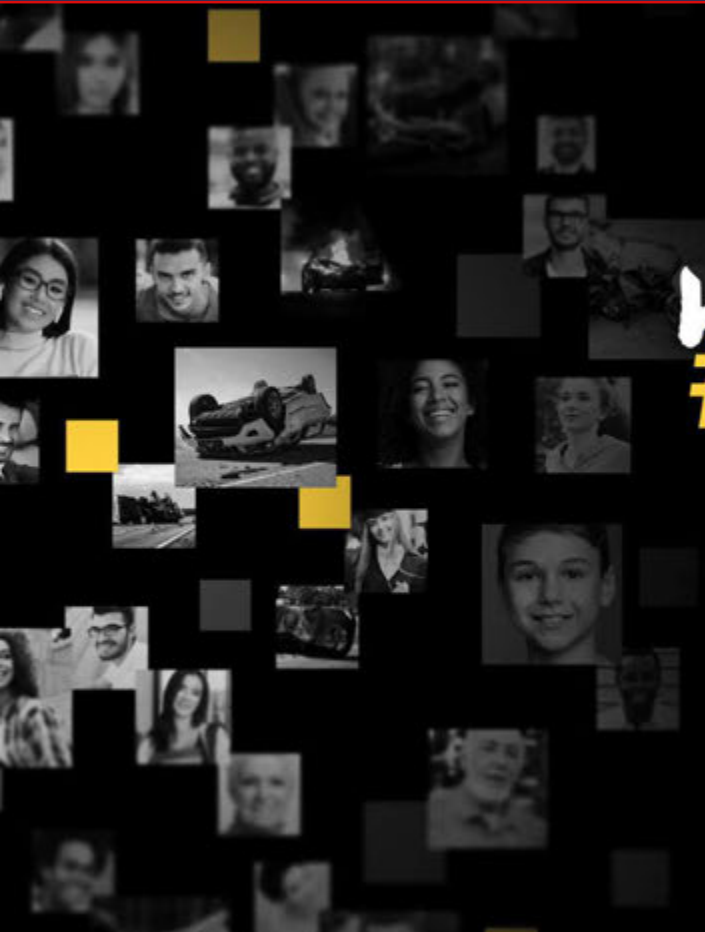
Selection of BMIP Projects

Mike Roetheli, P.E.
Abilene Bridge Engineer

Texas Department of Transportation

April 25, 2025

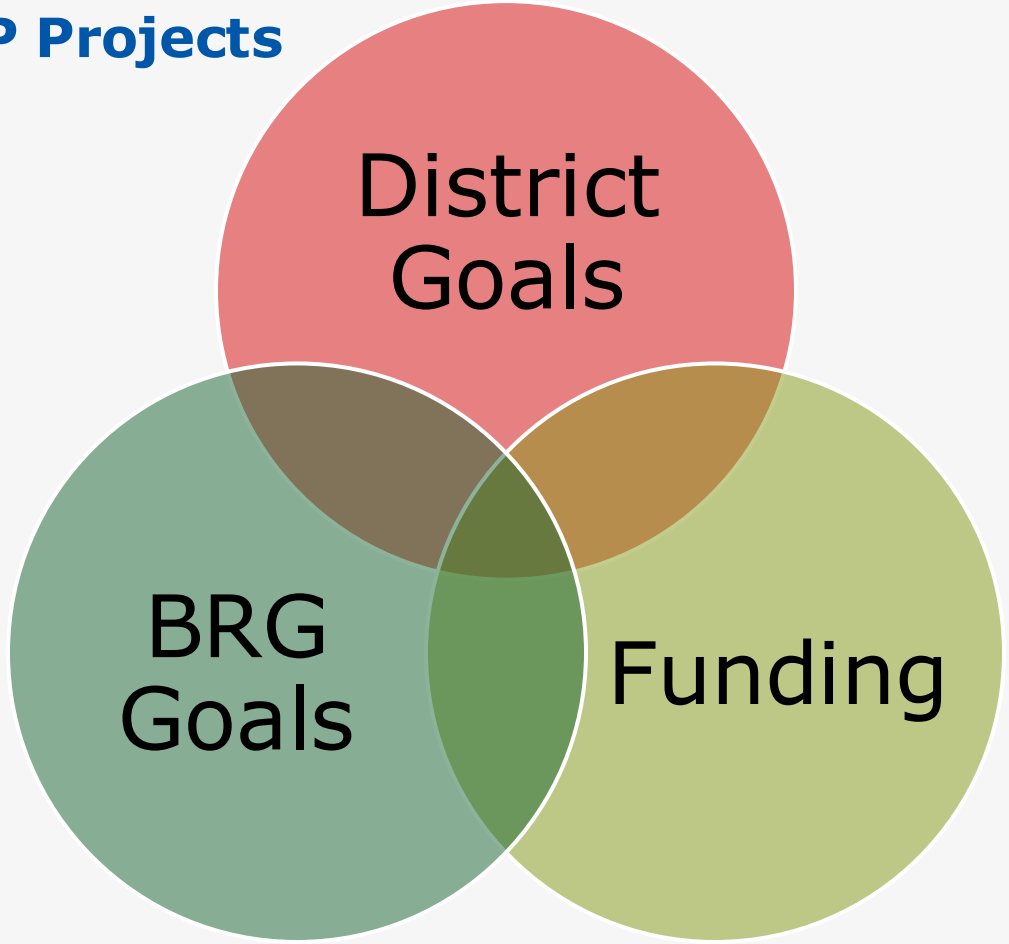


HELP
#EndTheStreakTX

End the streak of daily deaths on Texas roadways.

