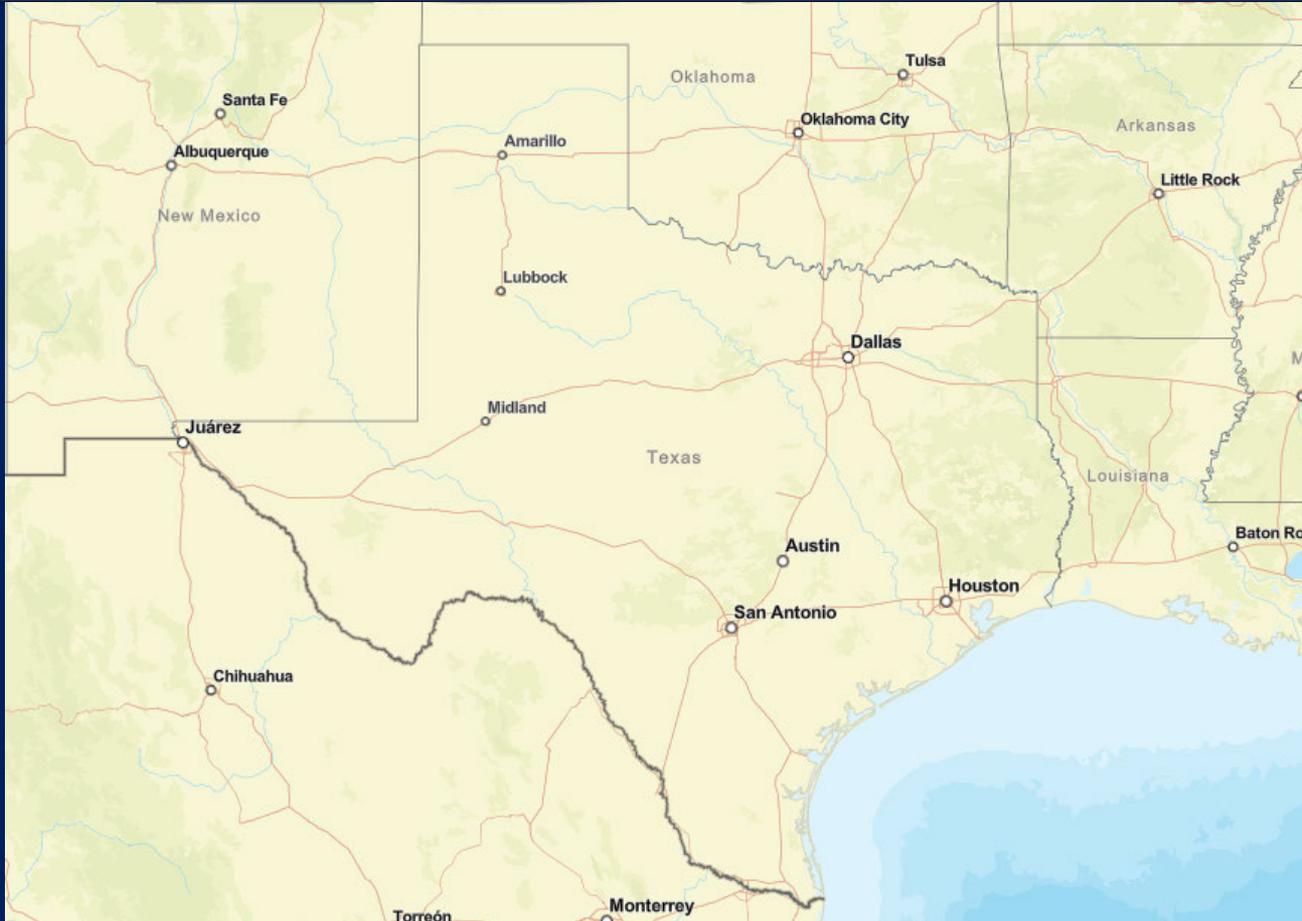


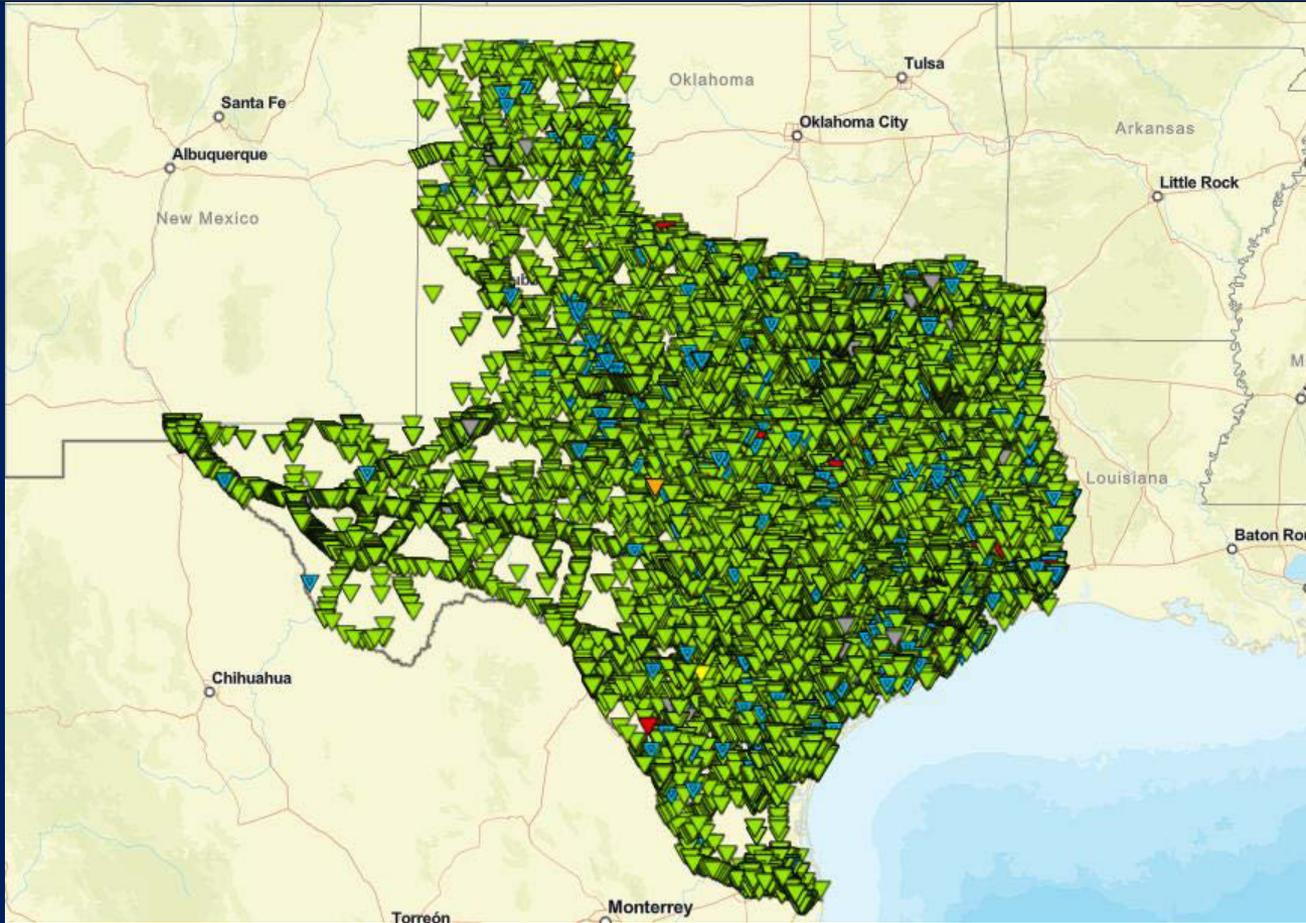
# TxDOT Bridge Division

Jamie F. Farris, P.E. – Bridge Division Director



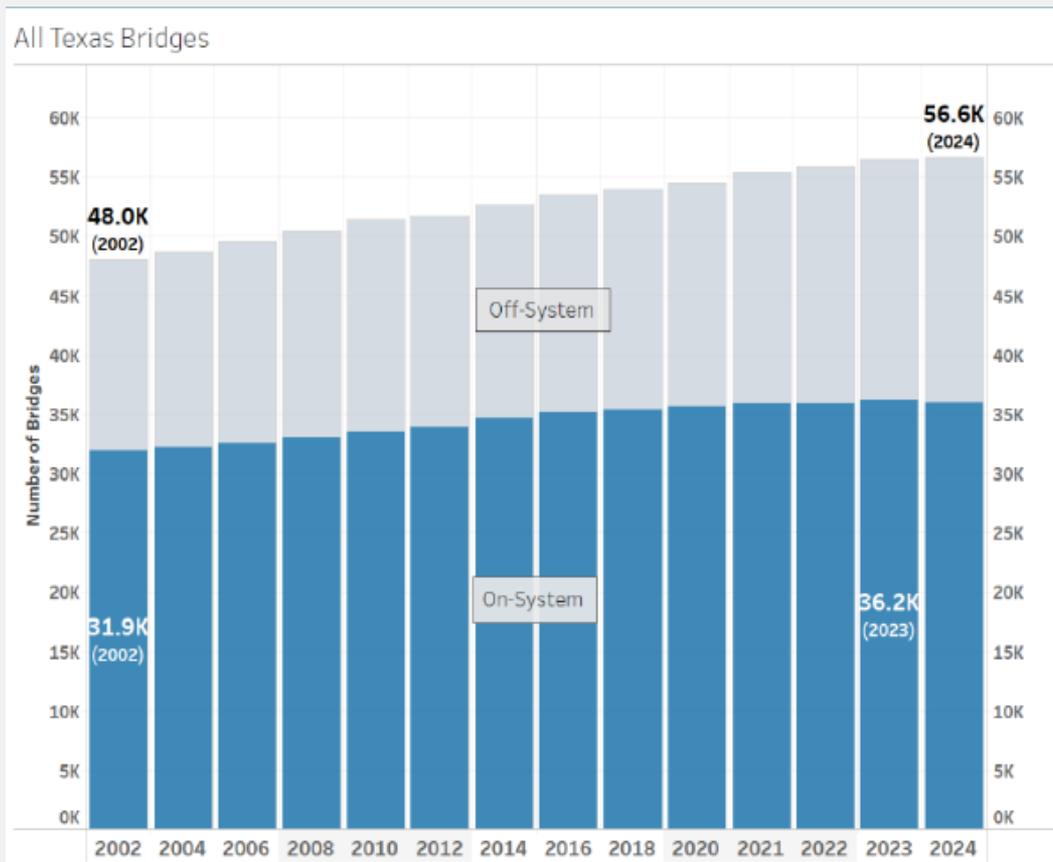
April 14, 2025



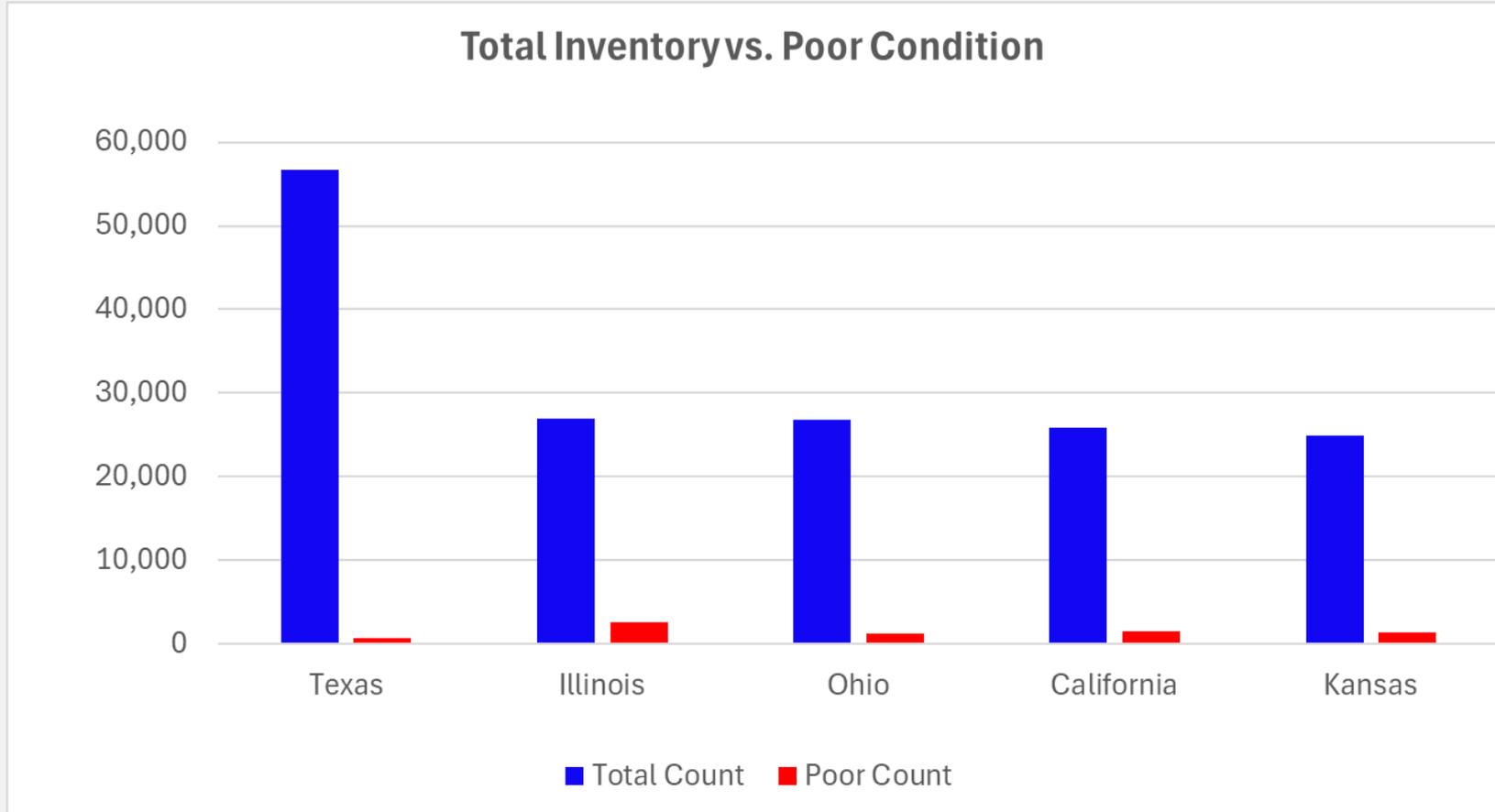


## Texas Bridges

- 56,620 Total Bridges
- 35,973 On-system
- 20,647 Off-system



# Texas Compared to Other States



## Texas Bridges: What we did

- Priority in 2001 – Reduce percentage of Poor Condition bridges

2001: 6.6%

2008: 3.6%

2019: 1.3%

2023: 1.2%

2025: 1.1%



