

# I-44 Resurfacing and Reconstruction

Reynolds / Crawford Counties, Missouri



**EFK♦Moen**  
Civil Engineering Design



# Agenda

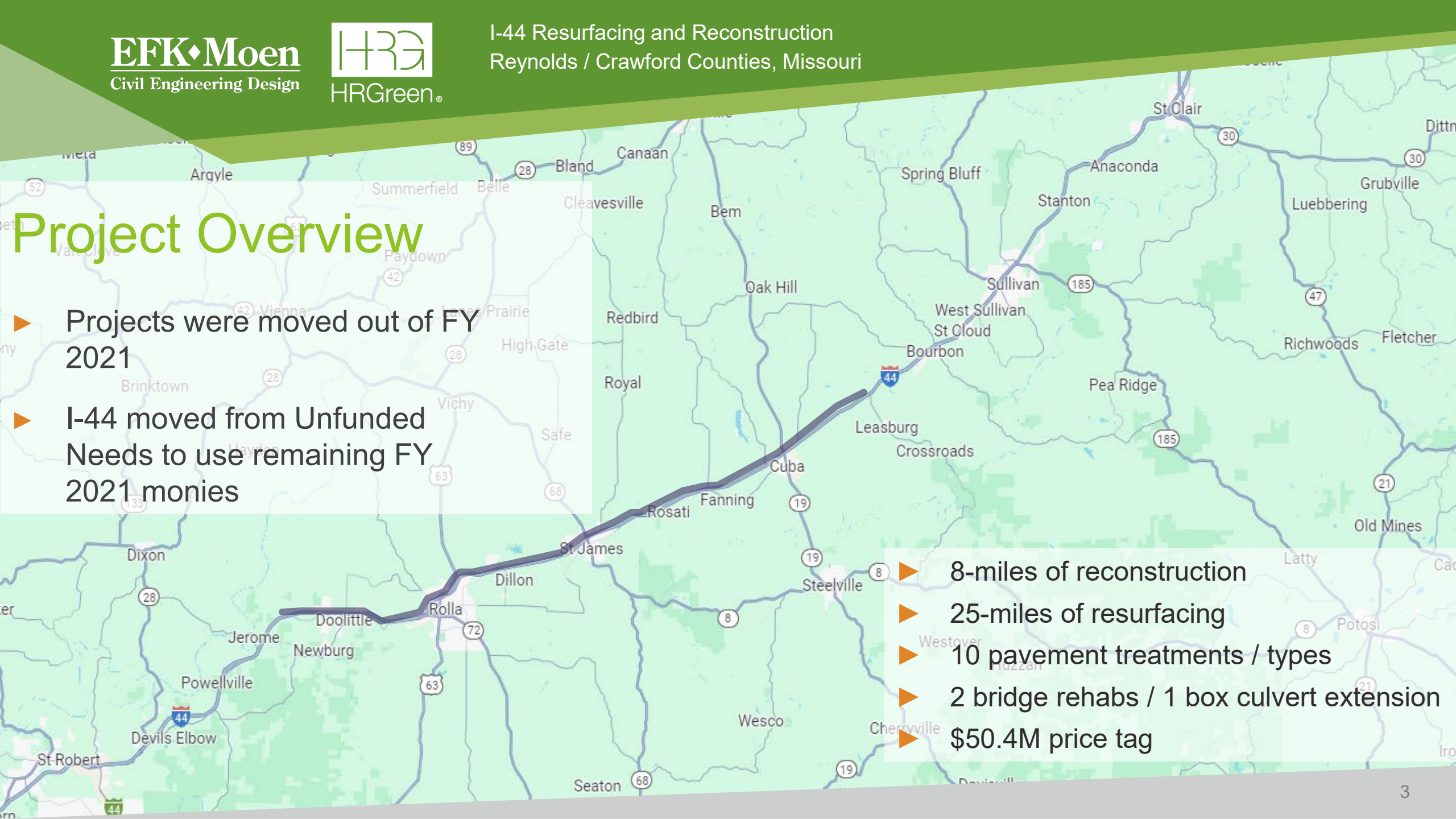
- ▶ Project Overview
- ▶ Design / Schedule
- ▶ Challenges along the Way
- ▶ Where are we now?
- ▶ Lessons Learned
- ▶ Questions



