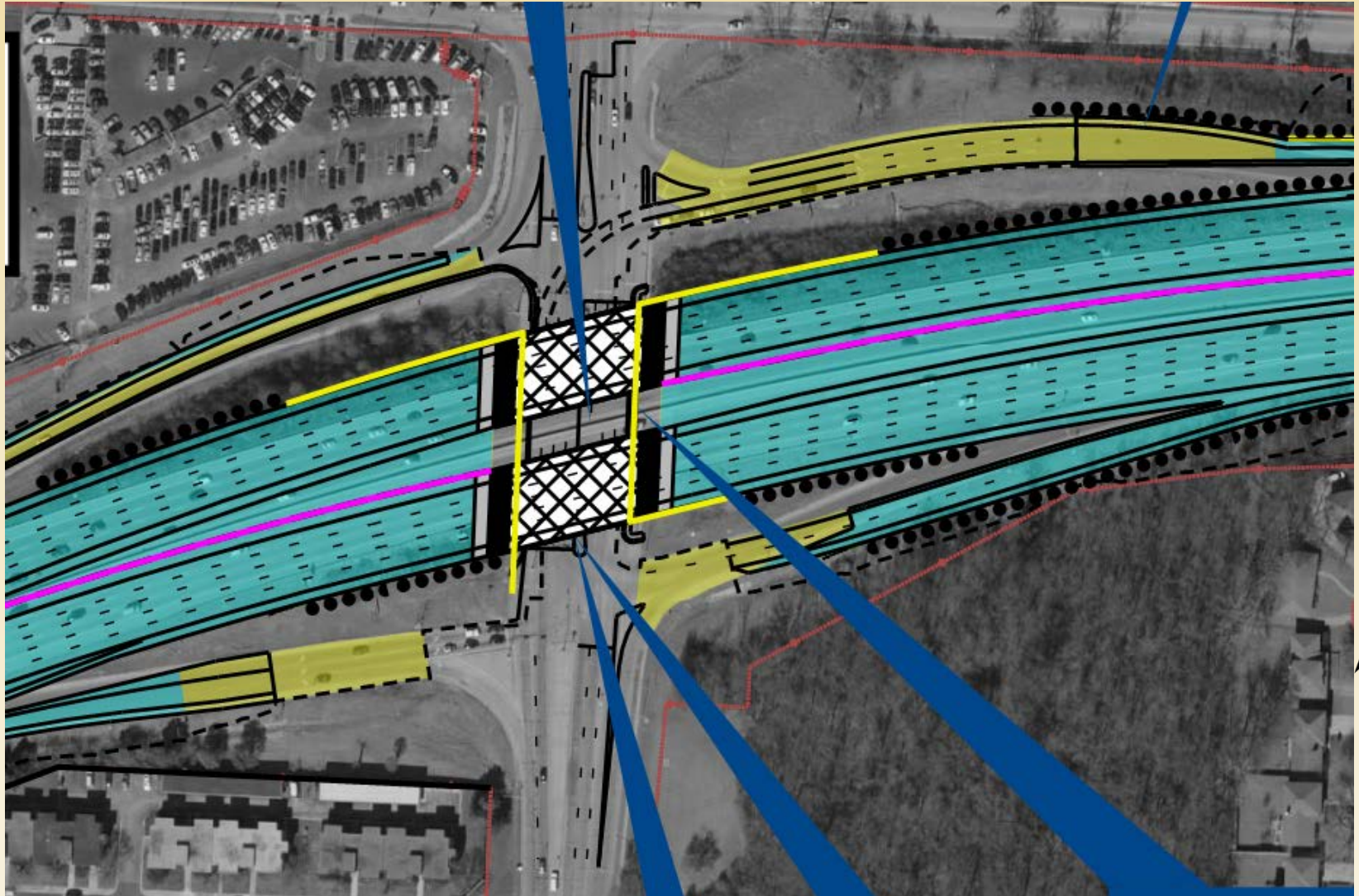
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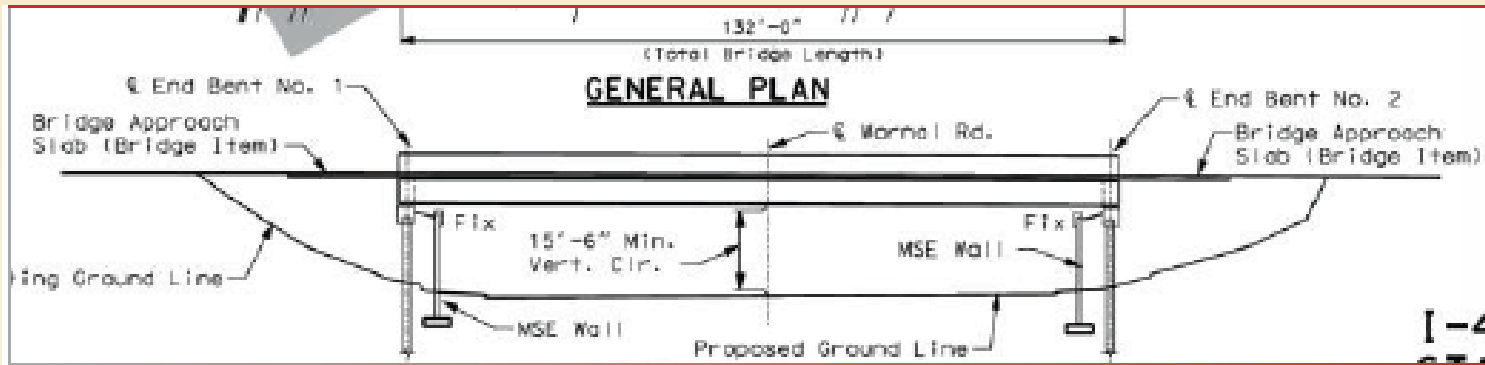
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Single Span Bridges





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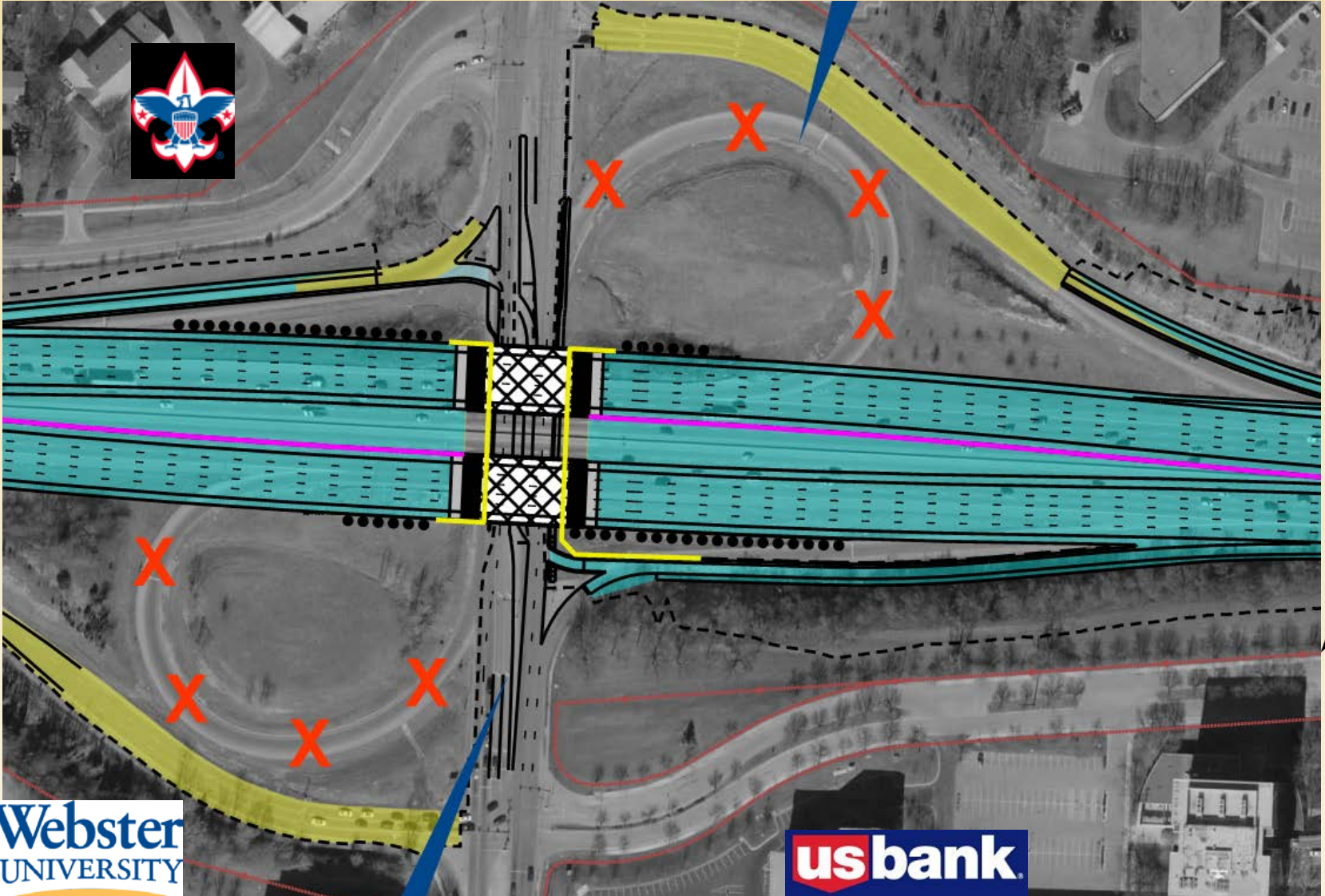
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**Webster
UNIVERSITY**