# Texas Bridges

2024 State Data	Rank: SD bridges as % of inventory	Rank: # SD bridges	Rank: % of bridge area SD	Number of Bridges	Number of SD bridges	SD Bridges as % of Inventory
Florida	46	34	48	13,036	364	3.0%
District of Columbia	47	52	21	257	5	2.0%
Georgia	48	38	51	15,069	240	2.0%
Delaware	49	51	45	872	11	1.0%
Texas	50	22	50	56,729	695	1.0%
Arizona	51	46	49	8,573	99	1.0%
Nevada	52	50	52	2,099	24	1.0%



## Bridge Funding

- Category 6 – managed by Bridge Division
- Performance based prioritization process
- Sub-programs
  - Highway Bridge Program
  - Bridge Maintenance & Improvement Program
  - Bridge System Safety

**TABLE 7: FUNDING CATEGORIES AND DISTRIBUTION** (10 year Plan)

FUNDING CATEGORY		2025 UTP DISTRIBUTION
1	Preventive Maintenance & Rehabilitation	\$18,667,880,000
2	Metro and Urban Corridor Funding	\$11,487,980,409
3	Non-Traditionally Funded Transportation Projects	\$6,604,813,383
4	Statewide Connectivity Corridor Projects	\$20,066,864,154
5	Congestion Mitigation and Air Quality Improvement	\$2,322,790,000
6	Structures Replacement and Rehabilitation (Bridge)	\$4,681,612,746
7	Metropolitan Mobility and Rehabilitation	\$6,041,345,275
8	Safety Projects	\$3,747,421,009
9	Transportation Alternatives	\$1,769,509,408
10	Supplemental Transportation Projects	\$2,611,692,752
11	District Discretionary	\$6,146,047,030
12	Strategic Priority	\$20,025,958,943
<b>TOTAL UTP FUNDING: CATEGORIES 1-12</b>		<b>\$104,173,915,109</b>

## Bridge Funding

- CAT 6 Funding over time (in millions)

2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
\$300	\$300	\$203	\$213	\$253	\$352	\$339	\$387	\$408	\$576

2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
\$511	\$379	\$422	\$438	\$462	\$461	\$493	\$504	\$487	\$493	\$477