TxDOT.gov
#EndTheStreakTX Toolkit

Selecting BMIP Projects



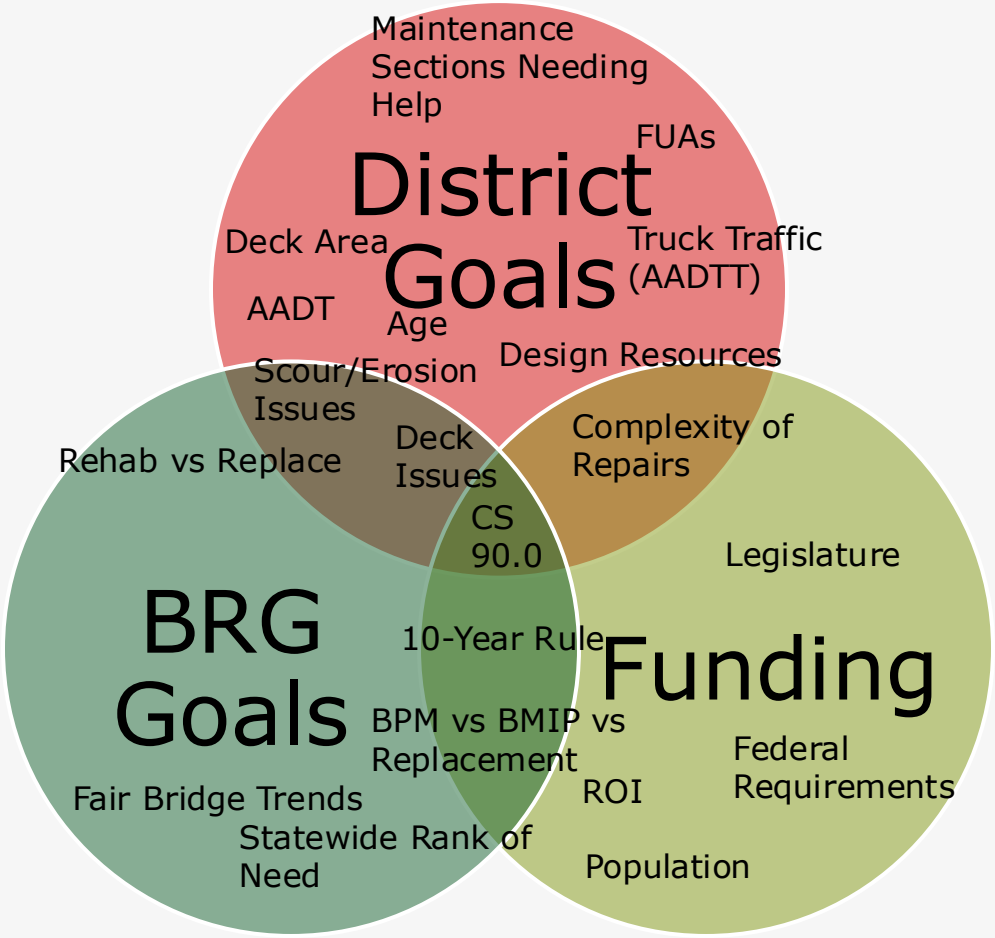
Selecting BMIP Projects

BMIP Bridge Edition

BMIP Bridge Edition

Top 5 District Concerns

- Good Condition Bridges
- Improve Bridge CS
- Fix FUAs
- Fix Maintenance Nightmares
- Rehab Bridges


Maintenance Sections Needing Help
FUAs
District Goals
Deck Area
Truck Traffic (AADTT)
AADT
Age
Design Resources
Scour/Erosion Issues
Deck Issues
Rehab vs Replace
Complexity of Repairs
CS 90.0
Legislature
BRG Goals
10-Year Rule
Funding
BPM vs BMIP vs Replacement
Federal Requirements
ROI
Fair Bridge Trends
Statewide Rank of Need
Population

- Q: How big is an ostrich egg?
- A: About the same as 24 chicken eggs

- Q: How do you eat an ostrich egg?
- A: One bite at a time.

- Q: How do I balance all the competing goals?
- A: A written plan and using data

Let's Write a Plan!

- "*If you fail to plan, you are planning to fail*" –Ben Franklin
- "*In preparing for battle I have always found that plans are useless, but planning is indispensable*." -Dwight D. Eisenhower

A Written Plan

- Have a written plan to increase:
  - Consistency
  - Clarity
  - Focus
  - Prioritization
  - Communication within District (Bridge section - Area Offices - Directors)
    - ABL Bridge Section meeting with A.E.'s
  - Structured Approach
  - Better Decision-Making