usbank

3/15/2019





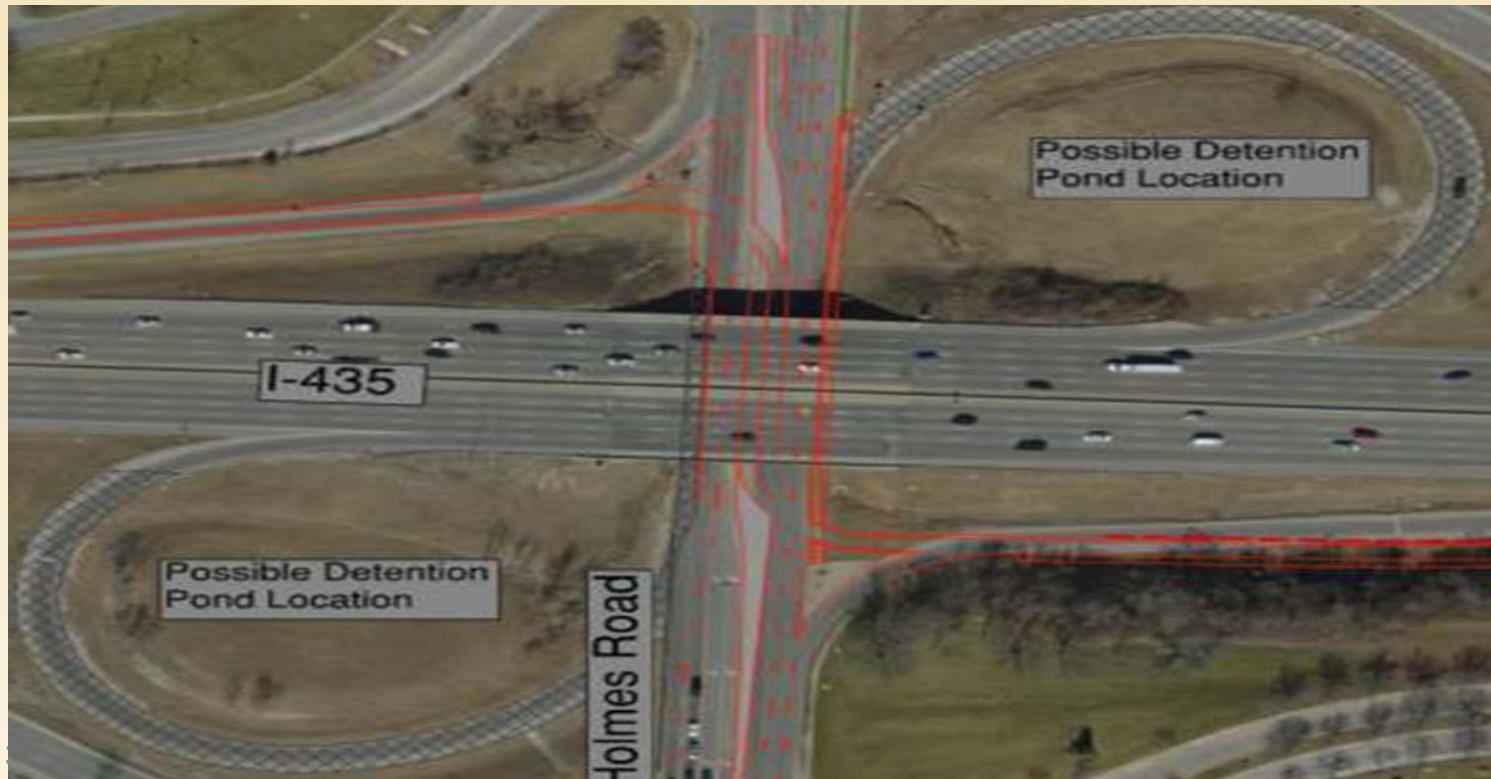
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■ Phase 0

- Install erosion control & clear slopes
- Prepare median shoulders
- Construct MSE walls at Holmes
- Provide turn lanes at Holmes and close loop ramps





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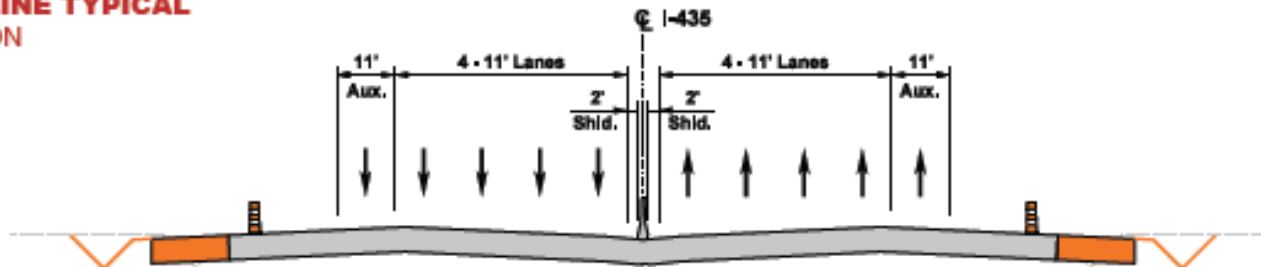
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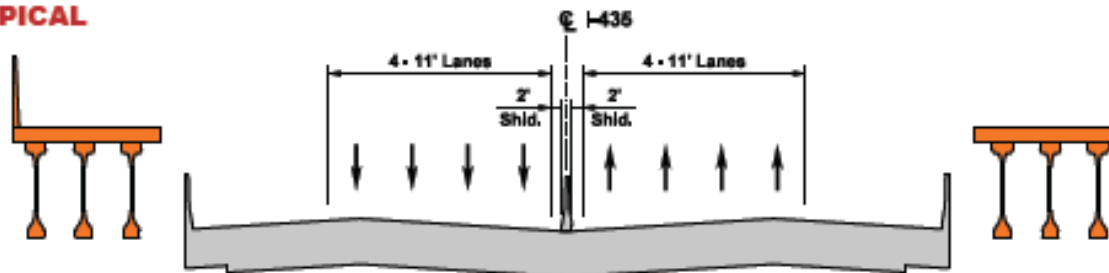
Phase 1A

1. Move traffic towards median in 4 lanes
2. Widen slopes, construct retaining walls
3. Construct outside 5th lane, auxiliary lane & shoulder
4. Construct new bridges adjacent Wornall & Holmes bridges
5. Begin bridge deck widening at 104th and Blue River