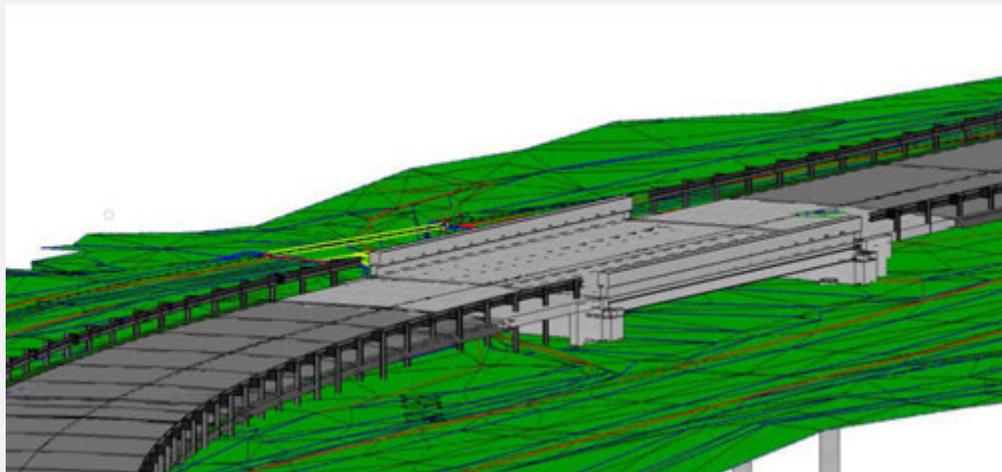


# Texas Bridges: What We're Doing



## Bridge Digital Delivery

- Implementation of Open Bridge Modeler – Since 2022



## Bridge Digital Delivery



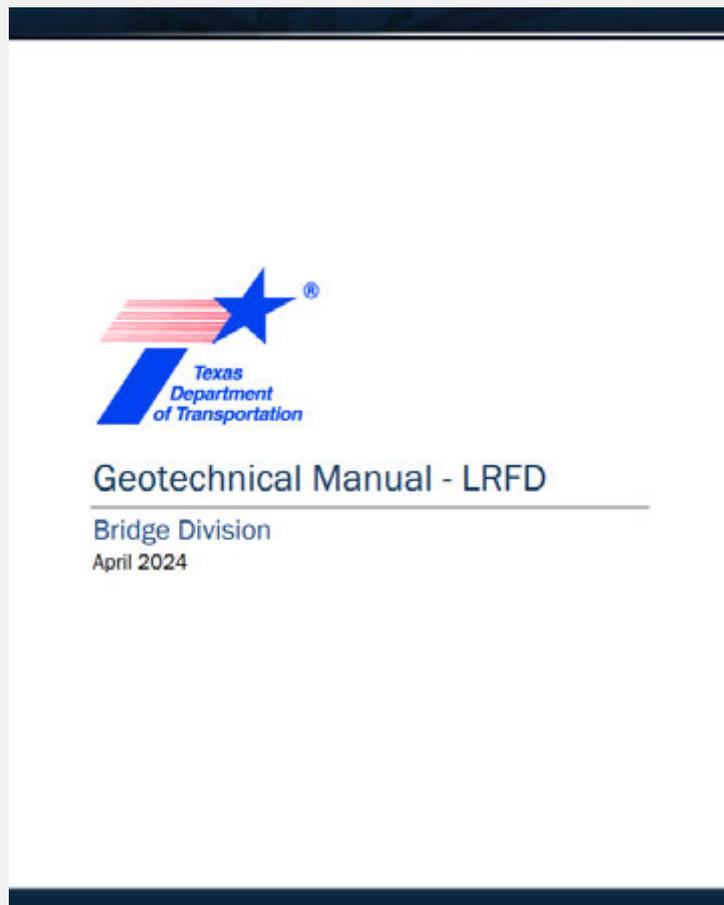
## Bridge Briefings

- Began in June 2024 – once a month webinar
  - Bridge Design QA/QC
  - Bridge Layouts and PBLR
  - Rail retrofits
  - TIP testing and load testing DS guidance
  - Bridge deck overlay options
  - Bridge Division resources
  - Bridge load rating program



## Geotechnical Design

- New LRFD Manual published





## Data Driven Decisions

- AASHTO BrM Software for asset management
  - Use of historic condition trends to make predictions of performance.
  - TxDOT sponsored multiple research projects for deterioration modeling.



## Data Driven Decisions

- Renewed focus on tracking, reporting, and performing repairs from inspection findings.
  - Use of GIS tools
  - Assignment of levels of severity to help prioritize



# Bridge Program Dashboards

Follow-Up Actions | Follow-Up Actions Report | FUA Overdue & Resolved | Deck Area | BCS vs Statewide | %Good & %Poor vs Statewide | PoorMap(AllFunds) | Scour Critical Dashboard | Scour Map(All Funds) | Steel & Timber Piling