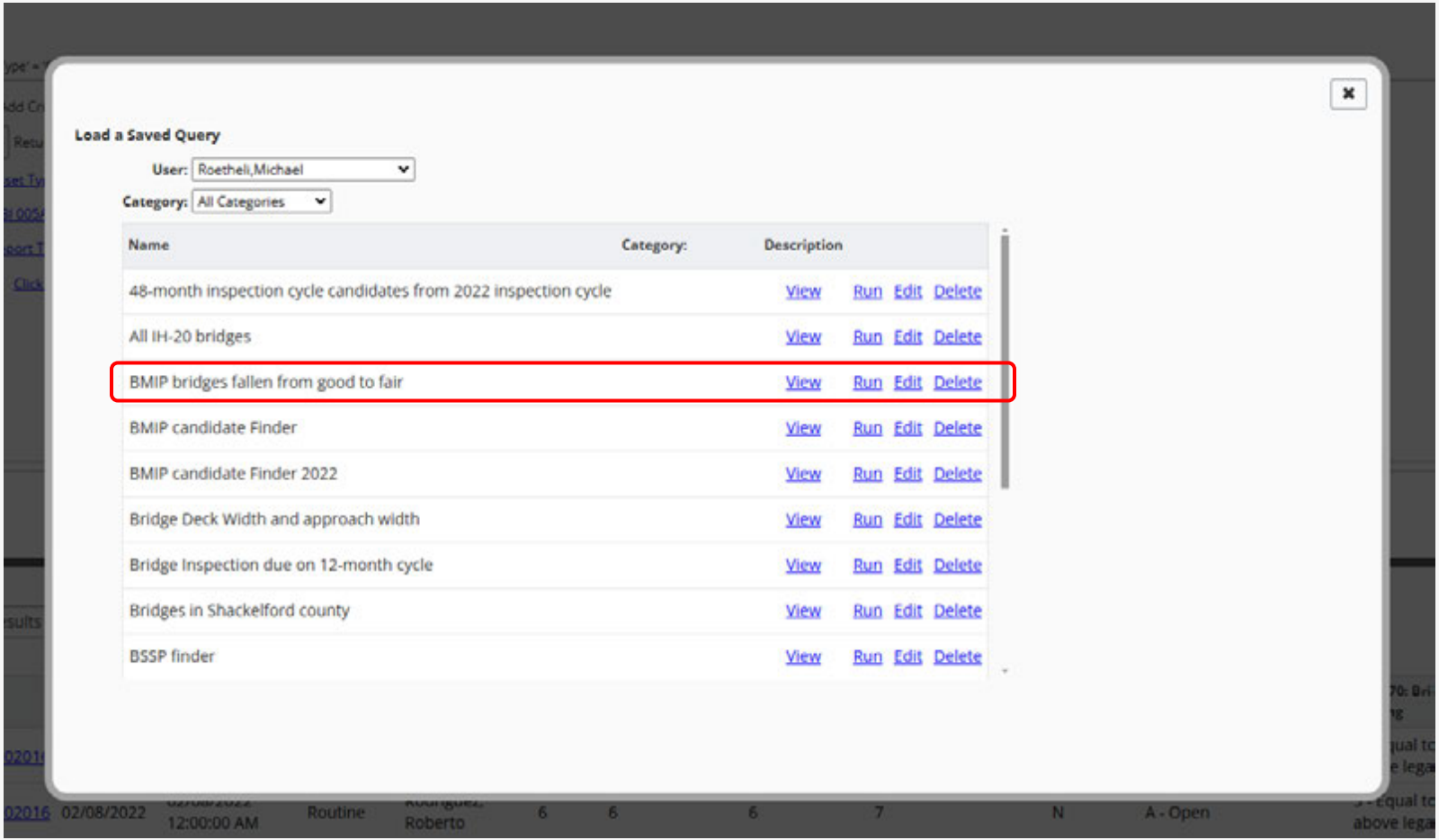
Abilene District Bridge Selection Process

BMIP- Bridge Maintenance Improvement Program

1. Use AW Query to look for bridges that have dropped from Good to Fair condition within the last 2 inspection cycles
2. Further filter candidates from above step looking for super- and substructure ratings of 5 or higher, though prefer structures that have a 6 or higher.
3. Look at the Bridge Inspection Reports as they filter in from the consultant inspectors and put on a running list of possible candidate bridges for BMIP
4. Look for bridges along a corridor with the same issue that needs to be addressed (e.g. Deck along a corridor of Interstate that all need an overlay to bring C.S. of decks up to a 7.)
5. Bridges with multiple or difficult repairs that are FUAs that require contract forces
6. Prefer selecting bridges that have larger deck areas
7. Nominate “sister bridge” if it exists

Finding relevant Data

Getting Data– AssetWise Query



Getting Data– AssetWise Query

Search Results: 14557 results found.

Show Assets on Map | Export Results To Excel | Export Results To KML | Export Results To CSV

Results

Parent Asset	Asset Name	Inspection Date	Inspection Date	Inspection Type	Owner	NBI 058: Deck	NBI 059: Superstructure	NBI 060: Substructure	NBI 061: C Channel P
District 08 - Abilene > BORDEN - 17	080170029502016	02/14/2024	02/14/2024 12:00:00 AM	Routine	McLain, Sammy	6	6	6	7
District 08 - Abilene > BORDEN - 17	080170029502016	02/08/2022	02/08/2022 12:00:00 AM	Routine	Rodriguez, Roberto	6	6	6	7
District 08 - Abilene > BORDEN - 17	080170029502016	05/23/2021	05/23/2021 12:00:00 AM	Routine	Isu, Kevin	6	6	6	7
District 08 - Abilene > BORDEN - 17	080170029502016	05/16/2019	05/16/2019 12:00:00 AM	Routine	Jendrzey, Christopher	6	6	5	7
District 08 - Abilene > BORDEN - 17	080170029502016	05/09/2017	05/09/2017 12:00:00 AM	Routine	Schutz, William	6	7	5	7
District 08 - Abilene > BORDEN - 17	080170029502016	05/19/2015	05/19/2015 12:00:00 AM	Routine	SYSTEM, SYSTEM	6	7	5	7
District 08 - Abilene > BORDEN - 17	080170029502016	05/[illegible]2013	05/26/2013 12:00:00 AM	Routine	SYSTEM, SYSTEM	7	7	5	7