MAINLINE TYPICAL SECTION



BRIDGE TYPICAL SECTION





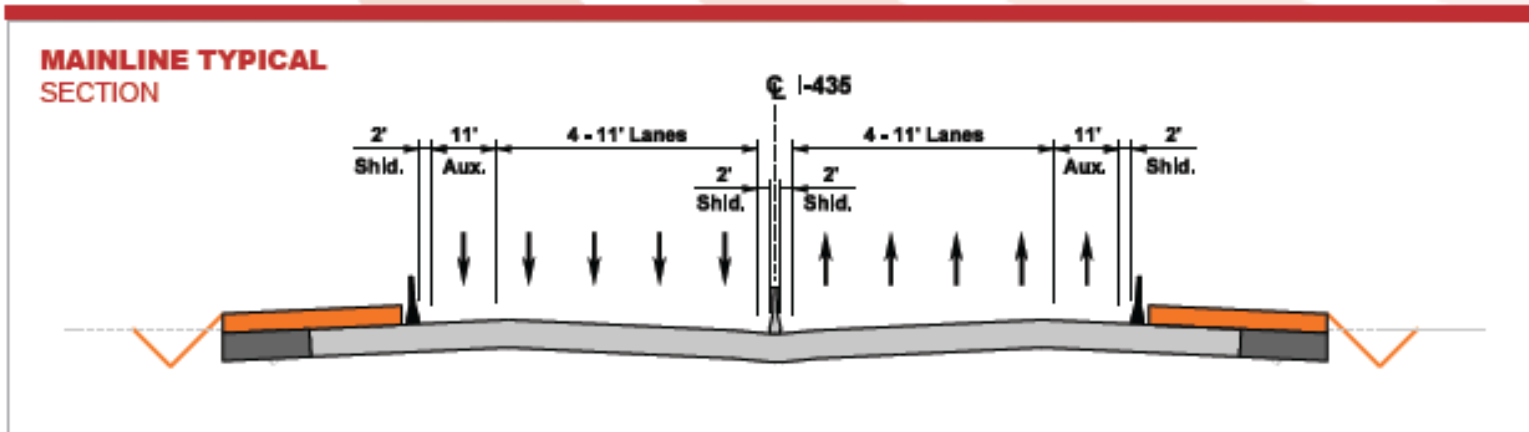
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Phase 1B

1. Continue Phase 1 bridge construction
2. Move ramps to new ramp pavement
3. Construct remainder of ramp width





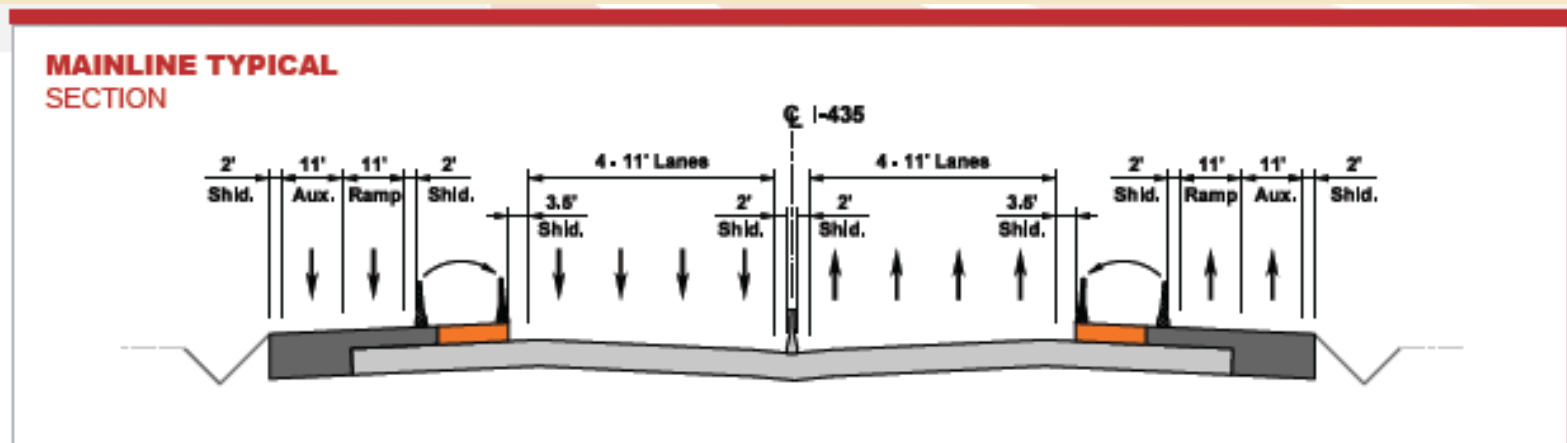
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Phase 1C & 1D

1. Pave remainder of Phase 1
2. Complete all ramp paving
3. Ramps complete and in final configuration





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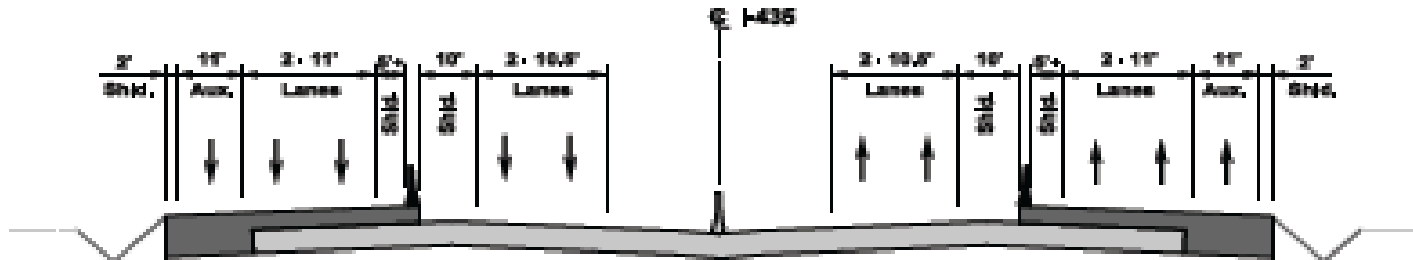
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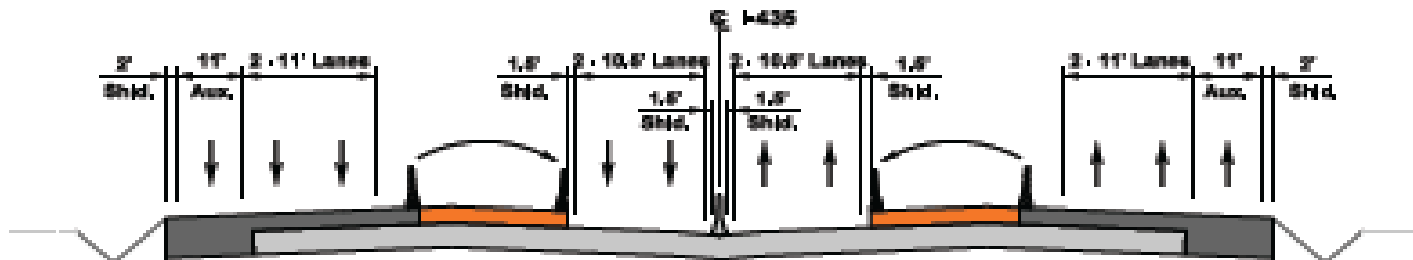
Phase 2

1. Move 2 lanes of traffic to the new outside lanes
2. Leave 2 lanes of traffic adjacent to the median barrier
3. Construct the new lanes between the travel lanes

MAIN LINE TYPICAL SECTIONS: STEP 1

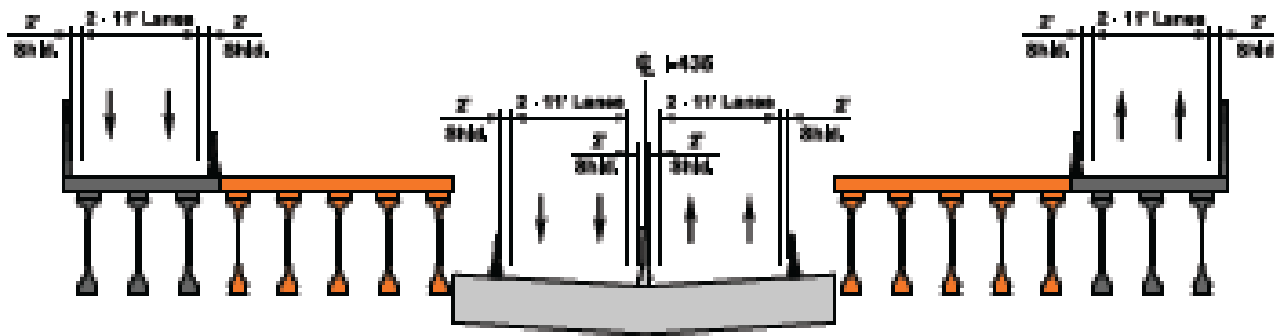


STEP 2



- Phase 2 (cont.)
 1. Move 2 lanes of traffic to the new outside lanes
 2. Leave 2 lanes of traffic adjacent to the median barrier
 3. Construct second phase of new bridges.

