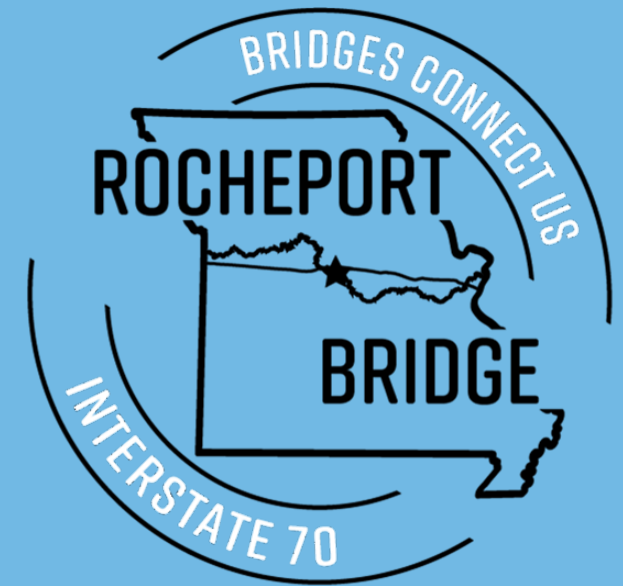




Rebuilding the Lynchpin of American Commerce



Ric Mantay PE, SE - Parsons

2023 TEAM CONFERENCE

MARCH 16, 2023

I-70 ROCHEPORT DESIGN-BUILD PROJECT TEAM

- Owner, MoDOT
- Contractor, Lunda Construction Co.
- Lead Designer, Parsons
 - Geotechnical, Dan Brown & Associates
 - Geotechnical Exploration, Shannon & Wilson
 - Traffic and Safety, CBB
 - Hydraulics, HZ United
 - Route BB Bridge, Civil Design, Inc.





I-70 ROCHEPORT DESIGN-BUILD PROJECT

- I-70 is the artery of commerce serving the heart of national and regional distribution and commodity flows.
- Each year, approximately 100 million tons of freight, worth more than \$154 billion, is carried across I-70 in Missouri.
- All told, more than 1.1 million jobs nationwide depend on I-70 in Missouri.
- Connecting Missouri's largest cities, St. Louis and Kansas City, the I-70 Rocheport Bridge over the Missouri River is a key component of I-70 in Missouri.
- Carrying 12.5 million vehicles per year, including over 3.6 million freight trucks travelling across the United States, the bridge has been called the "lynchpin of America."

I-70 ROCHEPORT DESIGN-BUILD PROJECT

Trucks Crossing the Rocheport Bridge take Freight throughout the United States

24 hours after crossing Rocheport



72 hours after crossing Rocheport



Source: American Transportation Research Institute (ATRI)

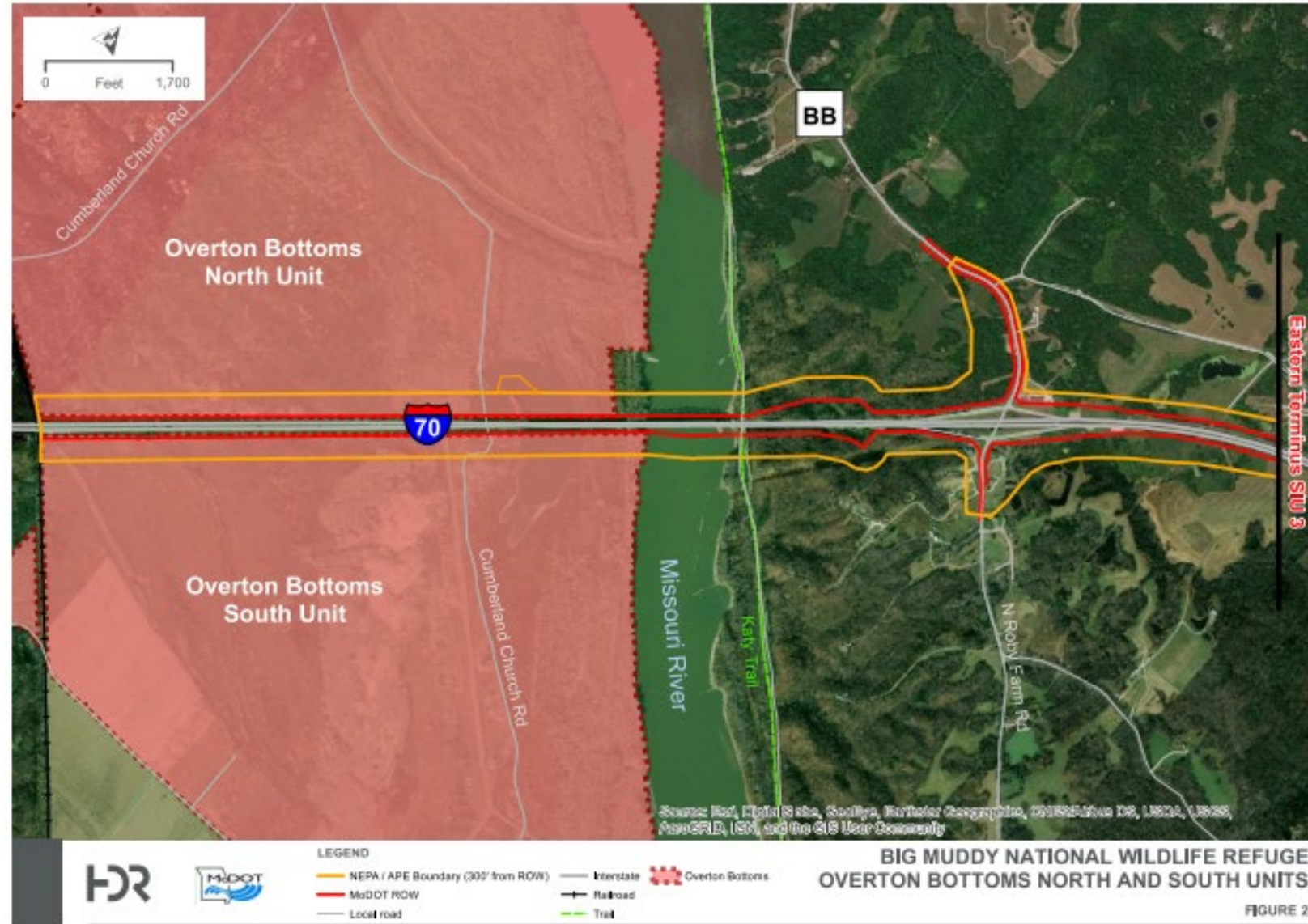
EXISTING I-70 ROCHEPORT BRIDGE

- Build in 1960
- Single 2-span through truss
- Plate girder approaches
- Two lanes of traffic each direction
- Structurally deficient, functionally obsolete
- In need of Rehabilitation
- Massive user delay costs to rehab
 - 3-8 hr backups, 25 miles long



PROJECT NEEDS

- Remove & replace Missouri River Bridge
- Remove & replace Rte BB overpass
- Both should accommodate 6-lanes of traffic on I-70