Getting Data- AssetWise Query to Excel File

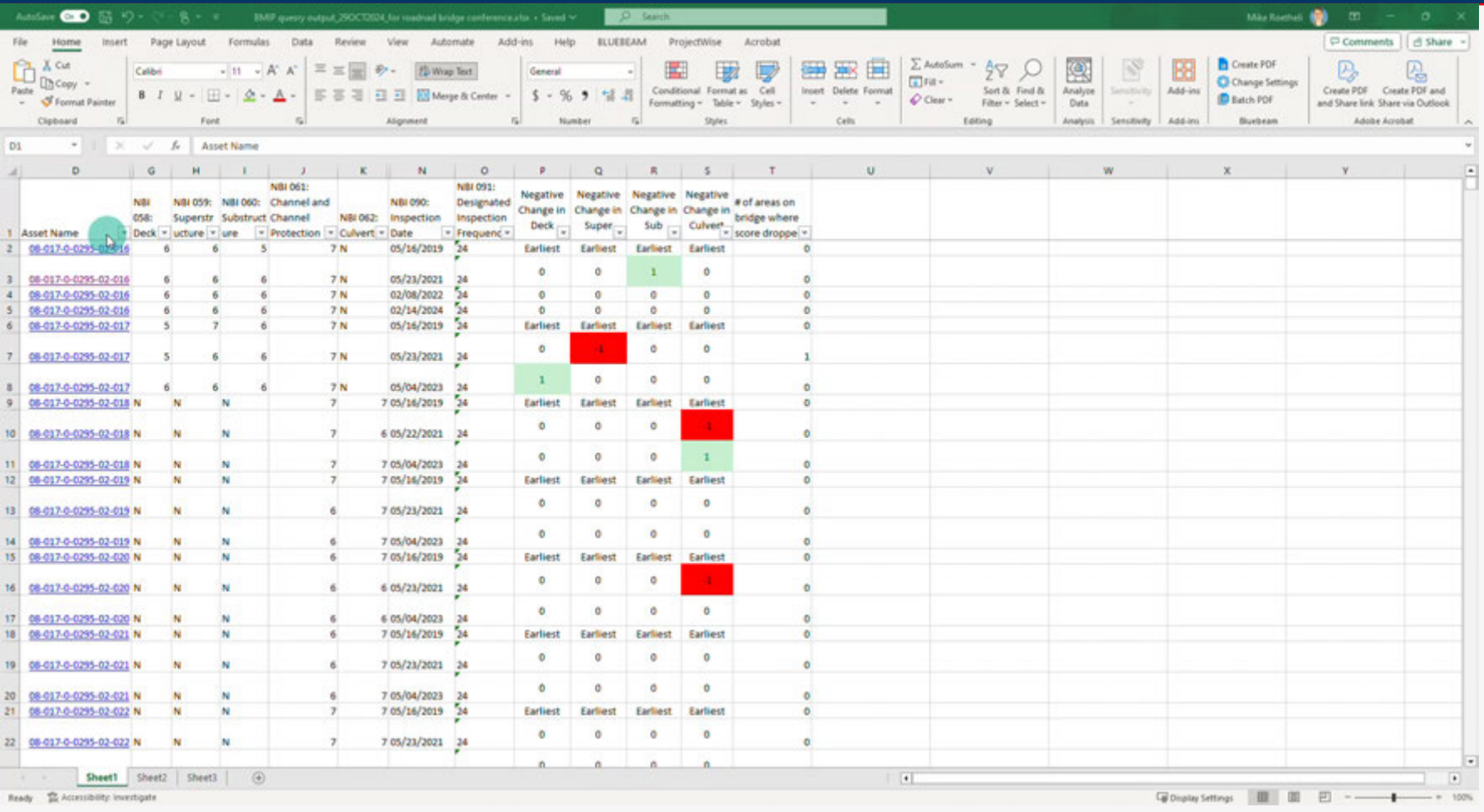
- AW output to Excel
- Use Excel to find bridges where scores have dropped

Asset Name	NBI 058: Deck	NBI 059: Superstructure	NBI 060: Substructure	NBI 061: Channel and Channel Protection	NBI 062: Culvert	NBI 090: Inspection Date	NBI 091: Designated Inspection Frequenc	Negative Change in Deck	Negative Change in Super	Negative Change in Sub	Negative Change in Culvert	# of areas on bridge where score droppe
08-017-0-0295-03-050	6	7	7	6	N	05/15/2019	24	Earliest	Earliest	Earliest	Earliest	0
08-017-0-0295-03-050	6	6	6	6	N	05/24/2021	24	0	-1	-1	0	2
08-017-0-0295-03-050	6	6	6	6	N	05/02/2023	24	0	0	0	0	0
08-017-0-0295-03-051	6	7	7	7	N	05/15/2019	24	Earliest	Earliest	Earliest	Earliest	0
08-017-0-0295-03-051	6	6	6	6	N	05/24/2021	24	0	-1	-1	0	2
08-017-0-0295-03-051	7	7	7	7	N	05/02/2023	24	1	1	1	0	0
08-017-0-0295-03-052	7	7	7	6	N	05/13/2019	24	Earliest	Earliest	Earliest	Earliest	0
08-017-0-0295-03-052	7	7	7	6	N	05/25/2021	24	0	0	0	0	0
08-017-0-0295-03-052	7	7	7	7	N	05/03/2023	24	0	0	0	0	0
08-017-0-0558-02-017	7	8	7	5	N	05/13/2019	24	Earliest	Earliest	Earliest	Earliest	0
08-017-0-0558-02-017	7	8	7	6	N	05/24/2021	24	0	0	0	0	0
08-017-0-0558-02-017	7	8	7	7	N	05/04/2023	24	0	0	0	0	0
08-017-0-0558-02-020	6	6	6	6	N	05/13/2019	24	Earliest	Earliest	Earliest	Earliest	0
08-017-0-0558-02-020	6	6	6	6	N	05/23/2021	24	0	0	0	0	0
08-017-0-0558-02-020	7	7	6	7	N	05/02/2023	24	1	1	0	0	0
08-017-0-0558-03-016	N	N	N	7	7	05/15/2019	24	Earliest	Earliest	Earliest	Earliest	
08-017-0-0558-03-016	N	N	N	7	6	05/24/2021	24	0	0	0	-1	
08-017-0-0558-03-016	N	N	N	7	6	05/04/2023	24	0	0	0	0	
08-017-0-0558-03-046	7	7	7	6	N	05/15/2019	24	Earliest	Earliest	Earliest	Earliest	0
08-017-0-0558-03-046	6	7	7	6	N	05/24/2021	24	-1	0	0	0	1
08-017-0-0558-03-046	6	7	7	6	N	05/03/2023	24	0	0	0	0	0
08-017-0-0558-03-047	7	7	8	7	N	05/15/2019	24	Earliest	Earliest	Earliest	Earliest	0
08-017-0-0558-03-047	6	6	7	7	N	05/24/2021	24	-1	-1	-1	0	3
08-017-0-0558-03-047	6	6	7	7	N	05/03/2023	24	0	0	0	0	0