# Project Overview

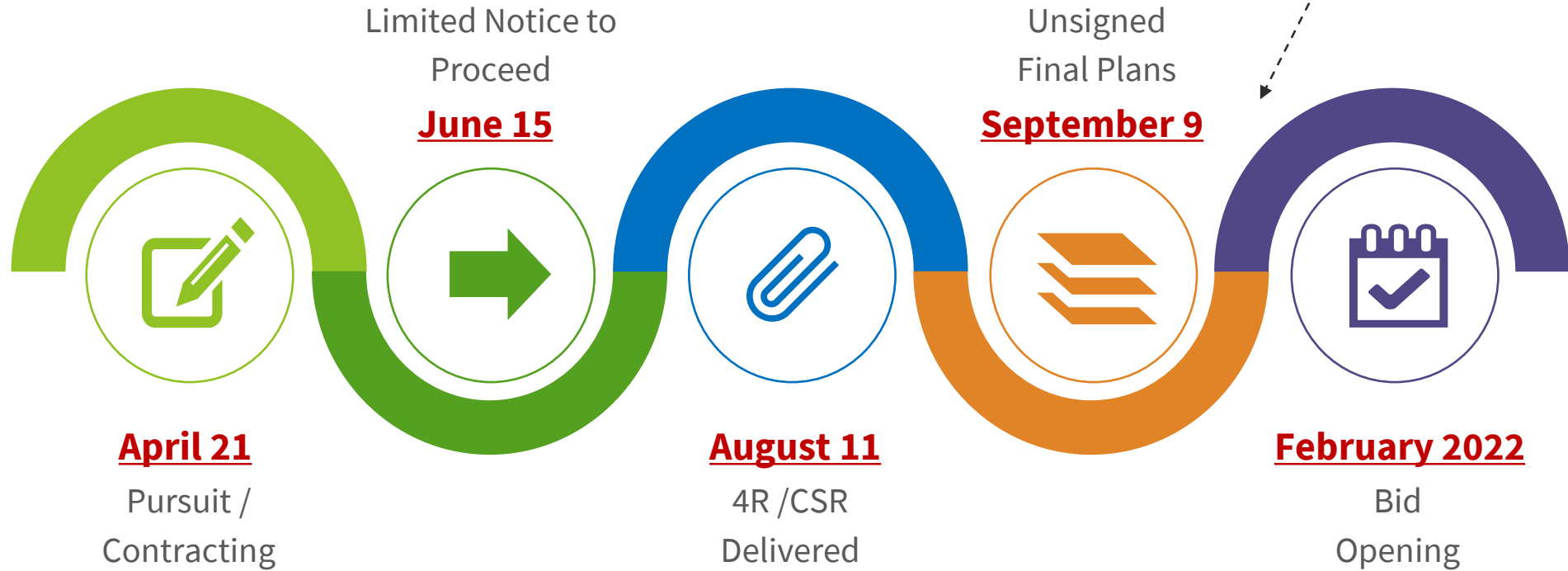
- ▶ Projects were moved out of FY 2021
- ▶ I-44 moved from Unfunded Needs to use remaining FY 2021 monies

- ▶ 8-miles of reconstruction
- ▶ 25-miles of resurfacing
- ▶ 10 pavement treatments / types
- ▶ 2 bridge rehabs / 1 box culvert extension
- ▶ \$50.4M price tag