SAFETY IS A TOP PRIORITY



Crash Rate on Bridge is 4X Higher than statewide

An average of 1.72 crashes occur on the bridge every month



Crash Rate on I-70 between bridge and BB is 2X Higher than statewide

73% of these crashes occurred on WB I-70



49% of crashes occurred during non-dry surface conditions

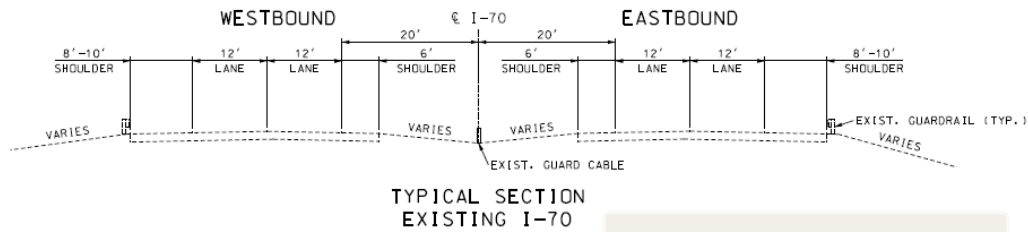


36% of crashes were out-of-control crashes

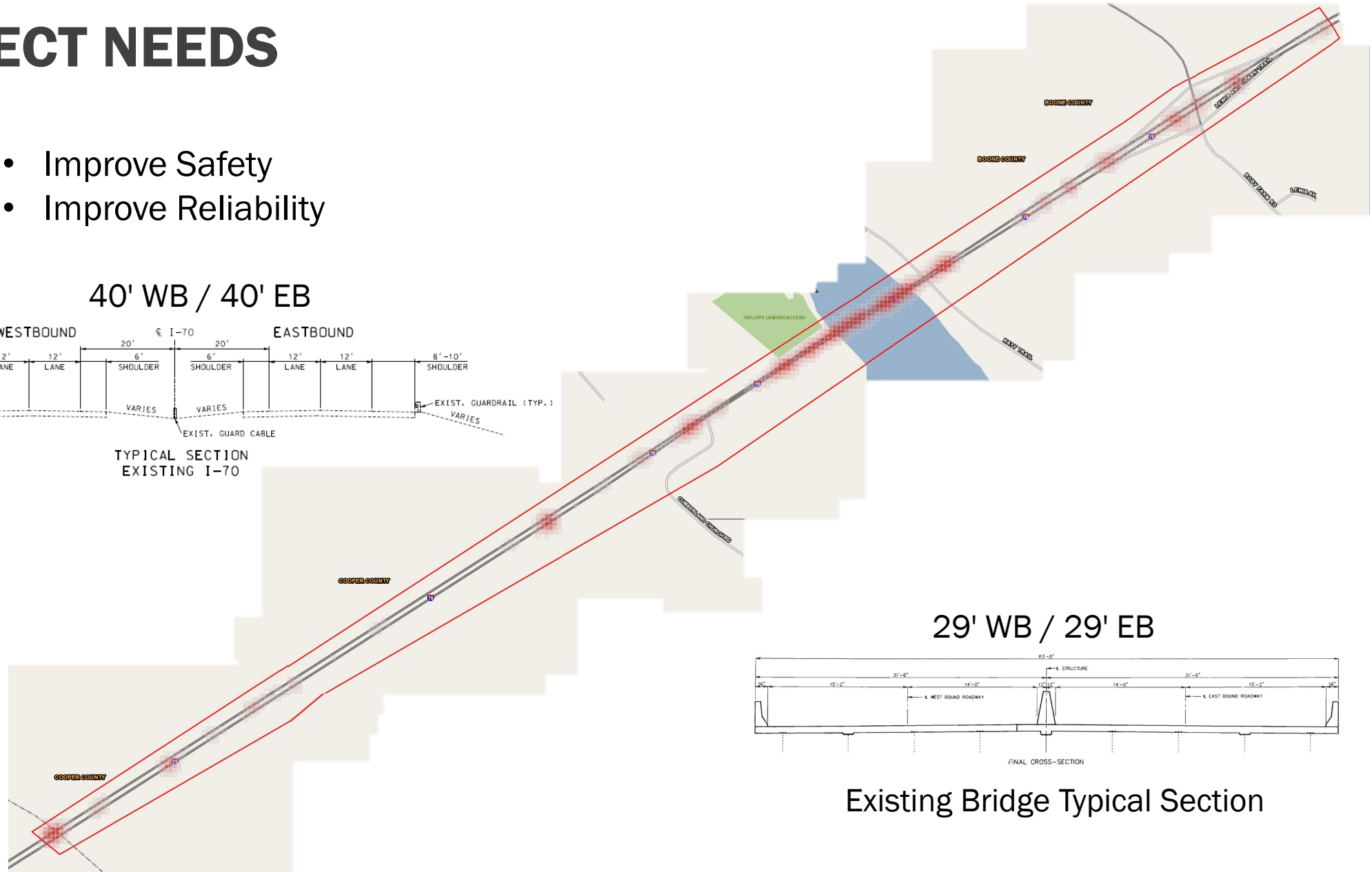
PROJECT NEEDS

- Improve Safety
- Improve Reliability

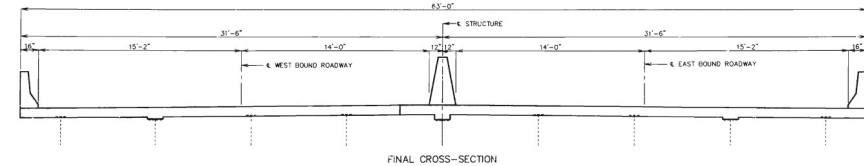
40' WB / 40' EB



TYPICAL SECTION
EXISTING I-70



29' WB / 29' EB



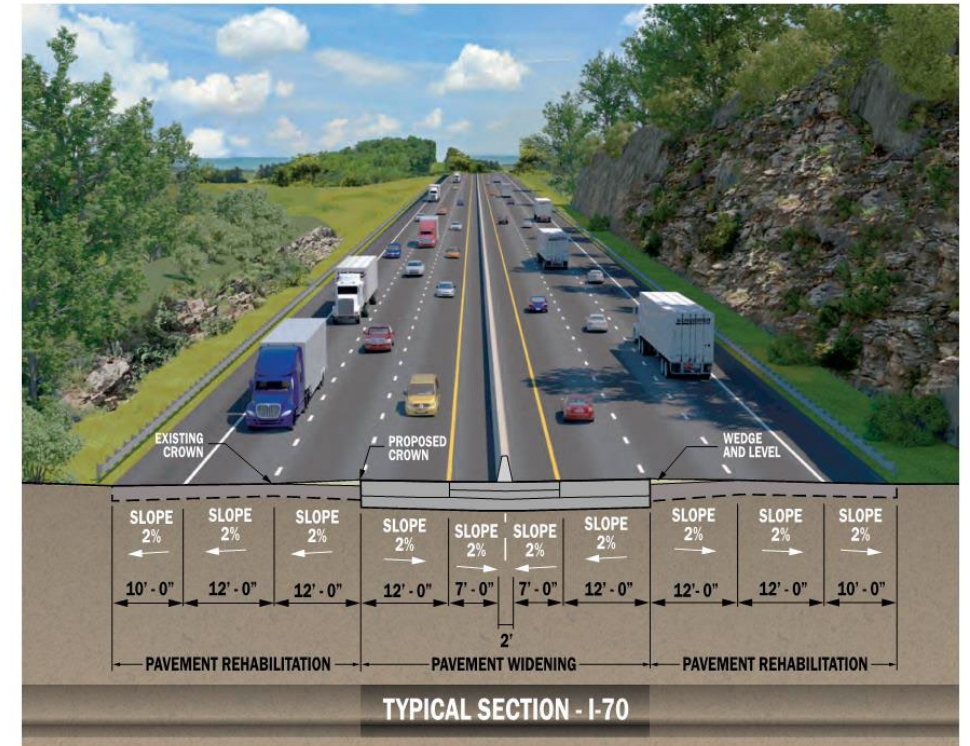
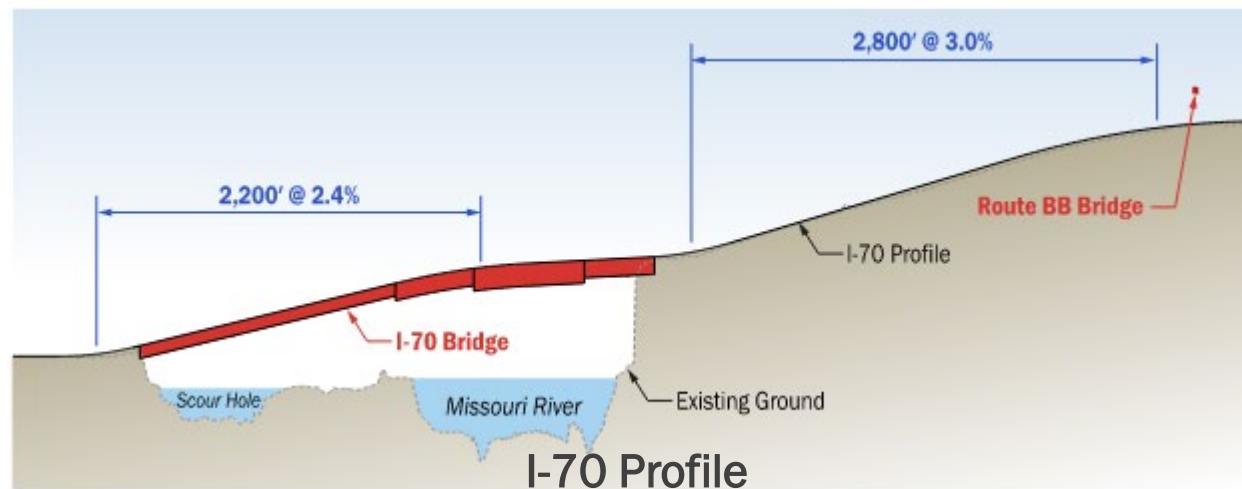
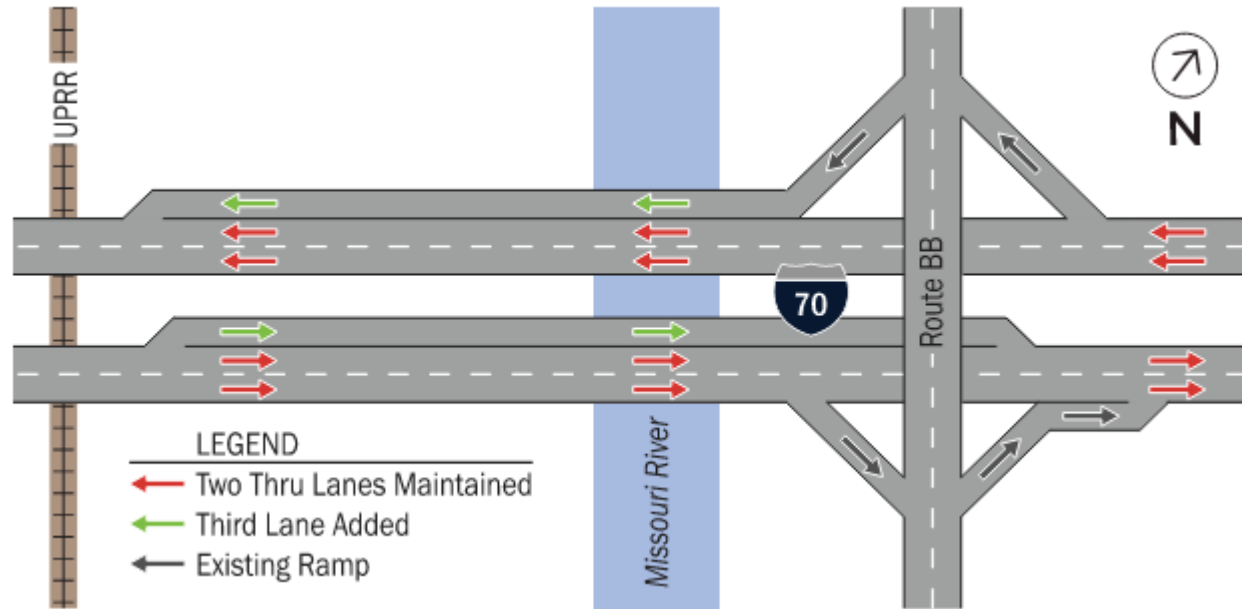
Existing Bridge Typical Section