## Follow-Up Actions

Updated On: October 25, 2024 at 4:01 AM

HELRing

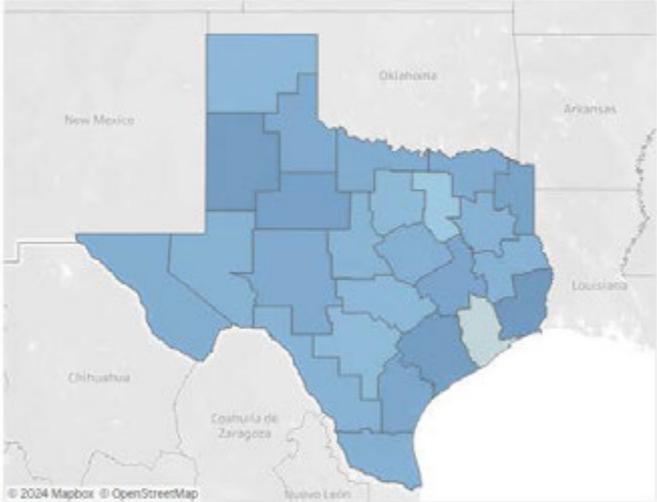
District Name

County Name

Maintenance Office

Maintenance Owner

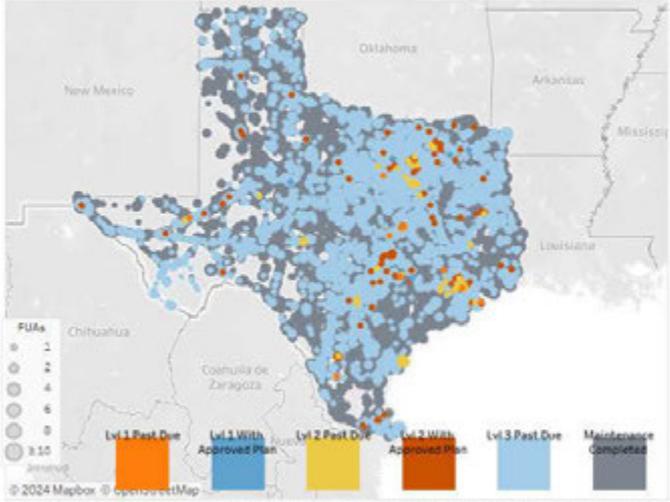
Maint Responsibility



© 2024 Mapbox © OpenStreetMap

**Percent Overdue**

25.00%  75.00%



© 2024 Mapbox © OpenStreetMap

**FUAs**

- 1
- 2
- 4
- 6
- 8
- 10

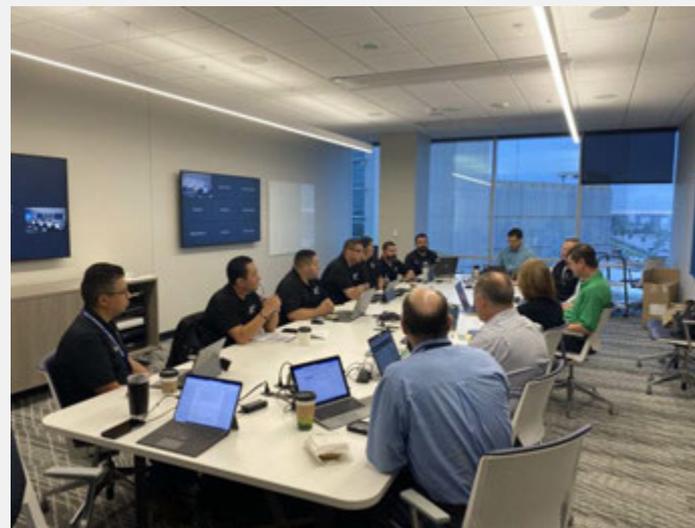
**Recommendations:**

- Lvl 1 Past Due
- Lvl 1 With Approved Plan
- Lvl 2 Past Due
- Lvl 2 With Approved Plan
- Lvl 3 Past Due
- Maintenance Completed

This map displays an icon for each structure. Size corresponds to the number of FUAs for each structure. Color corresponds to the structure's most critical recommendation. Hover over a bridge to see a summary of its recommendations. This map excludes FUAs that are Level 4 or not overdue.

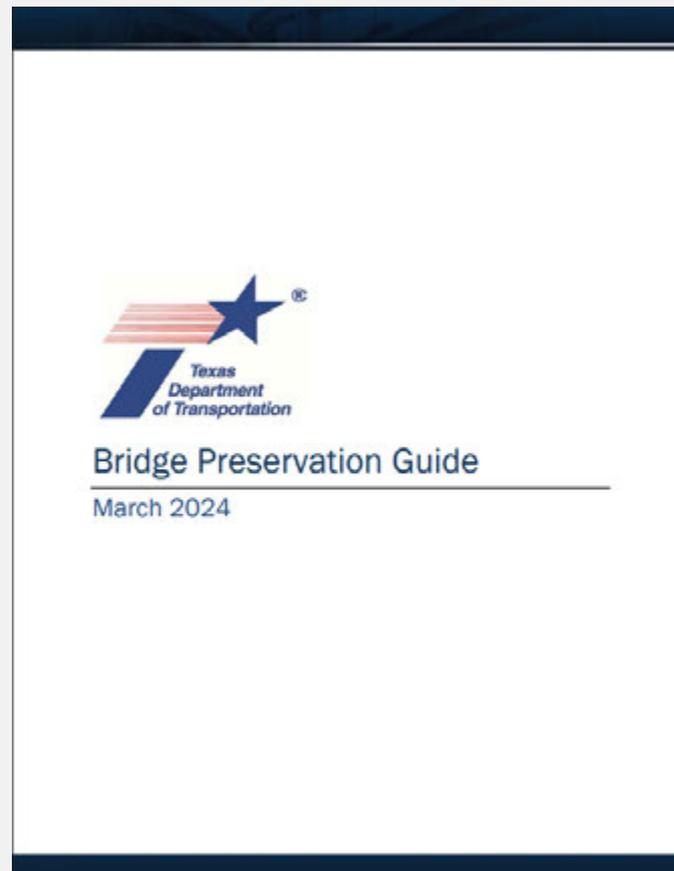
## District 4YR Bridge Plan Meetings

- Goals:
  1. Ensure we are maintaining our on-system bridges that are in good or fair condition
  2. Reduce the number of on- and off-system bridges in poor condition,
  3. Work towards or maintaining the Bridge Condition Score targets established by TxDOT Commission
  4. Identify best practices and opportunities for improvement.