# 2021 Design / Schedule

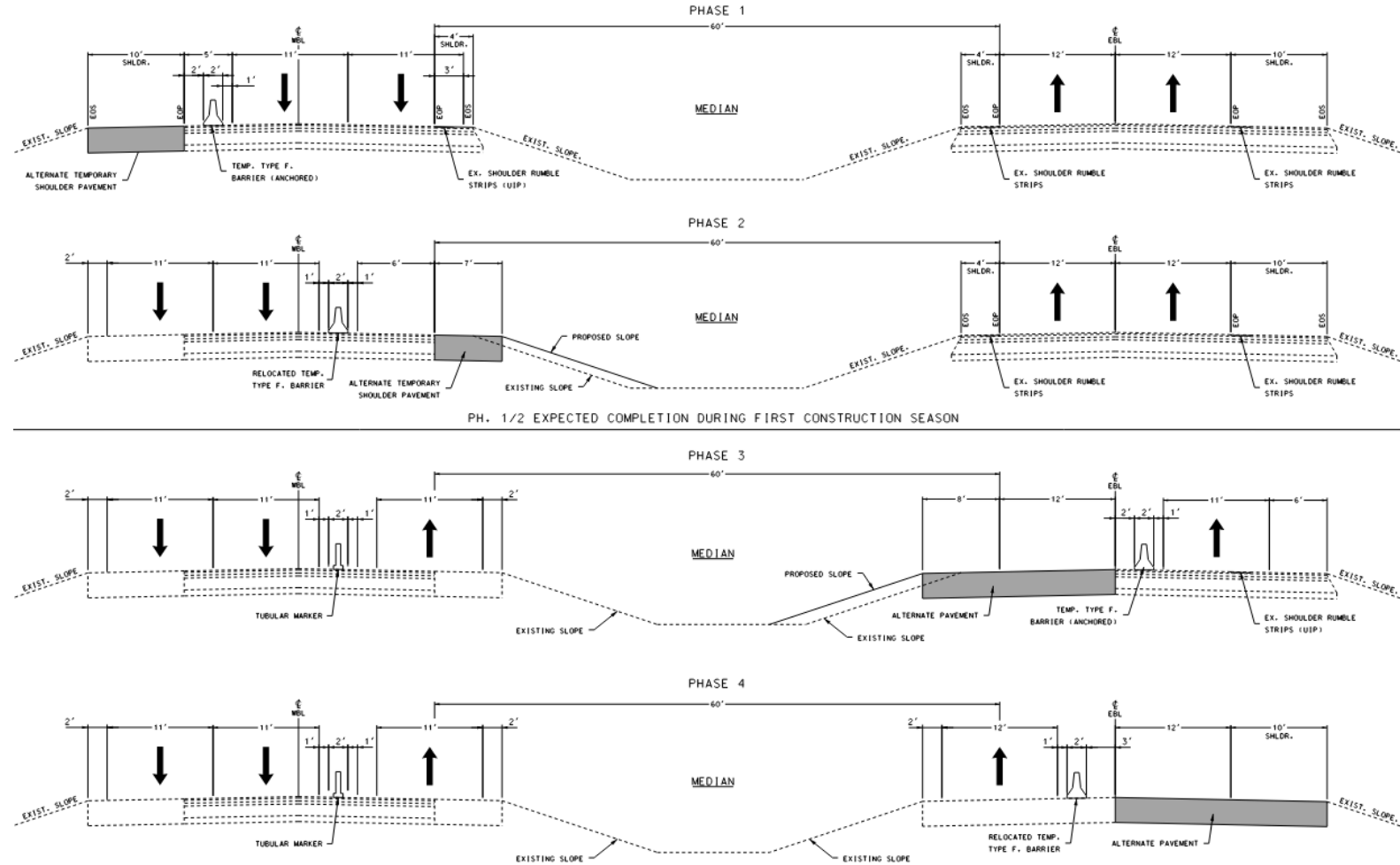
**Milestones:**  
Letting – November 19, 2021  
Notice to Proceed – January 31, 2022  
Completion Date – November 1, 2023



# Challenges

## Traffic Control

- ▶ 2-lanes each direction required
- ▶ Couldn't close V Highway
- ▶ Couldn't detour to outer road
- ▶ How to handle guardrail / shoulders