BRIDGE TYPICAL SECTION





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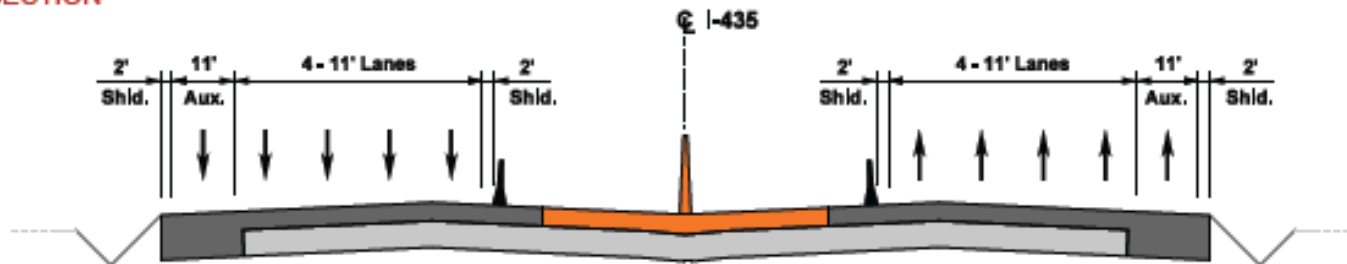
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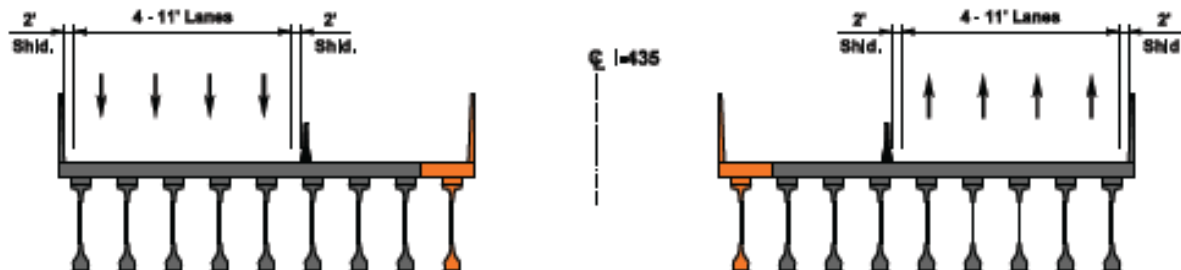
Phase 3

1. Move all 4 lanes to new pavement (outside)
2. Construct median pavement
3. Construct median side of bridges

MAINLINE TYPICAL SECTION



BRIDGE TYPICAL SECTION





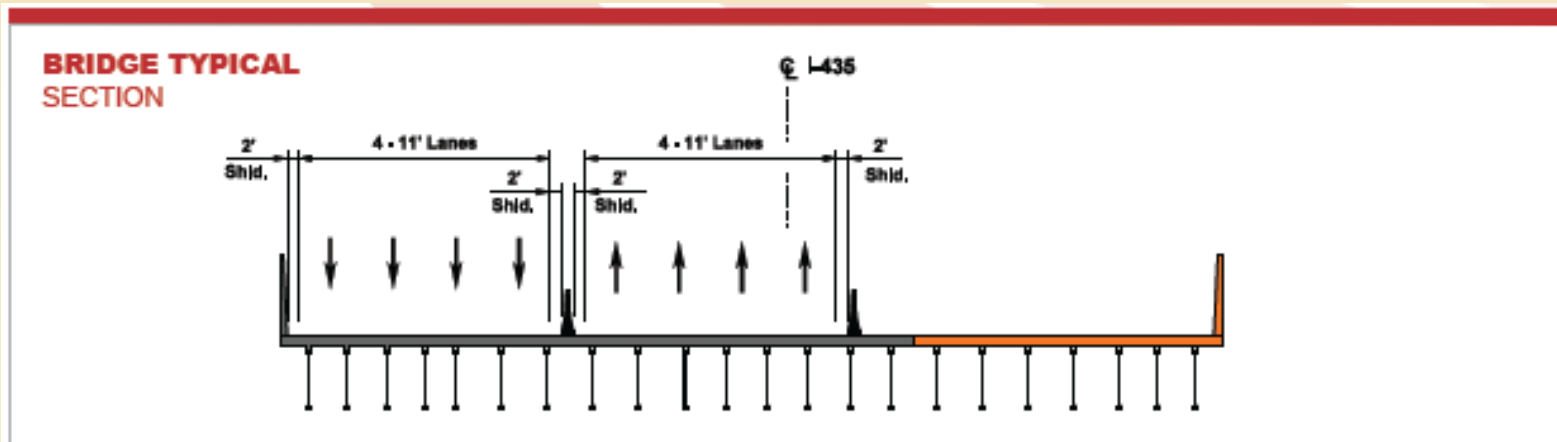
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■ Phase 3B

1. Complete the deck replacement of the 104th St. Bridge





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■ Phase 3C

1. Complete all remaining aspects of the project.

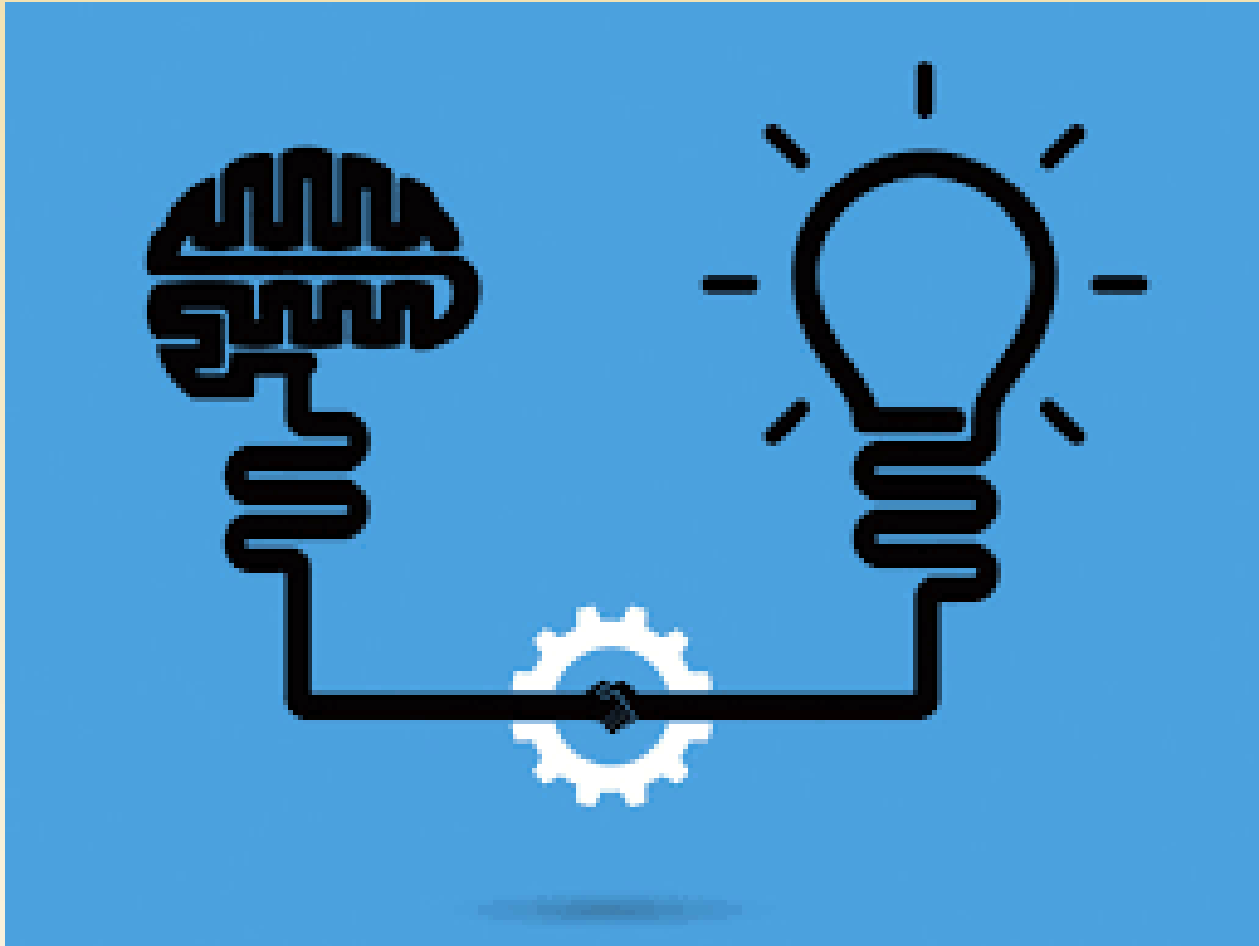
- Permanent striping, signing, drainage, grass growth, etc.