PROJECT GOALS

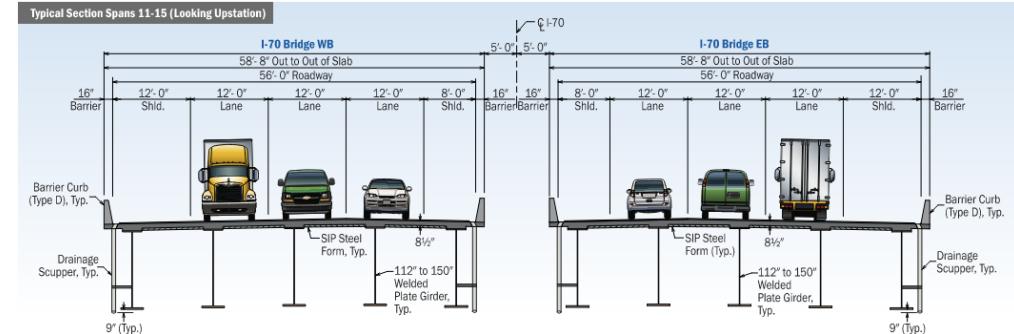
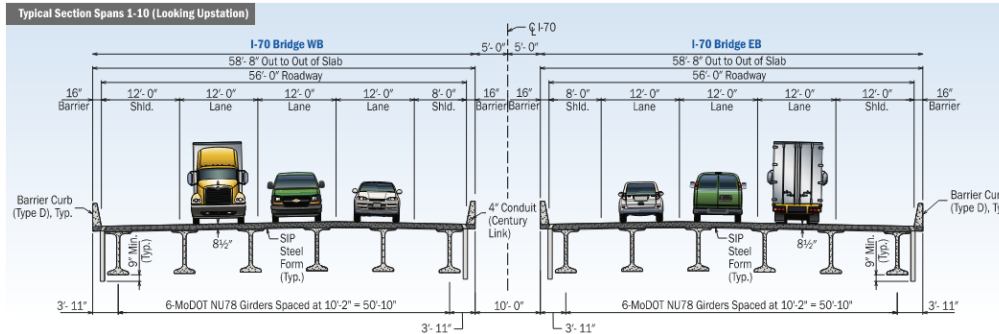
1. Meet the expectation of delivering the project under budget.
2. Provide a high quality, durable, low maintenance project that improves safety and reliability.
3. Minimize traffic impacts during and after construction while maximizing safety and capacity.
4. Maximize safety for workers while beating the project completion deadline of 12/31/24.
5. Deliver the project with a diverse workforce that fosters future DBE and workforce development.
6. Demonstrate a commitment to quality and innovation in all phases of the project.