# Challenges

## Shoulders

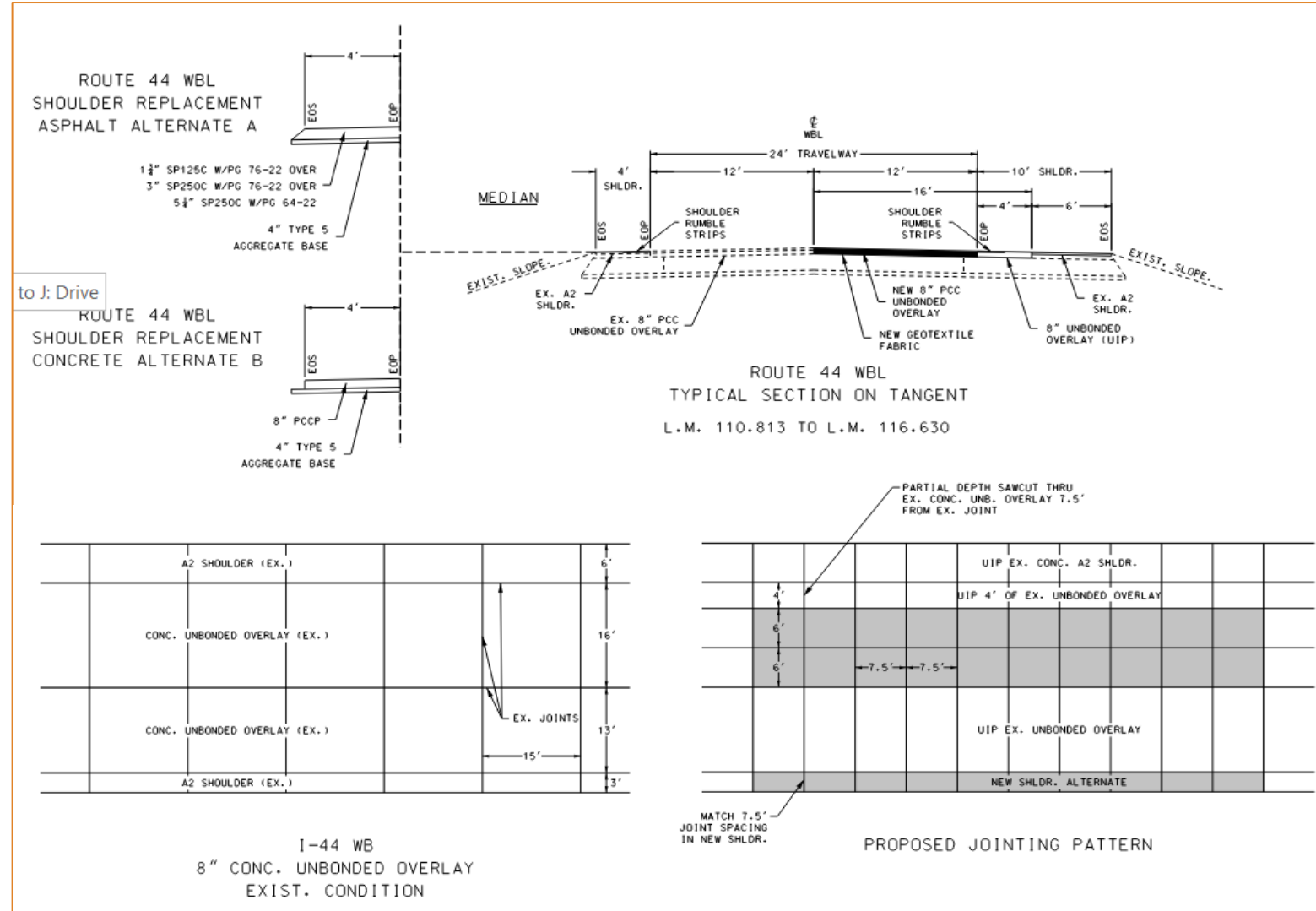
- ▶ Affected everything we wanted to do
- ▶ EVERYTHING
- ▶ Cores indicated WB shoulders too thin to carry traffic
- ▶ Team thought EB could withstand temporary traffic



# Challenges

## Unbonded Overlay

- ▶ Mainline / shoulder poured as one – cantilevered over joint underneath
- ▶ Only right lane failing
- ▶ Would inside shoulder hold? If not, shut down I-44 to repair!