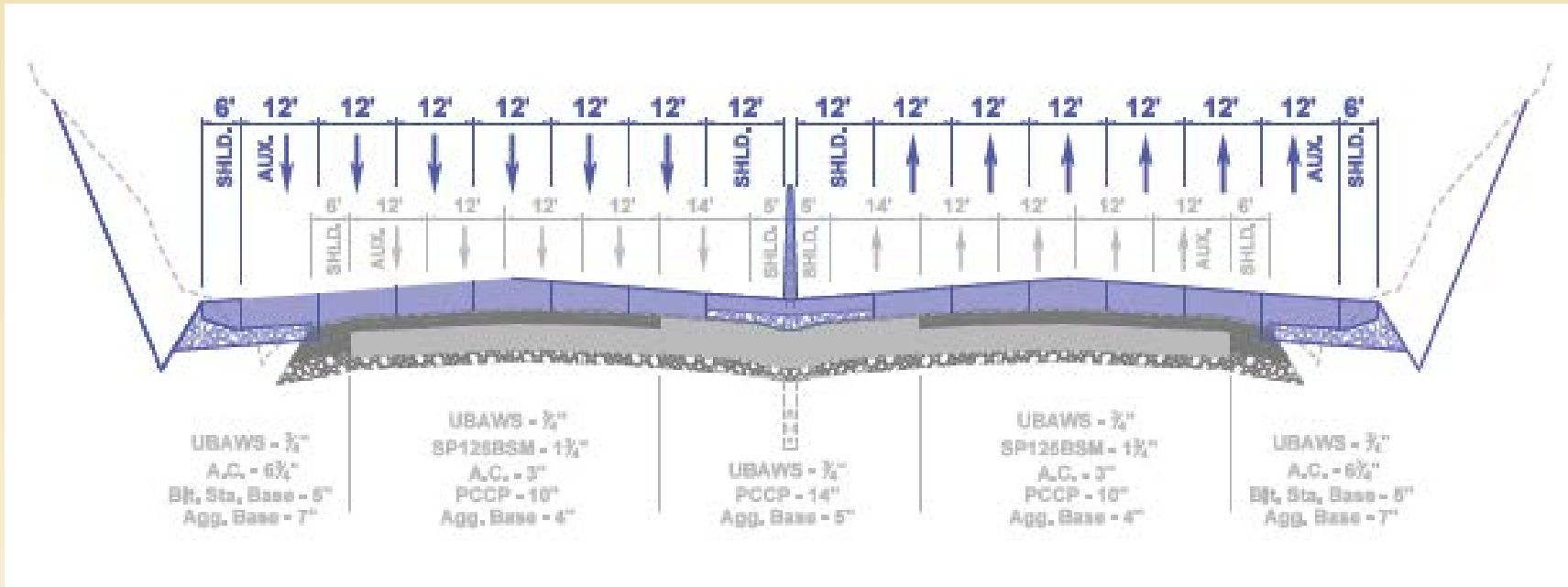
Project Complete!



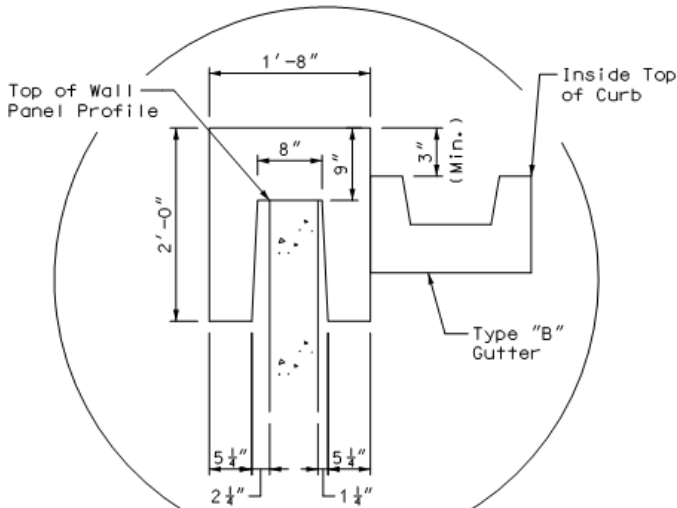
Innovation



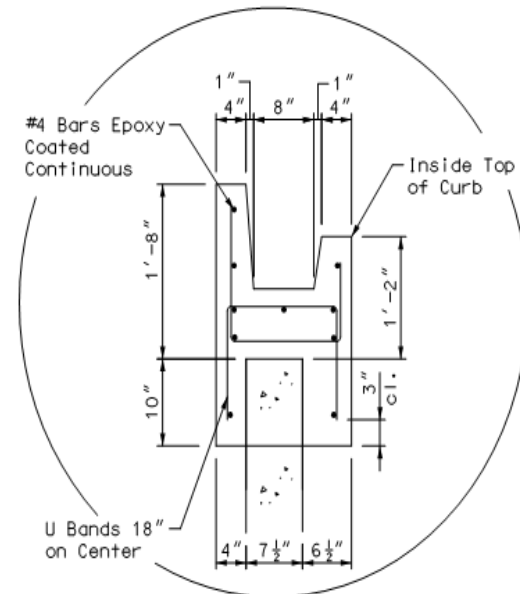
Concrete Overlay



Innovative Coping



PRECAST COPING
W/TYPE "B" GUTTER DETAIL



ALTERNATE CAST-IN-PLACE DETAIL

Innovative Coping





Unexpected Issues...

A problem has been detected and windows has been shut down to prevent damage to your computer.

Modification of system code or a critical data structure was detected.

If this is the first time you've seen this stop error screen, restart your computer. If this screen appears again, follow these steps:

Check to make sure any new hardware or software is properly installed. If this is a new installation, ask your hardware or software manufacturer for any windows updates you might need.

If problems continue, disable or remove any newly installed hardware or software. Disable BIOS memory options such as caching or shadowing. If you need to use Safe Mode to remove or disable components, restart your computer, press F8 to select Advanced startup options, and then select Safe Mode.

Technical information:

```
*** STOP: 0x00000109 (0xA3A039D896553553, 0xB3B7465EE8D204A9, 0xFFFFF80005733003, 0x0000000000000001)
```

```
Collecting data for crash dump ...  
Initializing disk for crash dump ...  
Beginning dump of physical memory.  
Dumping physical memory to disk: 100  
Physical memory dump complete.  
contact your system admin or technical support group for further assistance.
```




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- Encountered composite soil pins during clearing
 - Impacted NE, NW quadrants at Wornall, SE quadrant Holmes





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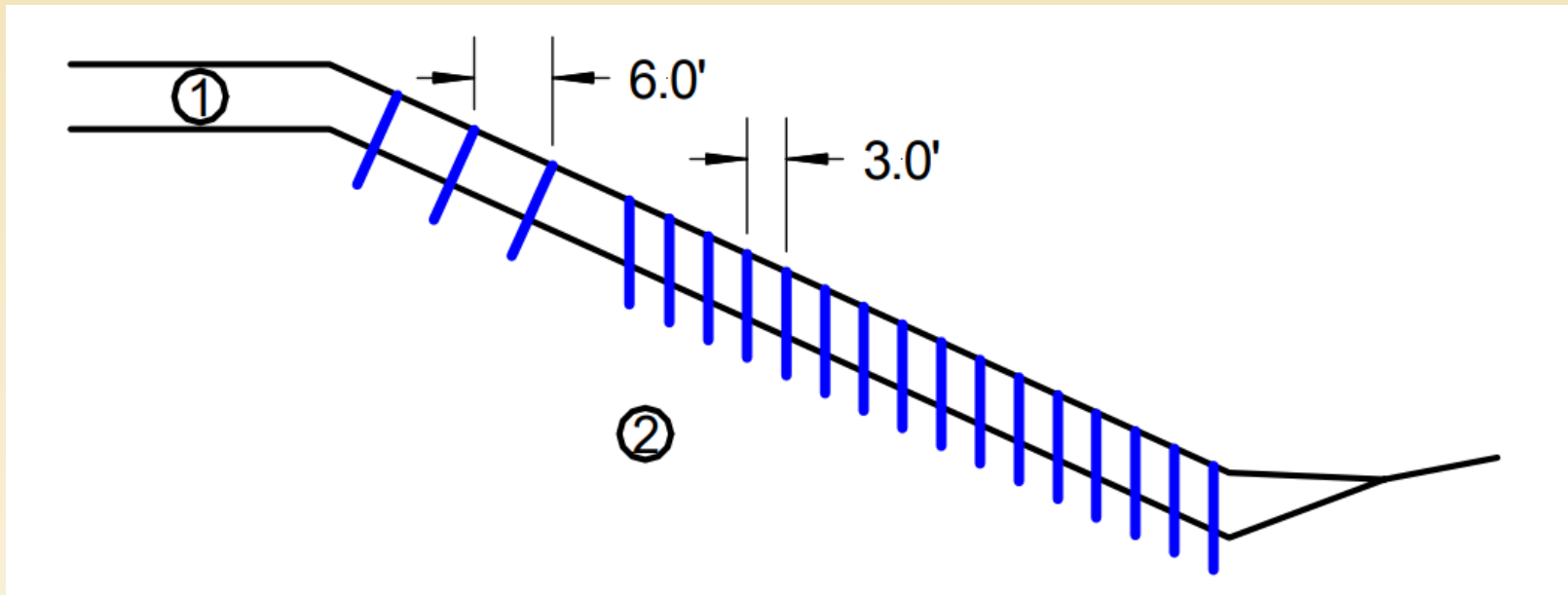
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- Previous Experimental Soil Stabilization Project
 - Impacted NE, NW quadrants at Wornall, SE quadrant Holmes