Short Aside- Sort by more than 1 column

Texas Department of Transportation

Connecting you with Texas



	D	G	H	I	J	K	N	O	P	Q	R	S	T
1	Asset Name	NBI 058: Deck	NBI 059: Superstructure	NBI 060: Substructure	NBI 061: Channel and Channel Protection	NBI 062: Culvert	NBI 090: Inspection Date	NBI 091: Designated Inspection Frequenc	Negative Change in Deck	Negative Change in Super	Negative Change in Sub	Negative Change in Culvert	# of areas on bridge where score droppe
2	08-017-0-0295-02-016	6	6	5	7	N	05/16/2019	24	Earliest	Earliest	Earliest	Earliest	0
3	08-017-0-0295-02-016	6	6	6	7	N	05/23/2021	24	0	0	1	0	0
4	08-017-0-0295-02-016	6	6	6	7	N	02/08/2022	24	0	0	0	0	0
5	08-017-0-0295-02-016	6	6	6	7	N	02/14/2024	24	0	0	0	0	0
6	08-017-0-0295-02-017	5	7	6	7	N	05/16/2019	24	Earliest	Earliest	Earliest	Earliest	0
7	08-017-0-0295-02-017	5	6	6	7	N	05/23/2021	24	0	-1	0	0	1
8	08-017-0-0295-02-017	6	6	6	7	N	05/04/2023	24	1	0	0	0	0
9	08-017-0-0295-02-018	N	N	N	7	7	05/16/2019	24	Earliest	Earliest	Earliest	Earliest	0
10	08-017-0-0295-02-018	N	N	N	7	6	05/22/2021	24	0	0	0	-1	0
11	08-017-0-0295-02-018	N	N	N	7	7	05/04/2023	24	0	0	0	1	0
12	08-017-0-0295-02-019	N	N	N	7	7	05/16/2019	24	Earliest	Earliest	Earliest	Earliest	0
13	08-017-0-0295-02-019	N	N	N	6	7	05/23/2021	24	0	0	0	0	0
14	08-017-0-0295-02-019	N	N	N	6	7	05/04/2023	24	0	0	0	0	0
15	08-017-0-0295-02-020	N	N	N	6	7	05/16/2019	24	Earliest	Earliest	Earliest	Earliest	0
16	08-017-0-0295-02-020	N	N	N	6	6	05/23/2021	24	0	0	0	-1	0
17	08-017-0-0295-02-020	N	N	N	6	6	05/04/2023	24	0	0	0	0	0
18	08-017-0-0295-02-021	N	N	N	6	7	05/16/2019	24	Earliest	Earliest	Earliest	Earliest	0
19	08-017-0-0295-02-021	N	N	N	6	7	05/23/2021	24	0	0	0	0	0
20	08-017-0-0295-02-021	N	N	N	6	7	05/04/2023	24	0	0	0	0	0
21	08-017-0-0295-02-022	N	N	N	7	7	05/16/2019	24	Earliest	Earliest	Earliest	Earliest	0
22	08-017-0-0295-02-022	N	N	N	7	7	05/23/2021	24	0	0	0	0	0

Getting Data - BrM

- BrM shows several good data points
  - Bridges already in need of rehab
  - Bridges projected to need rehab in the near future
    - Bridges projected to fall from “Good” into “Fair”
    - Use this data to pre-emptively select bridges for preservation/repairs
    - Preservation/repairs as an add-on to roadway projects