# Challenges

## Unbonded Overlay

- ▶ Safety: Heavy Summer Traffic
- ▶ Zipper Merge / Smart CMS Boards
- ▶ Limit to 1-mile increments
- ▶ Construction frustrations...  
limited working room

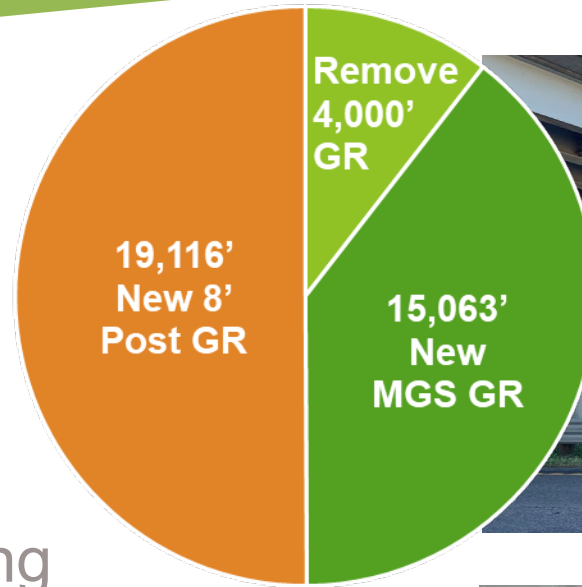




# Challenges

## Guardrail

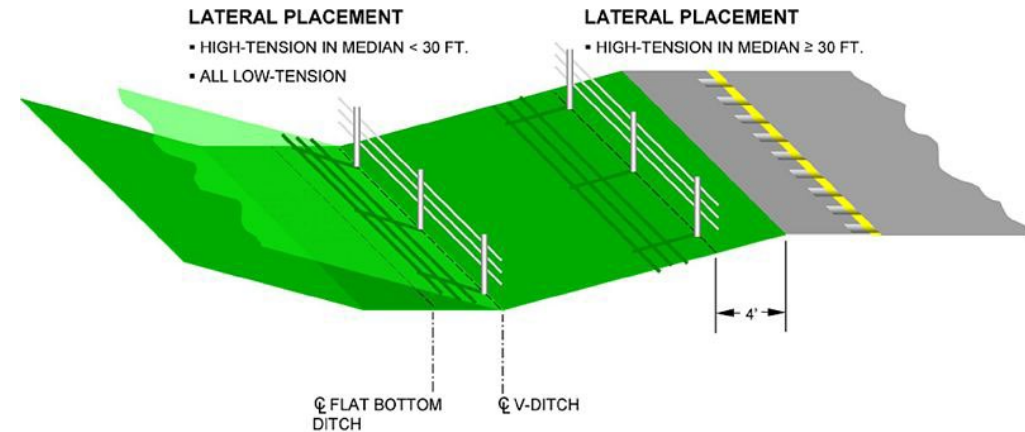
- ▶ Replace to MASH
- ▶ Narrow focus (not looking to add new locations) and calculate LON
- ▶ Eliminate where possible
- ▶ Issues at bridges (barrier w/ moment slab, transition sections)



# Challenges

## Guard Cable

- ▶ Replace low tension (sometimes on both sides) w/ high tension
- ▶ Which side to pick (not back and forth)
- ▶ Challenges with emergency access
- ▶ How do we protect / stage this during reconstruction?