- Previous Experimental Soil Stabilization Project
 - Impacted NE, NW quadrants at Wornall, SE quadrant Holmes



- Previous Experimental Soil Stabilization Project
 - Impacted NE, NW quadrants at Wornall, SE quadrant Holmes





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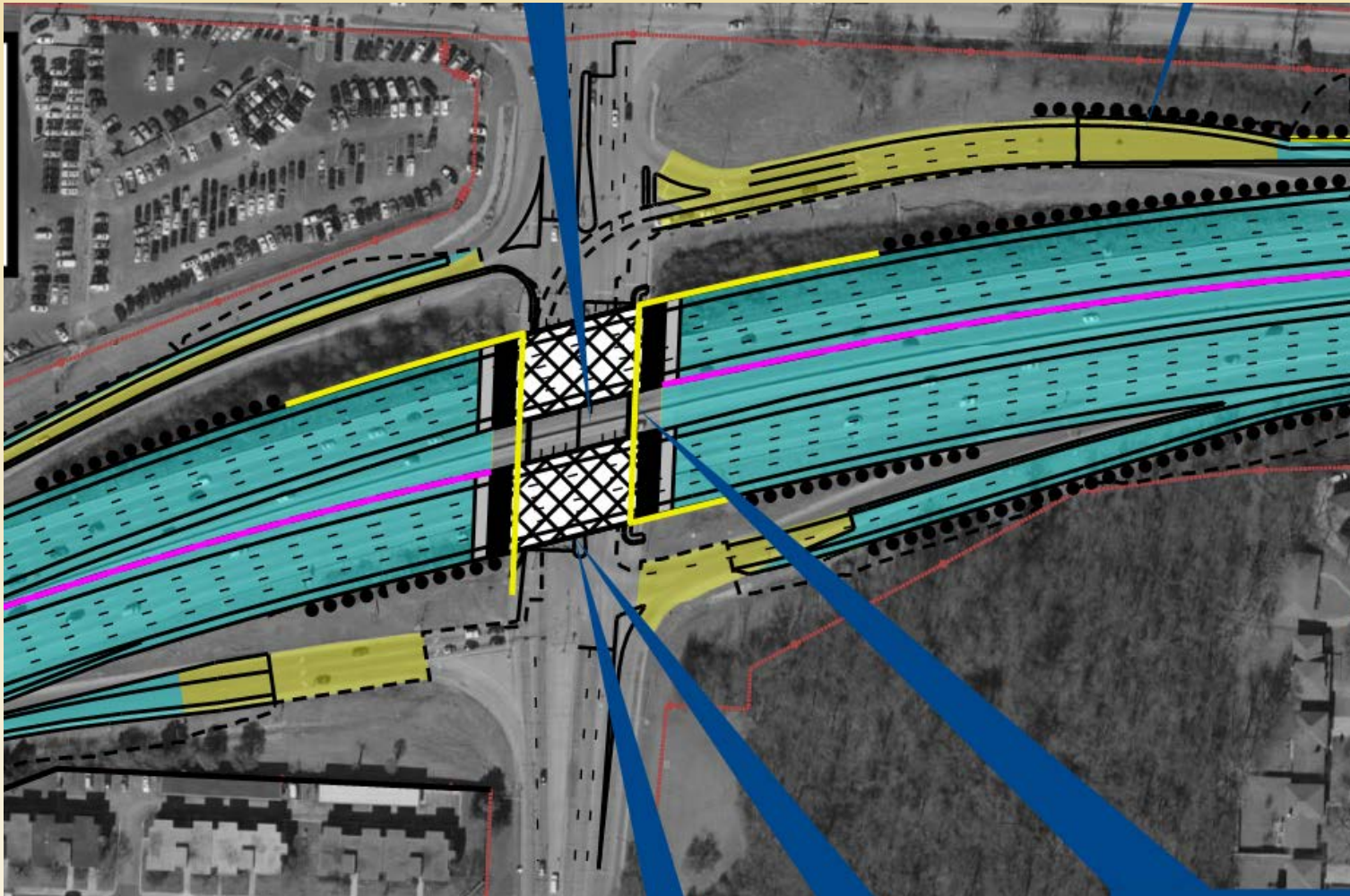
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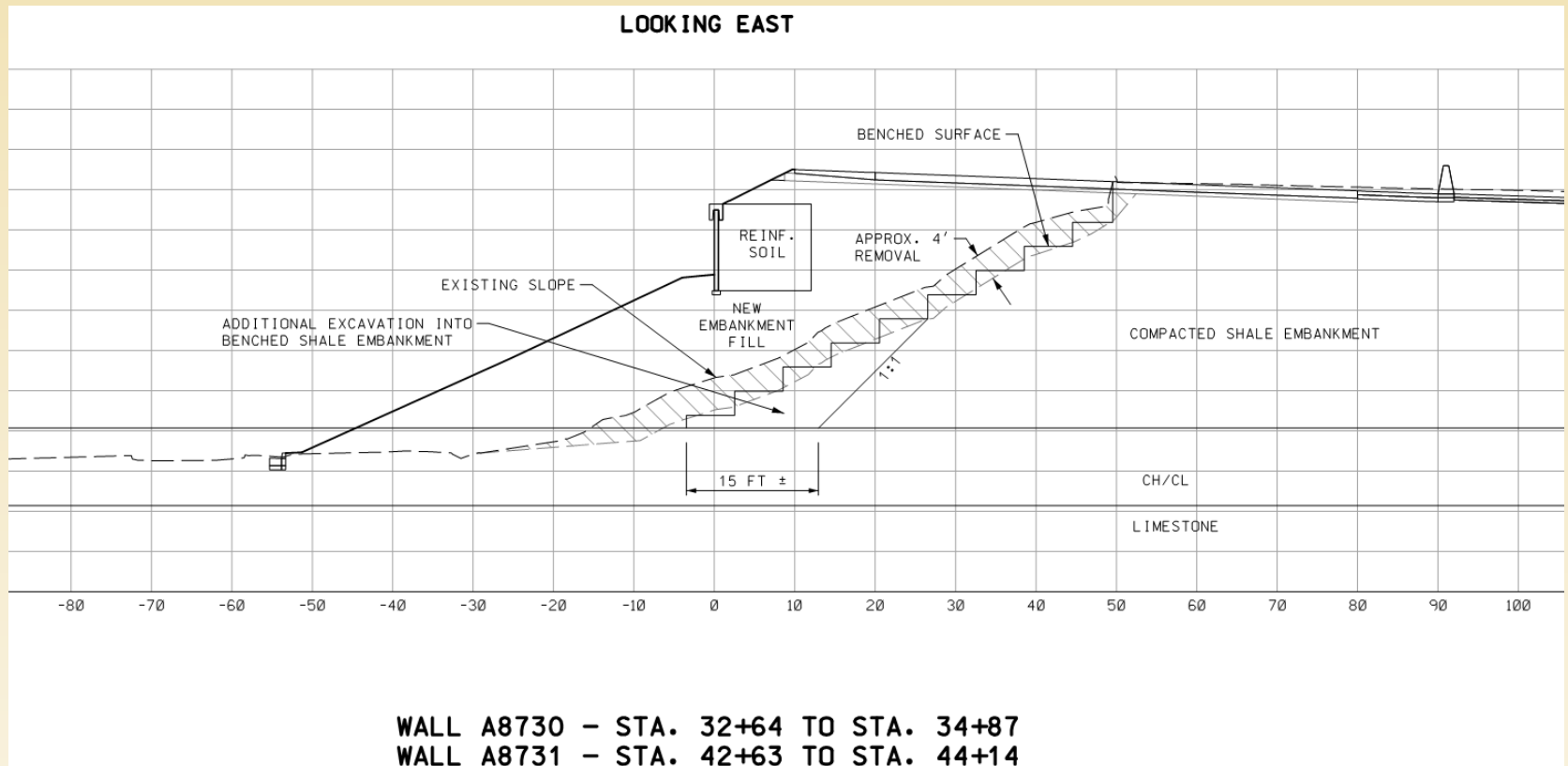


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- Previous Experimental Soil Stabilization Project
 - Solution was to replace unstable material





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- Previous Experimental Soil Stabilization Project
 - Substantial undergrading effort





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■ Problem Solved



3/19/2019

42



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Beginning dump of physical memory.
Dumping physical memory to disk: 100
Physical memory dump complete.
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```



Blue River Bearings





Blue River Bearings

- 13 of 19 bearings rocked beyond design
- 2 adjacent bearings on WB bridge in failure
- WB bridge slab dropped 1.5" at lanes 2 & 3



Blue River Bearings





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Blue River Bearings





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Blue River Bearings





Field Update



- Construction commenced with the issuing of NTP-2 3-23-18
- WB I-435 in phase 2B construction
- EB I-435 in phase 1B construction (90% paved)
- Blue River bridge widening nearly complete
- 104th St UPRR bridge in slab construction phase
- KC '18/'19 Winter precipitation = 41 days and counting



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Potholes!