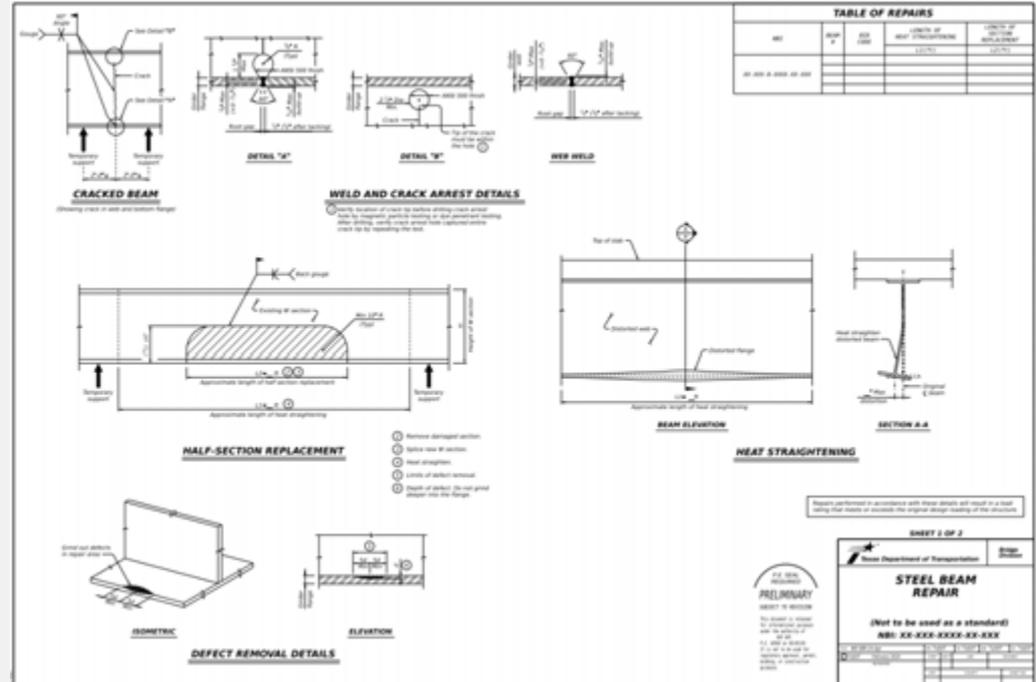
## Bridge Preservation

- Bridge Preservation Guide
  - Decks
  - Joints
  - Concrete superstructures and substructures
  - Steel superstructures
  - Culverts
  - Riprap repair



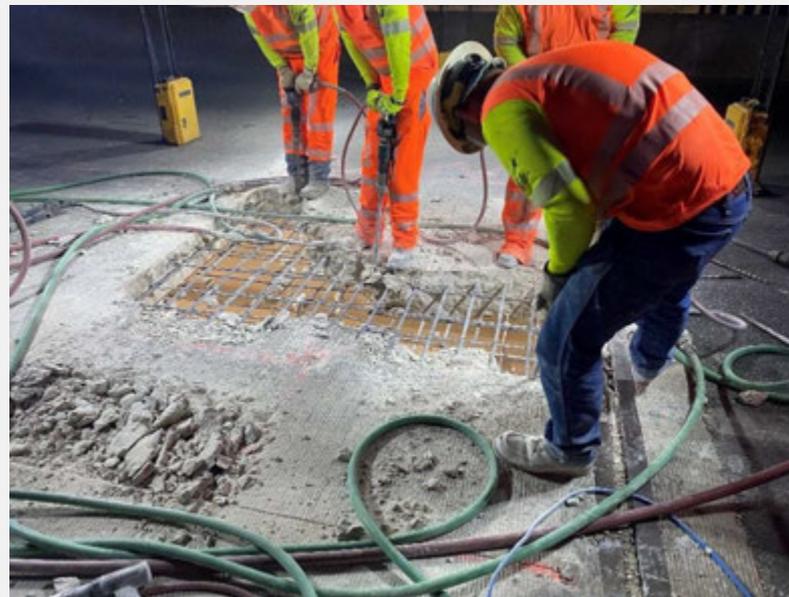
# Repair Working Drawings

WORKING DRAWINGS	
<b>Description</b>	<b>File Name</b>
Index Sheet of Working Drawings	 WD-Table-24.dgn
<i>Bridge Decks</i>	
<b>Description</b>	<b>File Name</b>
Full Depth Deck Repair	 WD-FDDR-24.dgn
Partial Depth Deck Repair	 WD-PDDR-24.dgn
Bridge Deck Overlay Notes	 WD-BDON-24.dgn
Waterproof Details	 WD-WPD-24.dgn
<i>Bridge Joints</i>	
<b>Description</b>	<b>File Name</b>
Cleaning and Sealing Existing Bridge Joints	 WD-CSBJ-24.dgn
Cleaning and Sealing Existing Bridge Joints (Strip Seal)	 WD-CSBJ(SS)-24.dgn
Cleaning and Sealing Bridge Joints (Pan Girders)	 WD-CSBJ(PG)-24.dgn
Precompressed Foam Expansion Joint Seal	 WD-PFEJ-24.dgn
Joint Repair and Replacement Details (For Bridges With Asphalt Overlay)	 WD-JRR(ACP)-24.dgn
Joint Repair and Replacement Details (For Bridges Without Asphalt Overlay)	 WD-JRR-24.dgn
<i>Beams and Bearing Pads</i>	
<b>Description</b>	<b>File Name</b>
Elastomeric Bearing Replacement (Concrete)	 WD-EBR(C)-24.dgn
Elastomeric Bearing Replacement (Steel)	 WD-EBR(S)-24.dgn
Prestressed Concrete Beam Repair	 WD-PCBR-24.dgn
Bridge Protective Beam Wrap	 WD-BPBW-24.dgn
Steel Beam Repair	 WD-SBR-24.dgn
Zone Painting Details	 WD-ZPD-24.dgn
<i>Substructure and Culverts</i>	
<b>Description</b>	<b>File Name</b>
Pile Encasement	 WD-PED-24.dgn
Bent Cap Repair Details	 WD-BCRD-24.dgn
Box Culvert Slip Lining Details	 WD-BCSL-24.dgn



## Attacking Bridge Work from All Angles

- No longer solely reliant on Highway Bridge Program
- Now looking at numerous funding categories to cover different facets of bridge rehab, repair, and maintenance work.
- Vastly expanding in-house bridge work, both in terms of work categories and amount of work being performed.