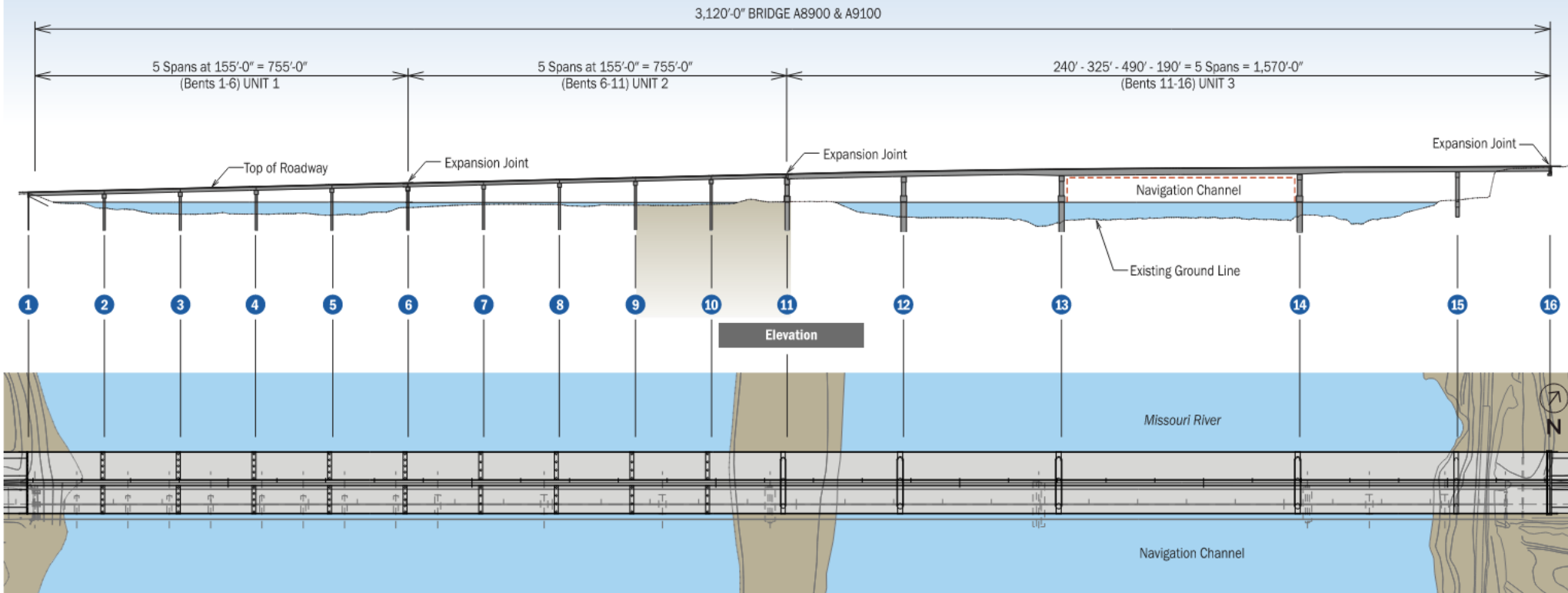
I-70 LANE CONFIGURATION



NEW MISSOURI RIVER BRIDGE



Planview and Elevation



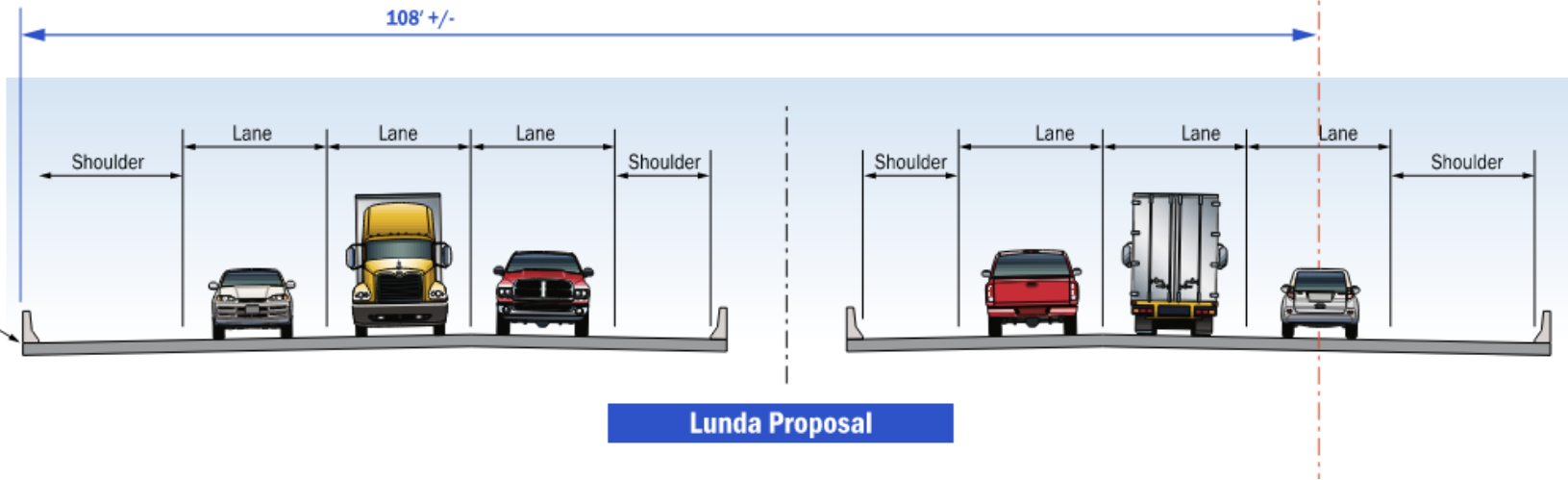
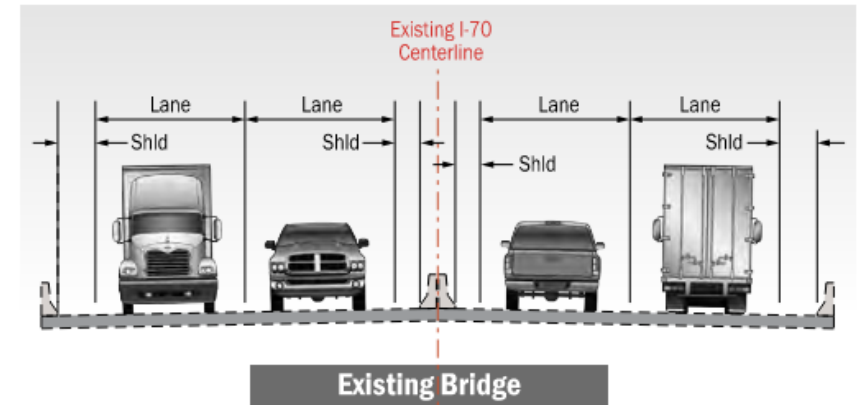
Planview

I-70 MISSOURI RIVER BRIDGE CONFIGURATION

By utilizing a two-phase construction approach, the Lunda Team is able to reduce the construction disturbance footprint by more than 66'.

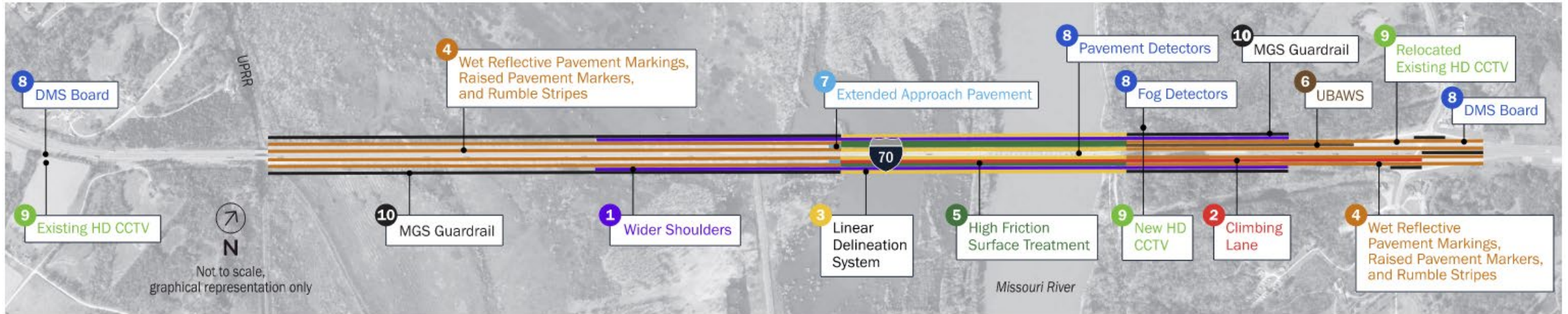
This benefits MoDOT by:

- Reducing impacts to wetlands
- Reducing potential property impacts
- Reducing risk of impacting archaeological areas
- Reducing rock cut east of the river
- Reducing embankment needed within the scour hole west of the river
- Reducing required reconstruction limits
- Enabling the use of flatter curves without superelevation transitions



The Lunda Proposal constructs the new WB bridge offline. EB and WB traffic is moved from the existing bridge to the new WB bridge after construction, and then the existing bridge is removed. The proposed WB bridge footprint is 108' +/- from the existing centerline of I-70.

Lunda Proposal



IMPROVED LONG TERM SAFETY

- 1 2 Geometric Improvements
- 3 4 Delineation
- 5 6 7 Pavement Friction Treatments
- 8 9 Intelligent Transportation System
- 10 Roadside Safety

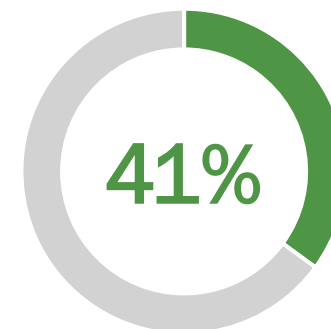
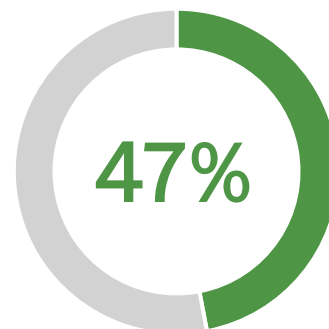
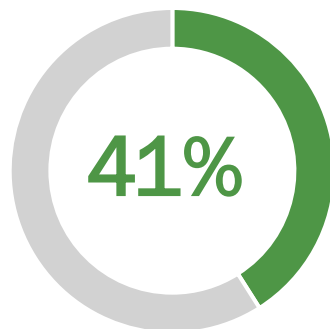
IMPROVED LONG TERM SAFETY

Within Project
Limits

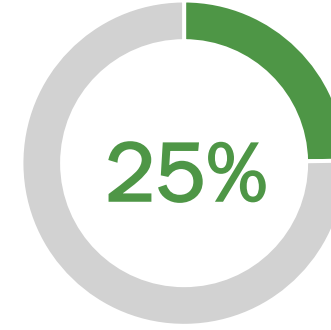
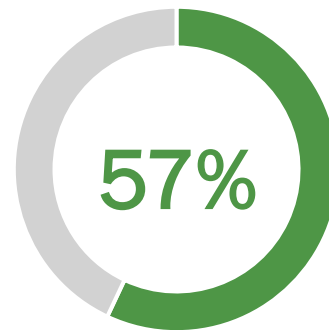
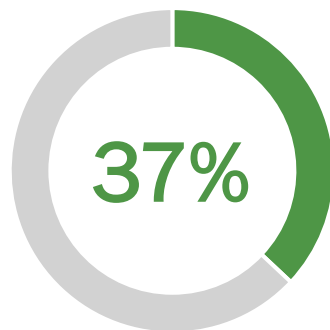
On
Rocheport
Bridge

Between
Rocheport Bridge
and Route BB

% Reduction in
Total Crashes



% Reduction in
Fatal and Disabling
Injury Crashes





COMPARISON OF EXISTING AND NEW



CONSTRUCTION PHASE 1

- Traffic remains on existing bridge
- New WB bridge constructed
- Two lanes maintained in each direction
- Present to Late Spring 2023



CONSTRUCTION PHASE 2

- All traffic moved onto new WB bridge
- Demolition of existing bridge
- New EB bridge constructed
- Two lanes maintained in each direction
- Lane and shoulder widths like existing
- Late Spring 2023 to Winter 2024