Recreational Pothole



Decorative Pothole





Spa Relaxation Pothole





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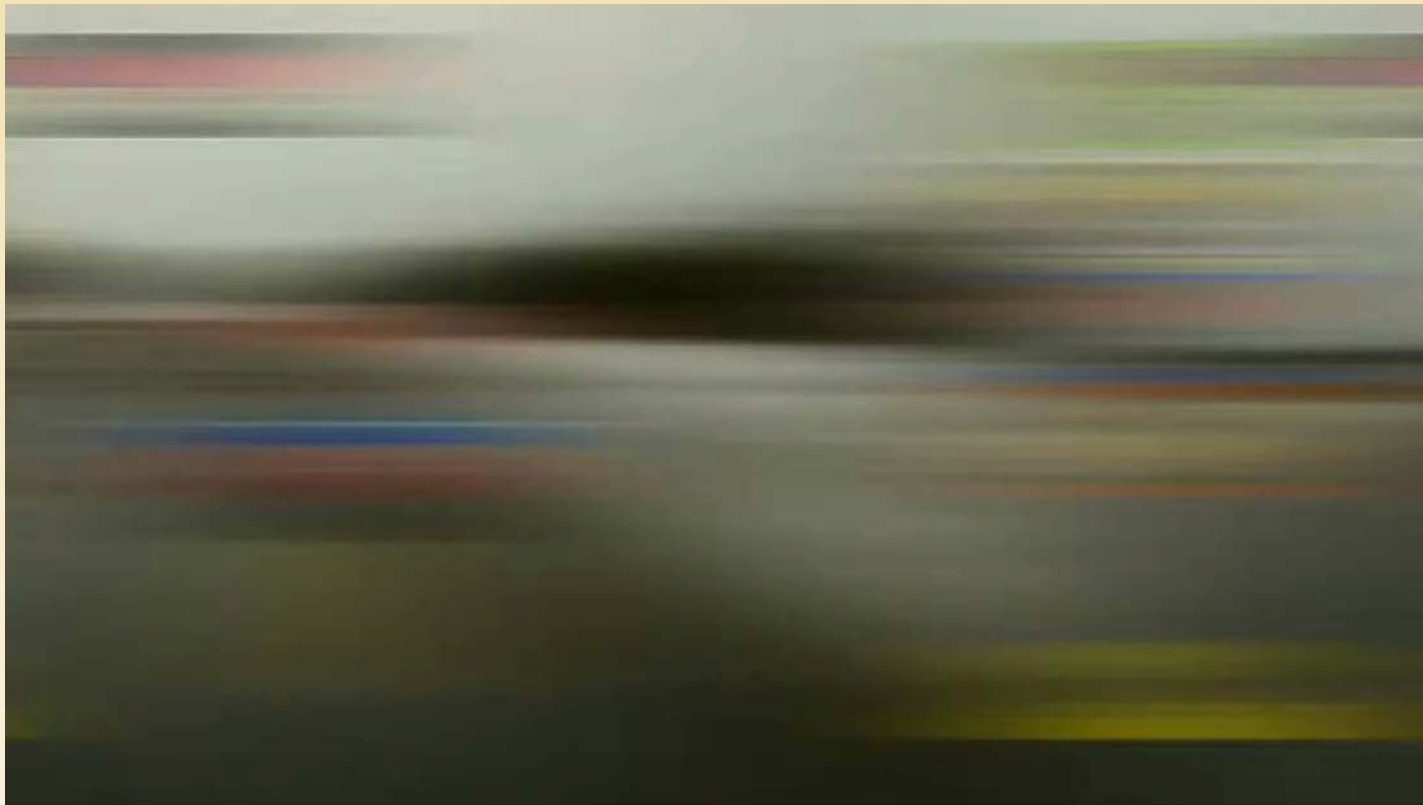


Happy Valentine Pothole





Potholes!