- Use data from BrM to cross-reference candidates' potential

	A	B	D	E	F	G
1	District	NBI#	Work Suggested	Category	Cost	Quick Replace Estimate (Deck Area x 125 x 3.4)
587	08	081150000506134	(Substructure Rehabilitation)	Rehabilitation	$ 349,818.00	$1,604,460.00
599	08	081150000506135	(Substructure Rehabilitation)	Rehabilitation	$ 407,534.00	$1,604,460.00
616	08	081150006901106	(Superstructure Preservation, Substructure Preservation)	Preservation	$ 173,363.00	$3,994,660.00
624	08	081150006901147	(Deck Rehabilitation, Superstructure Rehabilitation, Substructure Rehabilitation)	Rehabilitation	$ 1,047,143.00	$3,808,000.00
628	08	081150006901148	(Deck Rehabilitation)	Rehabilitation	$ 664,271.00	$4,494,375.00
646	08	081150006901149	(Deck Rehabilitation)	Rehabilitation	$ 624,452.00	$5,093,625.00
658	08	081150006901150	(Deck Rehabilitation, Substructure Rehabilitation)	Rehabilitation	$ 972,046.00	$4,165,000.00
689	08	081150006901151	(Deck Rehabilitation)	Rehabilitation	$ 646,340.00	$4,165,000.00
750	08	081150006901152	(Substructure Preservation)	Preservation	$ 142,802.00	$5,692,875.00
804	08	081150006901153	(Deck Rehabilitation)	Rehabilitation	$ 614,032.00	$4,494,375.00
841	08	081150006901154	(Deck Rehabilitation)	Rehabilitation	$ 624,452.00	$5,093,625.00
845	08	081150054804008	(Deck Rehabilitation, Superstructure Rehabilitation, Substructure Rehabilitation)	Rehabilitation	$ 480,549.00	$1,945,352.50
877	08	081150066802002	(Deck Preservation, Substructure Preservation)	Preservation	$ 826,587.00	$7,337,200.00
896	08	081150115602004	(Substructure Rehabilitation)	Rehabilitation	$ 380,408.00	$1,749,300.00
897	08	081280003305031	(Substructure Rehabilitation)	Rehabilitation	$ 610,060.00	$4,284,000.00
918	08	081280010701002	(Superstructure Preservation, Substructure Preservation)	Preservation	$ 213,502.00	$2,494,537.50
941	08	081280015705029	(Substructure Rehabilitation)	Rehabilitation	$ 404,962.00	$2,213,400.00
968	08	081280015705036	(Substructure Rehabilitation)	Rehabilitation	$ 433,722.00	$2,175,277.50
978	08	081280015705038	(Superstructure Preservation, Substructure Preservation)	Preservation	$ 502,806.00	$1,815,727.50
996	08	081280015705048	(Superstructure Preservation, Substructure Preservation)	Preservation	$ 202,934.00	$3,740,000.00
998	08	081280015705049	(Superstructure Preservation, Substructure Preservation)	Preservation	$ 197,327.00	$3,740,000.00
1012	08	081280029605052	(Substructure Preservation)	Preservation	$ 108,318.00	$5,648,250.00
1056	08	081280097408014	(Superstructure Preservation)	Preservation	$ 377,937.00	$1,887,297.50
1075	08	081280203202003	(Substructure Preservation)	Preservation	$ 115,305.00	$3,845,400.00
1092	08	081280203203006	(Substructure Rehabilitation)	Rehabilitation	$ 420,600.00	$4,959,580.00

Getting Data – Refining and Expanding Candidate List

- Remember, BRG has told us that for the most part culverts won't be accepted as BMIP projects.*
  - Save yourself time and filter out culverts to start with. You can always go back later and look at them.
- Look for bridges on the same corridor that have dropped from good recently
- Add bridges to your candidate list on this corridor that could use preservation (e.g. deck overlay, joint repair, etc.)

Other Sources for Candidates – Internal Lists

- ABL keeps a running list of "problem child" bridges
- When Area Engineer sends email/phone call about a bridge
- When a Maintenance Supervisor emails/calls for help
- Don't rely on just looking through old emails when time comes to look for candidate bridges
  - Time-consuming
  - Forget about phone calls
  - Email searches may leave out bridges you meant to put in
- Update this file as new Routine Inspection Reports come in
  - Less time scrambling & looking for candidates
  - Spread out work over a whole year
  - Needed info is already in a searchable spreadsheet

Other Sources for Candidates – Internal Lists

NBI #	Bridge		Possible Funding Progra	Deck Area (SF)	Est Cost	Donloaded plans	Notes	
		Kent	BMIP/BSSP-safety					
081320026302020	SH 70 @ Butte Creek					Y	Widespread cracking and spalls with loss of section on rebar. Inspector noted need to do an in-depth LR on this structure.	Submitted for consideration for HBP replacement for 2023 bridge call.
081770000603257	IH 20 @					Y	Widespead spalling	
081770000603274	IH 20 S					Y	Concrete work too extensive for Mx	
082170198301001	FM 126					Y	Pan girder. Outsider girders are in bad shape. Too high to get from ground.	
081680000508093	LOOP 3					Y	Metal beams have severe corrosion and pack rust. Hole in metal stiffner.	
081680000601079	IH 20 @					Y	widespread Paint failiure, pack rust, failed deck joints, delam/spalling widespread and severe, Maintenace crews found a 2' x 5' area of rust on the diapraghms in bents 7, 13, & 15	
082210000618341	US 84 @							
082210000606186						Y	Deck needs PPO and joints cleaned & resealed	
082210000618054	BUS I						Clean & seal abut joints and patch spalls on joint header	
082210003401062							C&S joints	
082210239801010							C&S joints	
082210239801015							C&S joints	
082090012601010							C&S joints	
082090228601008						Y	Repair spalls and large cracks; Previous repairs are very low quality	
082080152703003						Y	Steel abutment and intermediate bent piling have rust and pitting due to paint failure and lack of paint. Piling are exposed below original ground levels ~8' to 10' at Bent #3 and #4 and 4' at east abutment. Steel beams and diaphragms have paint failure and surface corrosion. Steel beams have moderate rust and pitting at the ends and below drain holes at exterior beams. Average section loss ~5%.	Submitted for consideration of BSSP replacement for 2023 bridge call.
							Erosion issues, riprap failure, bent caps have spalls and delaminations, undermining of abutment caps, pan girder stem spalls, spalls in deck surface, C&S joints	
							The City of Abilene is widening Maple St. from 2 lanes, to 4 lanes with a center turn lane and a bike/ped shared use path. Current bridge has 2-12' lanes and 9' shoulders. This bridge also has been hit 4 times in the last 2 years by oversize loads, requiring the repair of many prestressed strands and using FRP wrap to repair multiple beams that were damaged. We would want to raise this bridge in order to give it more vertical clearance to try to cut down on the bridge hits	

Other Sources for Candidates – Bridge Tableau

- Scour Critical Bridges
  - Item 113 <= 3
  - SNBI Item B.C.11 <=3
    - B.AP.03 = 0,C,D,E,or U
    - B.AP.04 = N or Y

- Do any scour critical bridges make sense to rehab instead of replacing?
- Could you do rehab on the deck/super/sub and install scour countermeasures to extend life of structure?