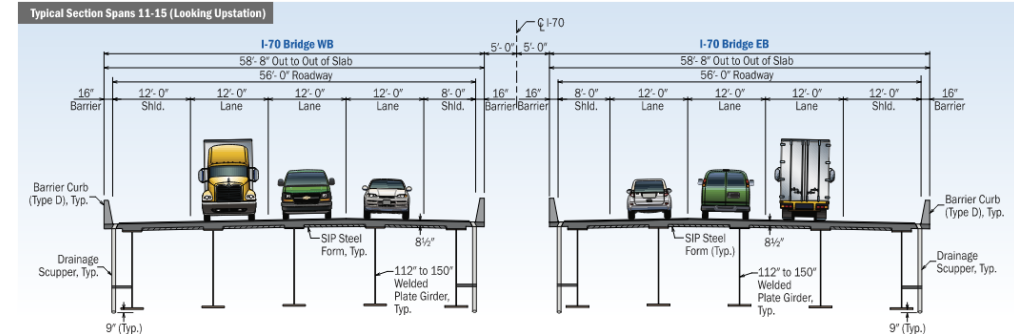
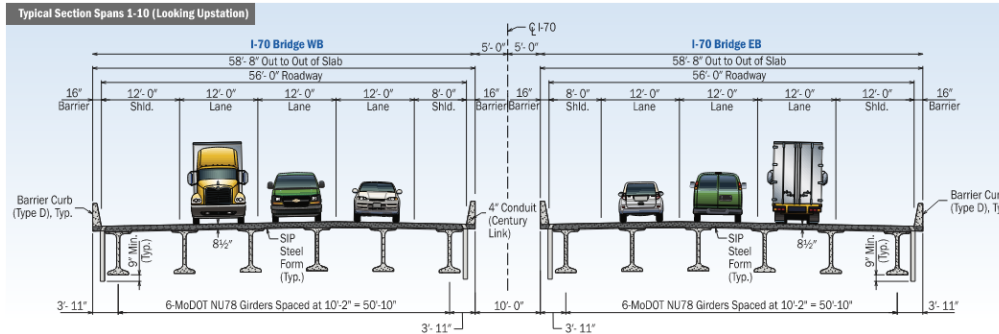


PROJECT COMPLETION

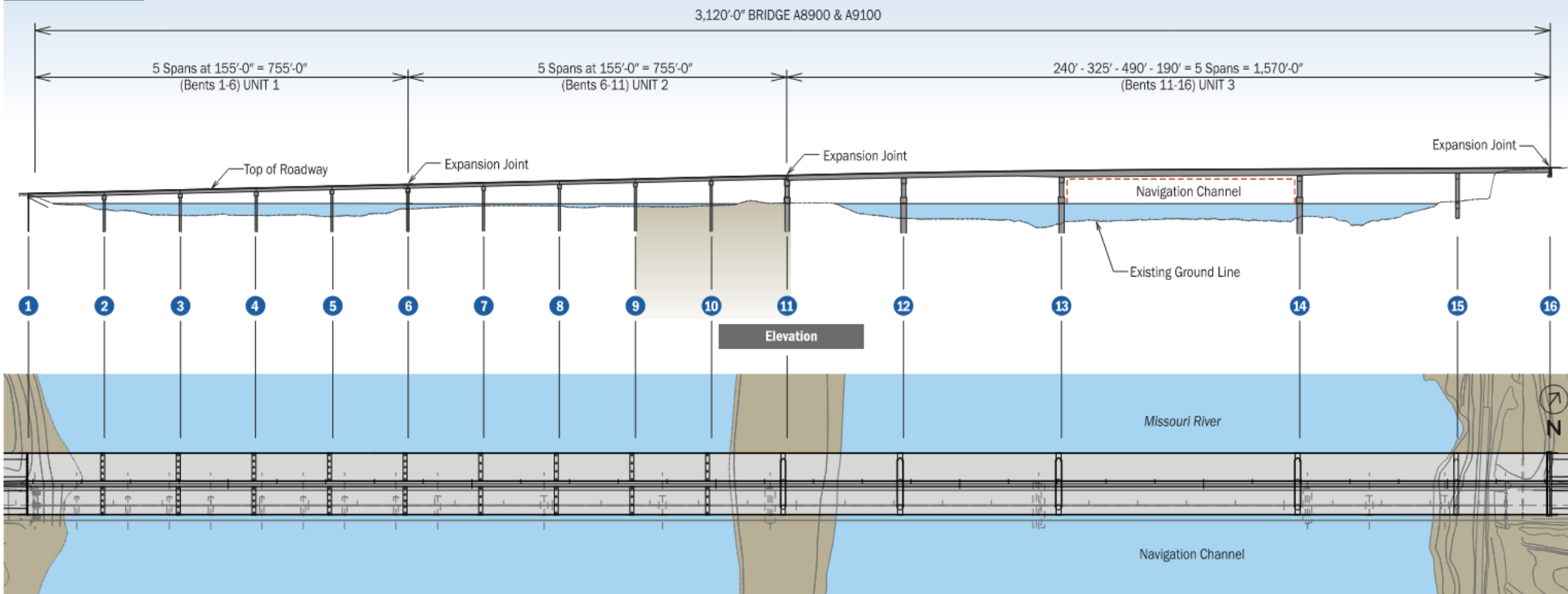
- Three lanes in each direction from Route BB to UPRR bridges