Pothole Warning Program

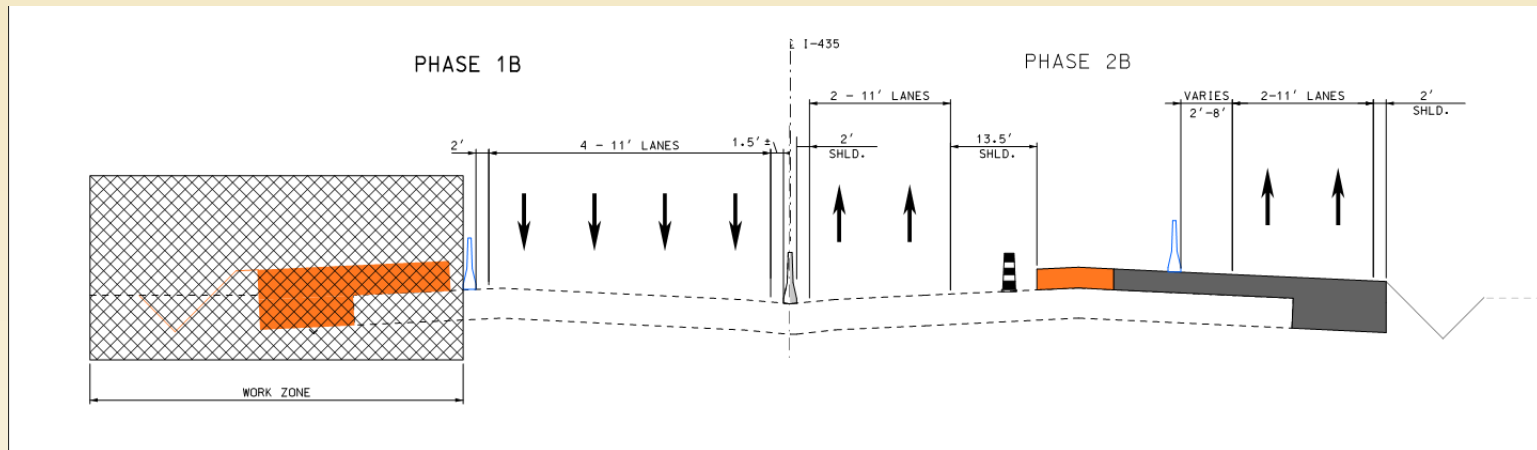


- EB I-435 March-April

1. Complete Blue River & 104th St Bridges Phase 1
2. Pave to bridge ends and complete 104th St ramp

- WB I-435 March-April

1. Complete Holmes & Wornall Phase 2 bridges
2. Pave additional interior lane project length

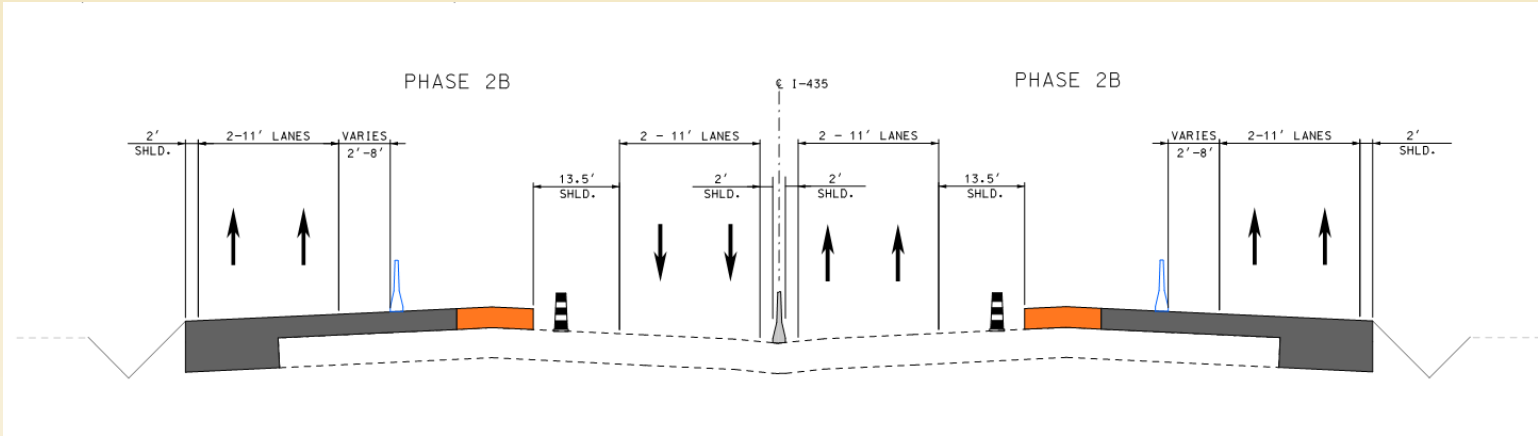


▪ EB I-435 May-June

1. Complete Holmes & Wornall Phase 2 bridges & 104th St Phase 2 re-deck
2. Pave additional interior lane project length

▪ WB I-435 May

1. Complete Holmes & Wornall Phase 2 bridges
2. Pave additional interior lane project length





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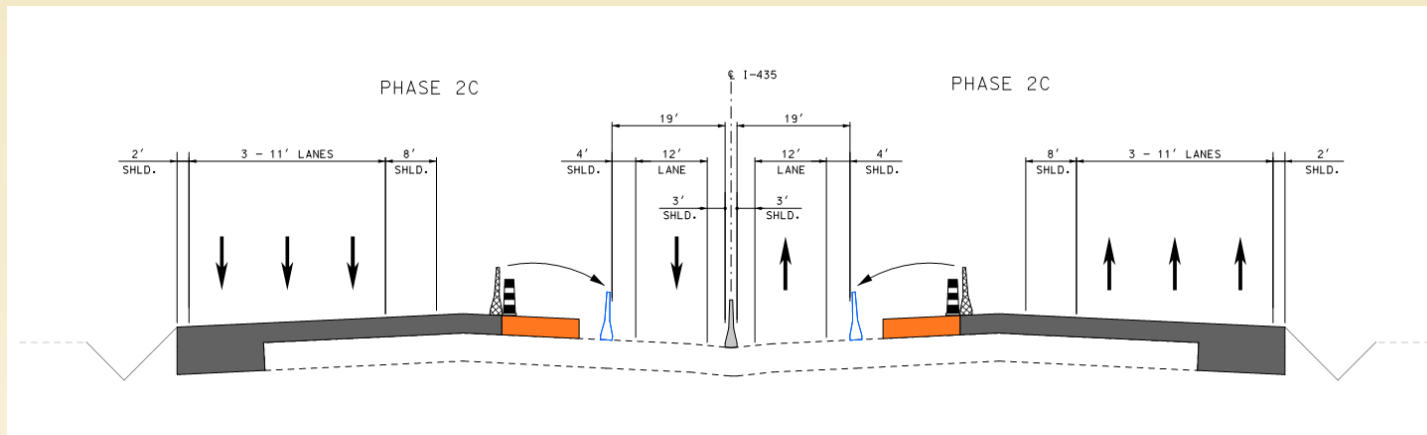


- EB I-435 July

1. Pave additional interior lane project length

- WB I-435 June

1. Pave additional interior lane project length

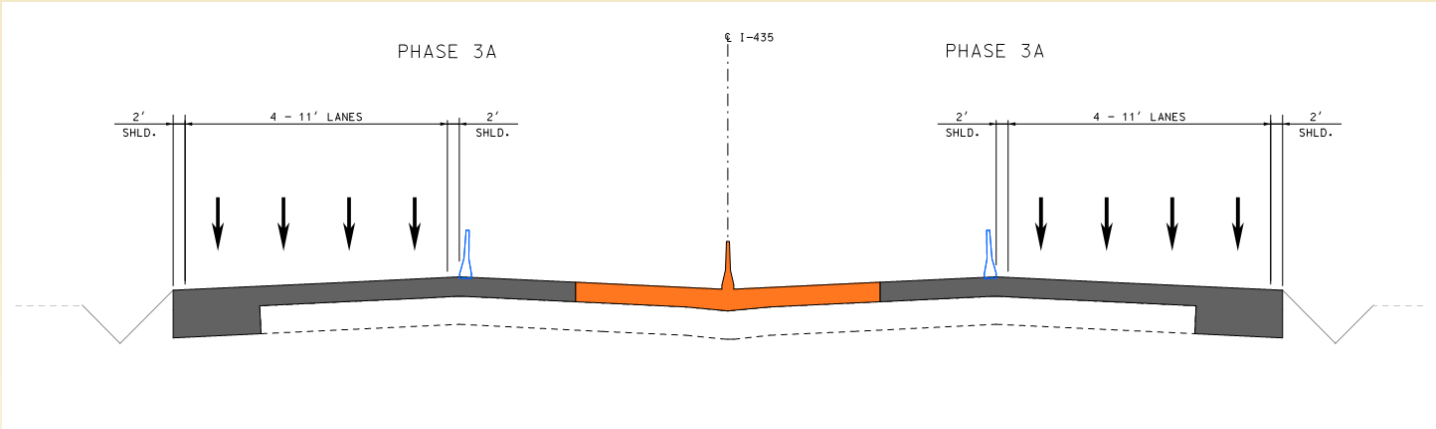


▪ EB I-435 August-October

1. Pave additional interior lane project length
2. Make Storm Improvements
3. Holmes/Wornall Phase 3 Bridge Work
4. 104th St Phase 3A Re-deck

▪ WB I-435 August-October

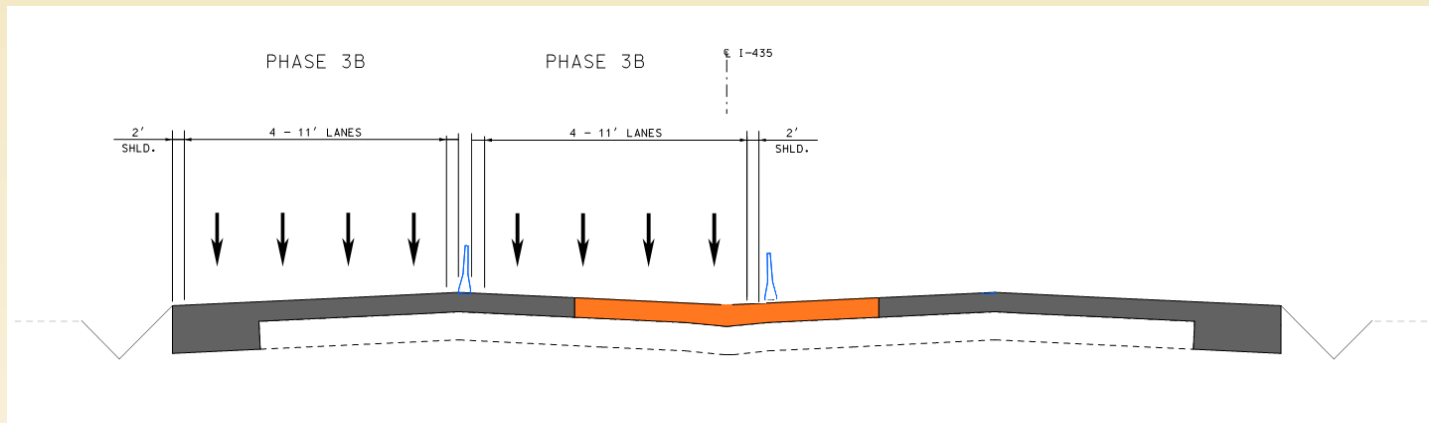
1. Pave additional interior lane project length
2. Make Storm Improvements
3. Holmes/Wornall Phase 3 Bridge Work
4. 104th St Phase 3A Re-deck





- EB I-435 November
 1. No work

- WB I-435 November
 1. Final Re-deck phase 104th St bridge





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I-435 Dec. 2019-May 2020

1. Establish seed growth
2. Complete signing
3. Complete permanent pavement marking





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TREKK

DESIGN GROUP, LLC

JACOBS™



Leigh & O'Kane

SE3

PARSON
+ ASSOCIATES



TSi GEOTECHNICAL, INC.



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Black & McDonald