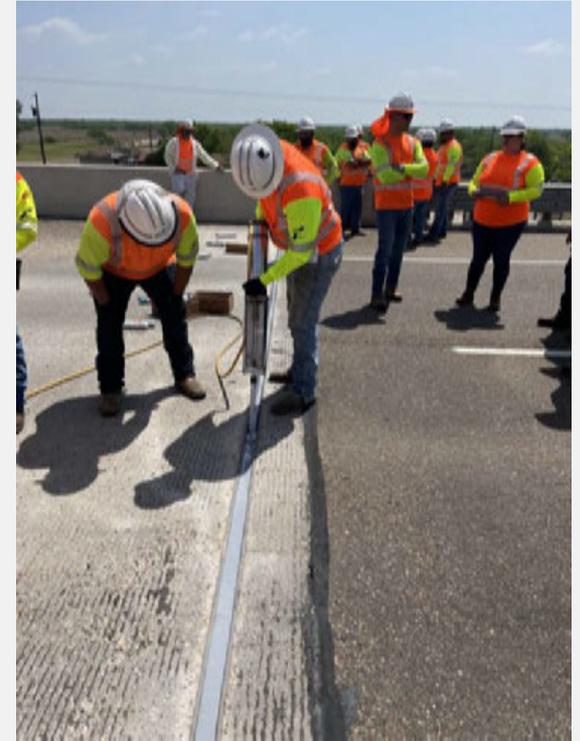


# Workforce Development

 Daryn Sims 4/15 9:38 AM

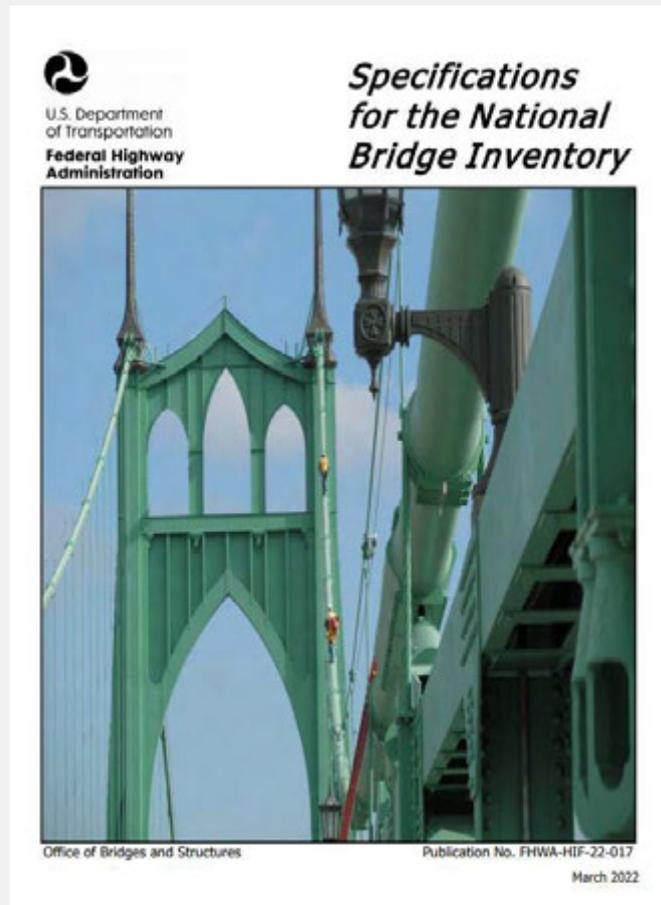
## Odessa FUA Training

In House FUAW Correction Group I wasn't able to make it out with the group on this one, but it looks like Odessa had a great turnout and got to put their hands on some FUA's. Thank yall for having us!



## Bridge Inspection

- Transition from NBIS to SNBI
- Began in 2022



## Steel Bridges

- Texas is the first state to get an FHWA approved plan for designating, designing, and inspecting System Redundant Members (SRM) and Internally Redundant Members (IRM)
  - Updated TxDOT Inspection Manual and Bridge Design Manual
- Ongoing work to re-classify existing steel twin tub girder bridges by complex analysis.





-  Concrete Materials for Bridges
-  Bridge Deck Construction Inspection
-  Post-tensioning Laboratory / Academy
-  Future Topics and Needs

### Bridge Deck Construction Inspection



- Hands-on
- Phases of Construction
- Build-in Defects
- 3 span / 4 girder line bridge



# Final Thoughts