# Challenges

## Bidding

- ▶ Record inflationary pressure (30%)
- ▶ Lack of bidders
- ▶ Scarcity of Material (Temp. Traffic Barrier)
- ▶ Schedule
- ▶ Uncertainty / level of detail in plans



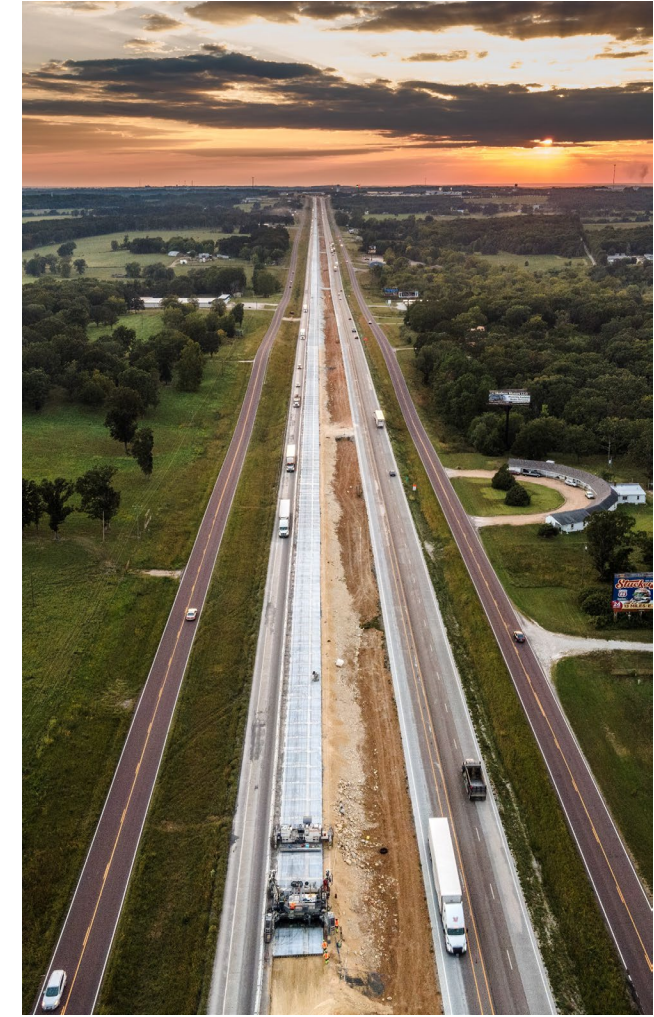
# Challenges

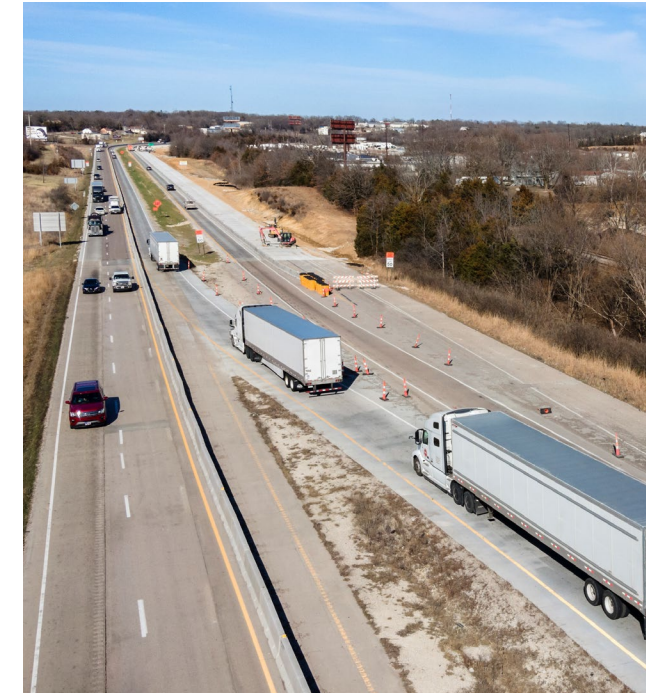
## PAVE Workshop

- ▶ Required over \$50MM
- ▶ Consultant hired from on-call list
- ▶ 15 potential proposals:  
4 maybe, 2 yes
- ▶ *UIP Shoulders in Unbonded Overlay Section*
- ▶ *Reduce Shoulder / Earthwork area at Martin Springs Outer Road*