Other Sources for Candidates – Bridge Tableau

- Steel/Timber Piling Bridges
  - Could you rehab these cost effectively instead of replacing?
    - Long bridge
    - SNBI Item B.SB.06
      - P01, P02, P05

Candidate List

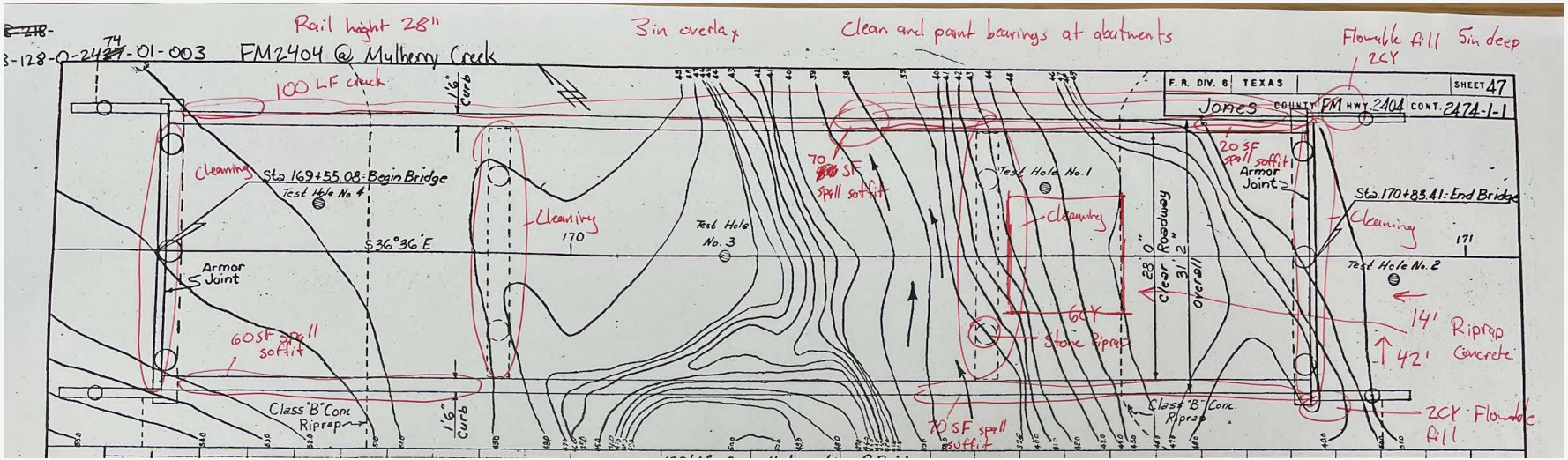
- Narrow candidate list down to a manageable size
  - Use your written plan to prioritize and rank candidate bridges
- Condition Survey and associated paperwork
- Look at Inspection Reports to get feeling for size of repairs needed
  - Note areas where specific measurements need to be taken
  - Use Element level data to get a 1st level estimate of repairs

Element Data

- Element-level data may be useful in an initial estimate of repairs
- Use Inspection to quantify repair quantities
- Verify quantities in-field
  - Make note of inconsistencies to let consultants know they need to do a better job estimating Element-level data

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
12-Reinforced Concrete Deck	3 - Mod.	20372	sq. ft.	19258	1113	1	0
1080-Delamination/Spall/Patched Area		12		0	12	0	0
1090-Exposed Rebar		2		0	1	1	0
1130-Cracking (RC and Other)		1100		0	1100	0	0
107-Steel Open Girder/Beam	3 - Mod.	3080	ft.	2710	220	150	0
1000-Corrosion		370		0	220	150	0
515-Steel Protective Coating		21124	sq. ft.	19574	0	1550	0
3420-Peeling/Bubbling/Cracking (Steel Protective Coatings)		1100		0	0	1100	0
3440-Effectiveness (Steel Protective Coatings)		450		0	0	450	0

- Begin to gather field data
  - Make notes on As-built printouts of needed repairs, est. quantity, etc
  - Photos of defects
  - Use drones to take pics/inspect hard to see areas (bearings, top of caps)