NEW MISSOURI RIVER BRIDGE



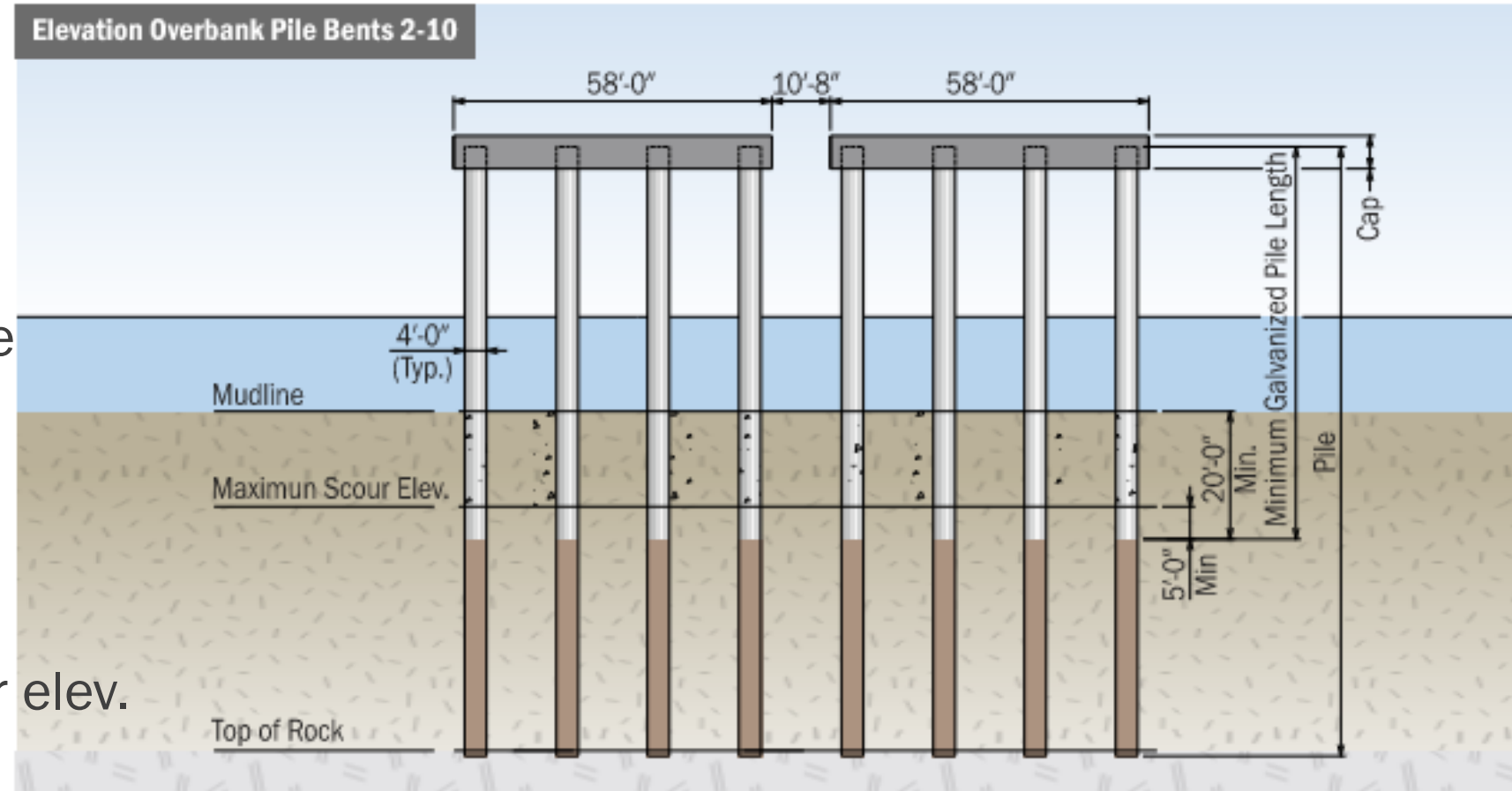
Planview and Elevation



Planview

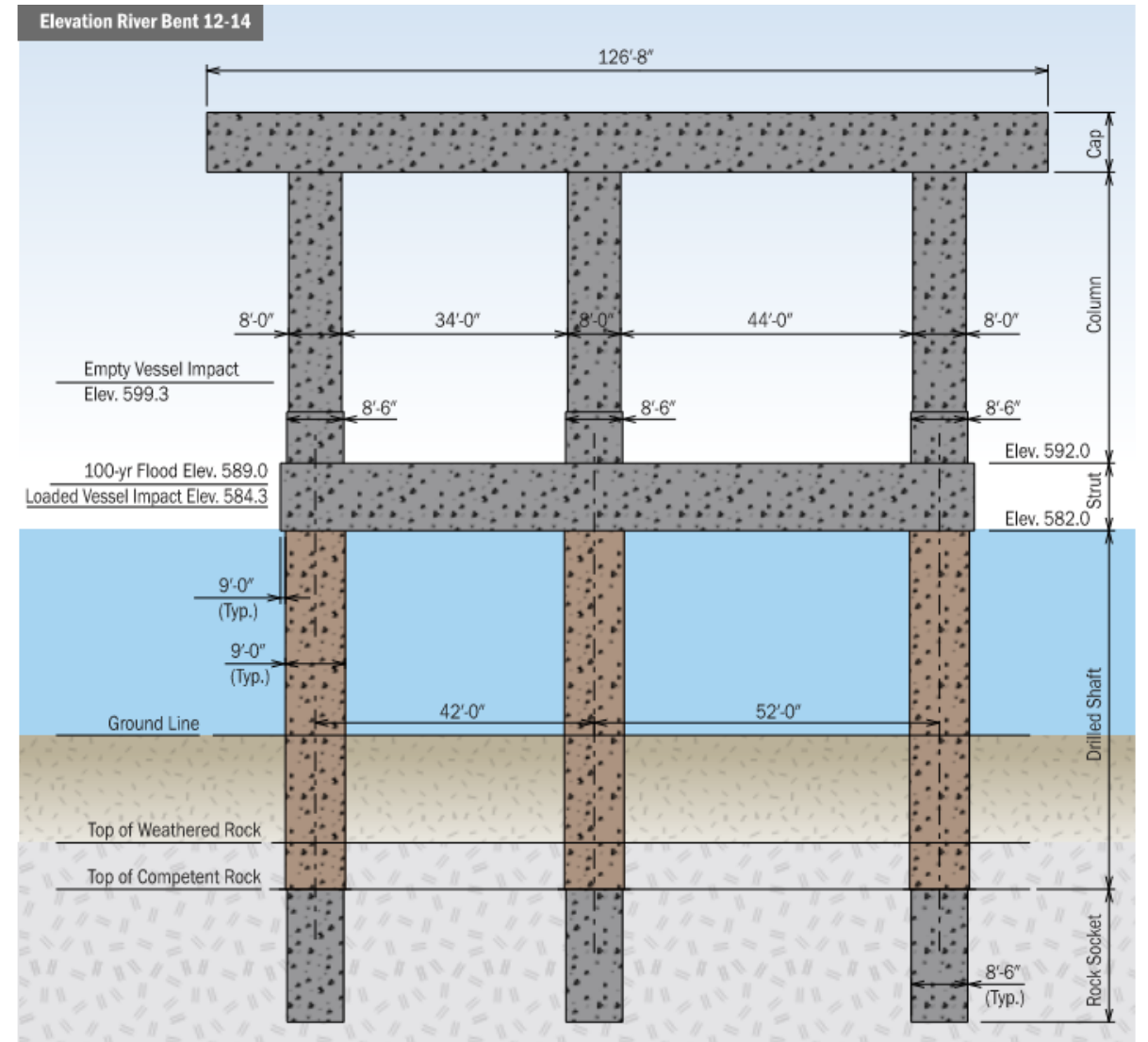
OVERBANK PILE BENTS – 48” DIAMETER PIPE PILES

- Minimizes Scour
- Eliminates cofferdams
- Minimizes forming
- Piles up to 133 ft long
- 3 pipe sections per pile
- Two 5 span units
- Longitudinally fixed for longitudinal stability
- Concrete filled to scour elev.
- Designed for scour



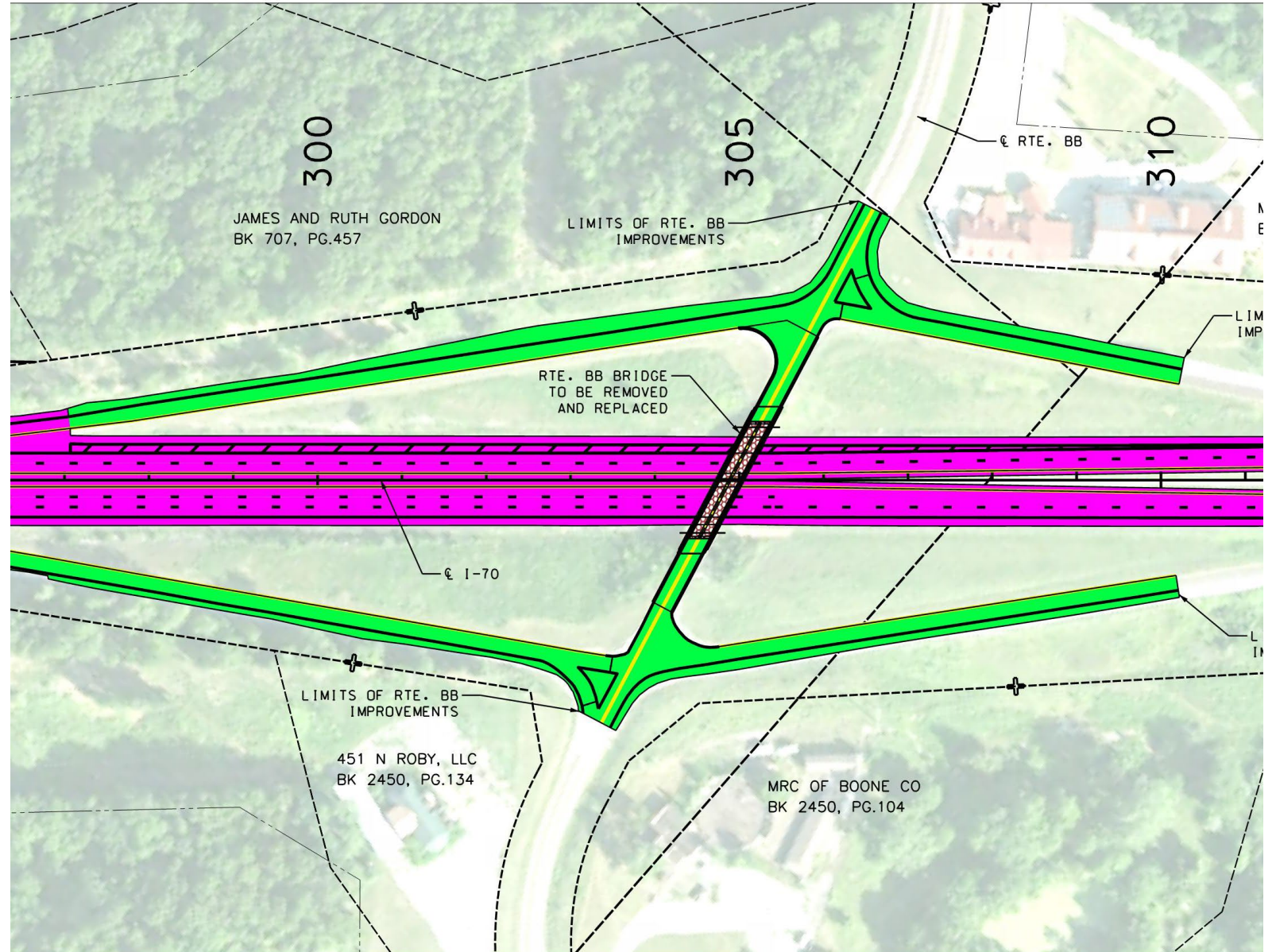
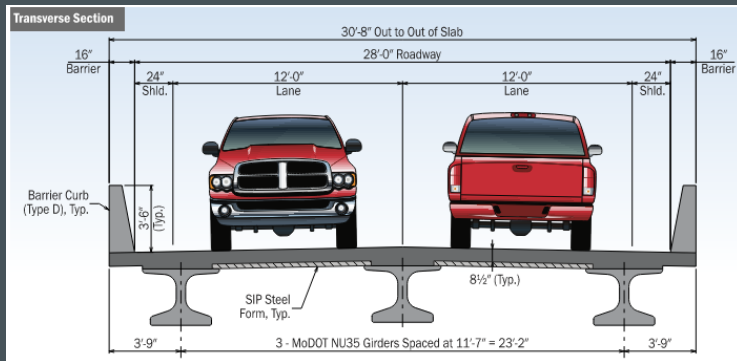
RIVER BRIDGE – DRILLED SHAFT BENTS