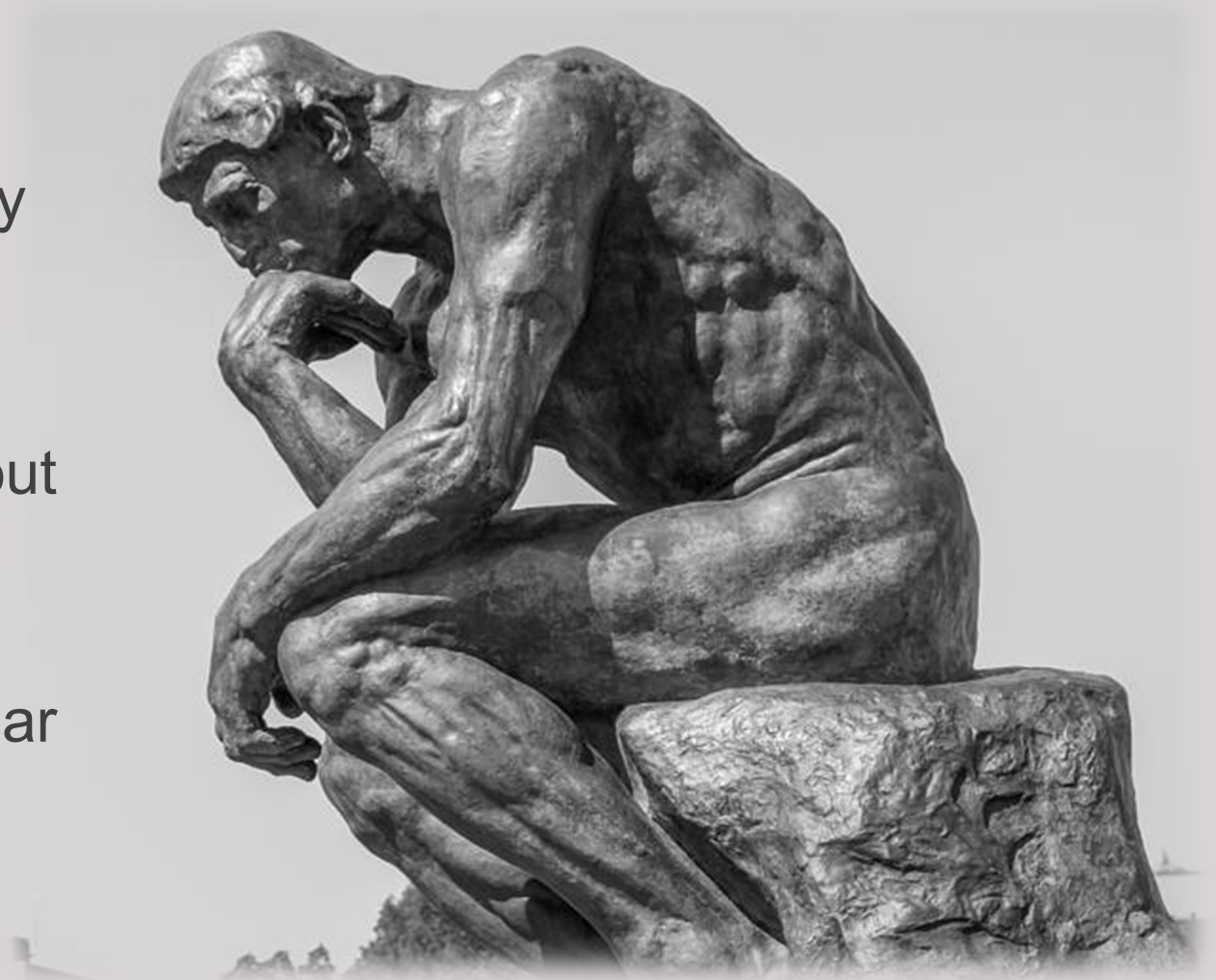
**2 VEs**  
**\$700K /**  
**\$650K**





# Lessons Learned

- ▶ Consistency of meetings
- ▶ Should have considered emergency pulloff
- ▶ A2 shoulders cannot handle traffic
- ▶ Can construct outside shoulder w/out barrier
- ▶ Two lanes one-way traffic opposing another lane is feasible under tubular markers
- ▶ Can winter split lanes when a contractor goes belly up (not advisable though)



# Questions



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