- Minimizes Scour
- Eliminates cofferdams
- Combined WB & EB pier
- Strut above normal water elevations
- Designed for scour to bedrock in river
- Grade 80 rebar in shafts
- ChromX Gr 100 A1035 rebar in caps
- One 5 span unit
- Longitudinally fixed for longitudinal stability



ROUTE BB

- No geometric changes to ramps
- No impacts to adjacent properties
- Ramps repaved
- Route BB bridge reconstructed on existing alignment



LOOKING EAST FROM THE RIVER

- Working on west approach embankment and access
- Blasting rock for fill on the east & west approach
- Utilized wood chips made from tree debris from clear and grubbing process as erosion perimeter control



**LOOKING WEST
ACROSS THE SCOUR
HOLE**

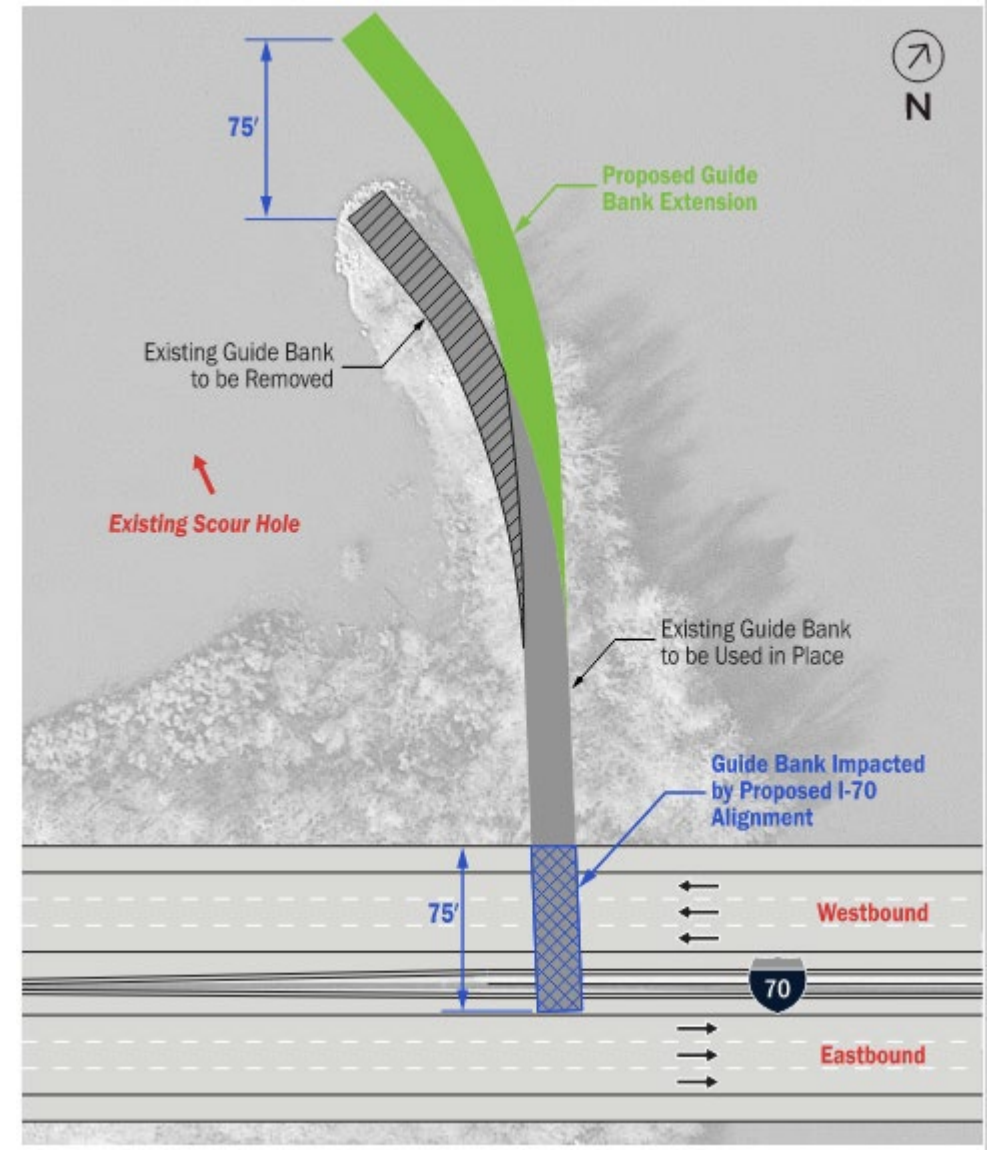
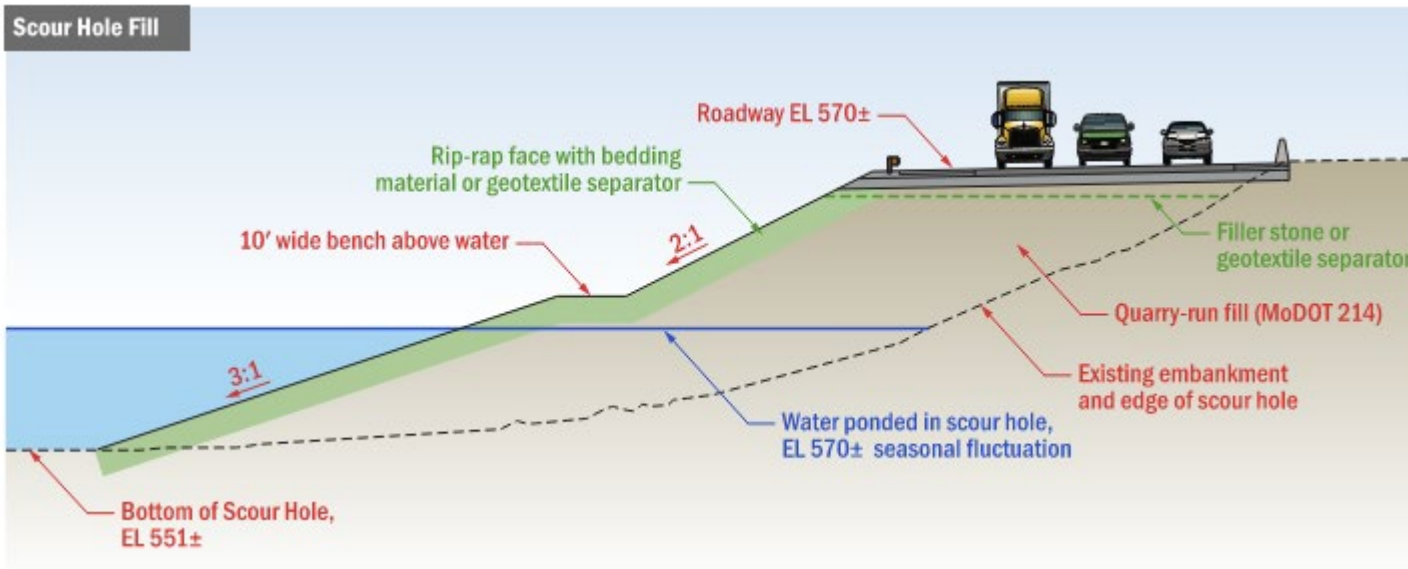


**BLASTED ROCK FROM THE NORTHEAST
QUAD WILL BE USED AS EAST APPROACH
EMBANKMENT**



SCOUR HOLE PROTECTION

Scour Hole Fill



WEST ABUTMENT AND SCOUR HOLE



West Abutment H-piles



Muck Removal for Embankment

DRILLED SHAFT FOUNDATIONS



Drilling Shafts at Bent 12

DRILLED SHAFT BENT 12 UNDER CONSTRUCTION



PIPE PILE FOUNDATIONS



Welding 48" Galvanized Pipe Piles



Driving Pipe Pile

PIPE PILE BENTS UNDER CONSTRUCTION



PIPE PILE BENTS COMPLETE



EAST ABUTMENT FOOTING

1. Air rig drilling holes for grouting beneath footing
2. Grouting holes beneath footing
3. Footing formed





















WB MAIN SPAN LIFT

- 2,078,000 lb
- 360-ft length
- Pair of 100T jacks (10" stroke)
- All-thread bars







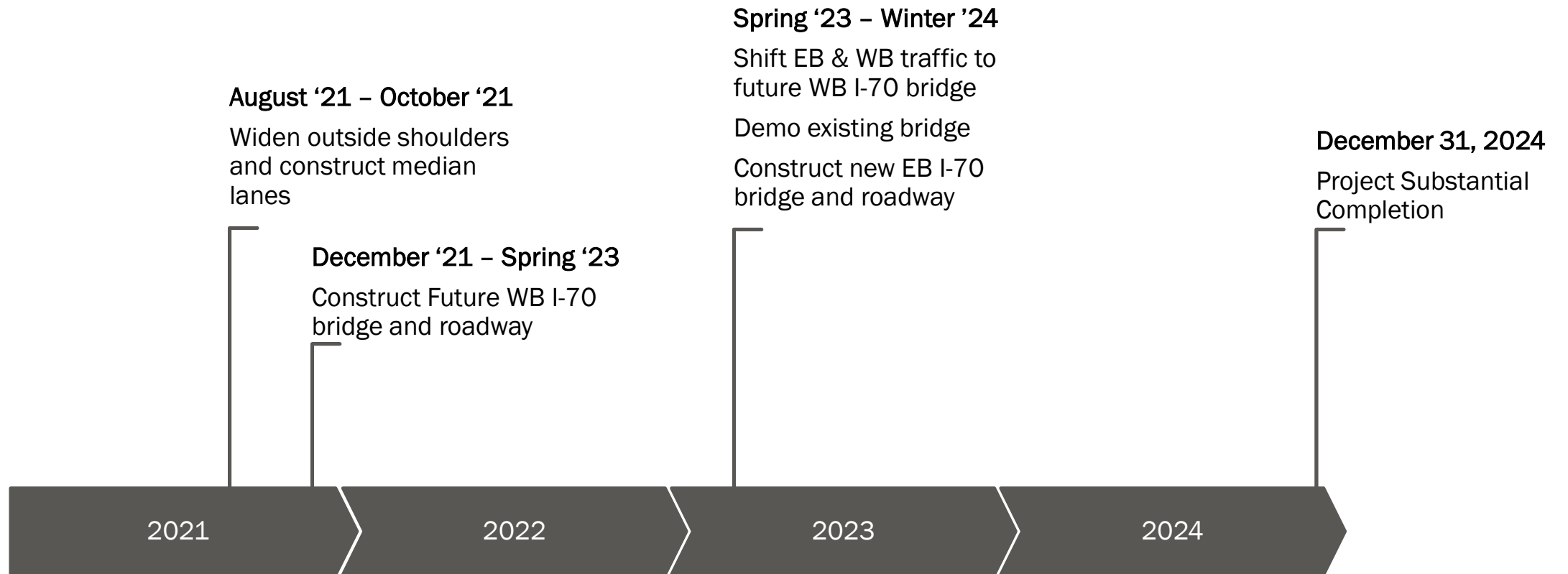


PORTABLE TOILET
1-877-881-6329

SUNBELT RENTALS
JLG ULTRA 600

185

PROJECT TIMELINE



COMMUNITY OUTREACH UPDATE & PLAN

- MU Capstone Class
- #RoadtoRocheport
- #STEMStories
- Saturday Superintendent Talks



MU ENGINEERING CAPSTONE CLASS

CAPSTONE STUDENTS RECENTLY VISITED THE PROJECT SITE TO TOUR THE DIFFERENT AREAS OF WORK SITE.



**STAY UP TO DATE
ON THE PROJECT**

WWW.MODOT.ORG/ROCHEPORTBRIDGE

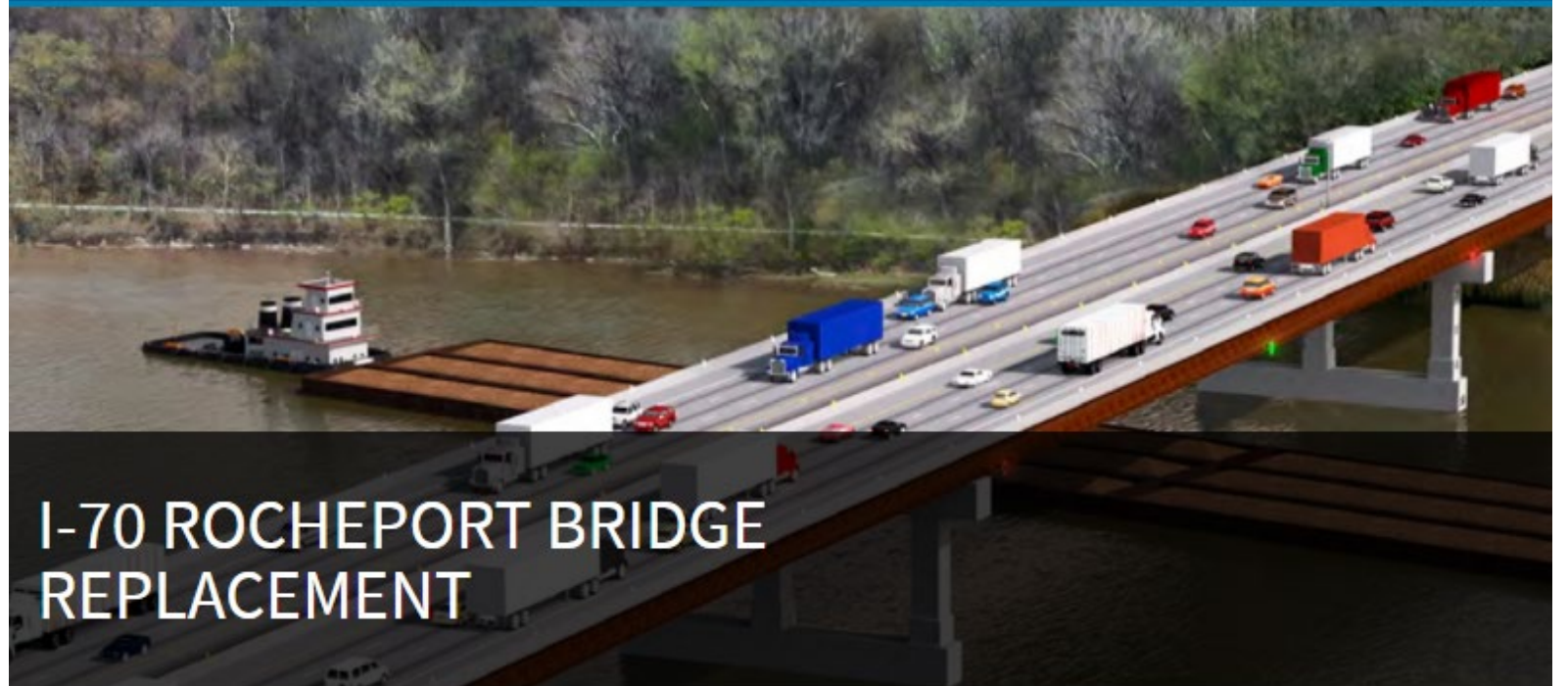
888 - ASK MODOT (275-6636)

[EMAIL / TEXT UPDATES](#)



Missouri Department of Transportation

[Local](#) [Travelers](#) [Road Work](#) [Programs](#) [Motor Carriers](#) [News](#) [About](#) [Careers](#)



**I-70 ROCHEPORT BRIDGE
REPLACEMENT**

[HOME](#)

[FAQ](#)

[HISTORY](#)

[MEET THE TEAM](#)

[PHOTOS](#)

[VIDEOS](#)


[SUE](#)

Dashboard | Camera List ▾ | ⏪ ⏩

Rocheport Bridge North Camera

Rocheport, MO

📅 Thu, Jun 9th, 2022 8:30 AM 🌡️ 61° F 📷 🔄 🎥



MoDOT

Navigation: ⏪ ⏩

Volume: - ● + Ox Blue


This camera view shows a wide river with a bridge under construction in the distance. Several construction barges and cranes are visible on the water. The sky is clear and blue.

Dashboard | Camera List ▾ | ⏪ ⏩

Rocheport Bridge South Camera

Rocheport, MO

📅 Thu, Jun 9th, 2022 8:29 AM 🌡️ 61° F 📷 🔄 🎥



MoDOT

Navigation: ⏪ ⏩

Volume: - ● + Ox Blue

This camera view shows a closer perspective of the bridge under construction. A concrete bridge deck is visible, supported by piers. A red car and a dark SUV are driving on the bridge. Large red cranes are positioned on the bridge deck. The river is visible on both sides.



QUESTIONS?