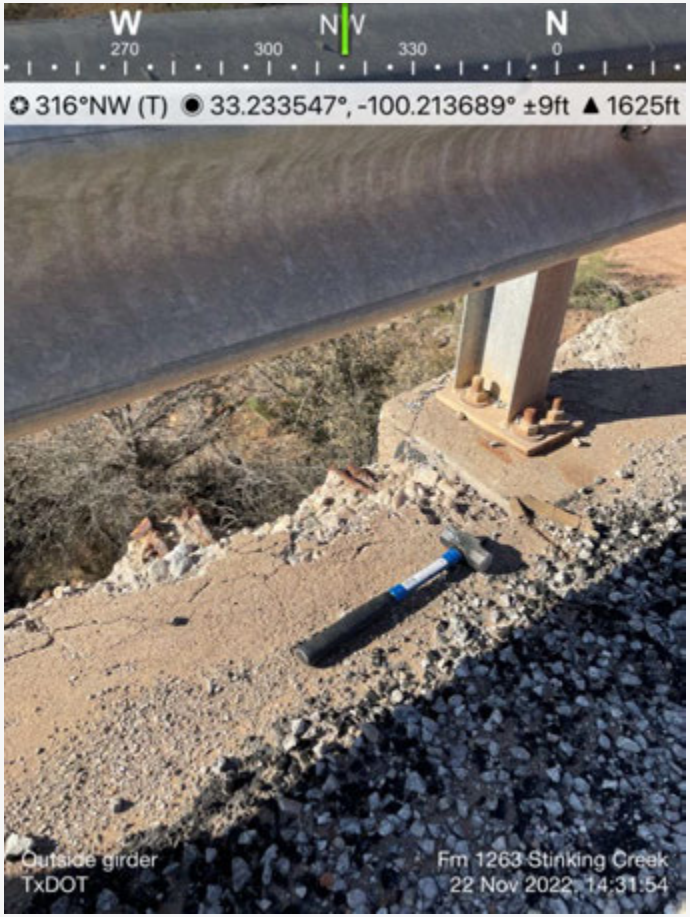


Candidate List- Field Assessment

- Pictures
  - Too many pictures? Nope.
  - Use Solocator or similar app to make notes on pictures
    - Label Bridge
    - Put estimated quantity on photo

Candidate List- Field Assessment

- Videos
  - Won’t use in plans, but could be useful in nomination and design process
  - Better convey conditions surrounding a repair location
    - Debris
    - Flow of water around substructure
    - Large areas needing repairs: scour mitigation
    - Vibrations in deck
  - Useful in kick-off meeting when beginning design process
  - Use back at office to verify quantities
  - *“Wait, wasn’t there another area that had more repairs I don’t see in my photos or on the as-builts”*



BMIP CANDIDATE EVALUATION FORM

Texas Department of Transportation
Bridge Division

District:	08 - ABL	Year Built (Widened):	1991 (2020)
County:	115 - Howard	Load Rating (IR):	36
Structure No.	08-115-0-0005-05-001	Load Rating (OR):	60
Facility Carried:	US 87 NBFR	Inspection Date:	11/5/2024
Feature Crossed:	IH-20	Performed By:	MHR

STRUCTURE INFORMATION

No. of Spans:	2		*Structure Description:*		
Overall Length:	182	ft	2 SIMPLE SPANS OF P.S. CONC SPREAD BOX BEAMS		
Span Config.:	2 @ 91'		ON CONC CAPS, COLUMNS & DRILLED SHAFTS		
Skew:	N/A				
Struct. Type 1:	Prstr. Box Beam				
Struct. Type 2:					
		in			
Deck Thickness	8.5	in			
Overall Width:	40	ft		*Overlay Type:*	N/A
Rdwy Width:	38	ft		*OL Thickness:*	
No. of Lanes:	2			Approach Material:	Concrete
ADT:	3638				
% Trucks:	34	%			
Rail Type:	T401				

COMPONENT CONDITION RATINGS

Existing Condition		*Proposed Condition*	
Deck	6	*Deck*	7
Superstructure	7	*Superstructure*	7
Substructure	7	*Substructure*	7
Channel	N	*Channel*	N
Culvert	N	Culvert	N
Approaches	7	Approaches	7
Scour Vulnerability	N	Scour Vulnerability	N
(Item 113 Coding)		*(Item 113 Coding)*	

REHABILITATION QUESTIONAIRE

4) Provide a brief description of the proposed scope of work on this structure:

Put a PPC overlay on this deck to protect the deck, seal the small cracks already present and keep de-icing chemicals from further degrading the bridge. Clean & re-seal the joints.

5) Please list any other structures to be bundled on this project:

08-115-0-0005-05-001, 08-115-0-0005-05-002, 08-115-0-0069-01-150, 08-115-0-0069-01-151, 08-115-0-0069-01-149, 08-115-0-0069-01-154, 08-115-0-0069-01-148, 08-115-0-0069-01-153, 08-115-0-0069-01-147

6) Desired fiscal year and letting month:

Fiscal Year: 28

FOR BRIDGE DIVISION USE ONLY

Approval:

BRIDGE REHABILITATION COST ESTIMATE

81150000505001 US 87 NBFR @ IH-20

DEFICIENCY	PRIORITY	BID CODE	DESCRIPTION	UNIT	QUANTITY	UNIT COST	EXTENDED COST
Cracks on deck	1	439 7031	POLYESTER POLYMER CONC OVERLAY (1")	SY	810	$ 150.00	$ 121,500.00
Deck Joints	2	438 7004	CLEANING AND SEALING EXIST JOINTS (CL3)	LF	88	$ 70.00	$ 6,160.00

NOTES

SUBTOTAL	$ 127,660.00
Mobilization, Contingency and TCP Factor (50%)	$ 63,830.00
TOTAL	**$ 191,490.00**

Rehab and Replacement Summary

Total Deck Area (SF):	7280	
Rehab Cost per SF:	$ 26.30	
Est. Replacement Cost:	$ 2,184,000.00	
Replacement Structure Type	TxGirder	
Unit Cost:	$ 300.00	per SF

Rehab vs. Replacement Ratio

0.088

Overlays

- PPC (Polyester Polymer Concrete) – no structural value, seals cracks and delays chloride penetration, 20-30 yrs service life
- LMC (Latex Modified Polymer) – provide structural value, waterproof, 20+ years service life
- MLPO (Multi-layer Polymer Overlay) -no structural value, seals cracks and delays chloride penetration, 15 yrs service life, low cost

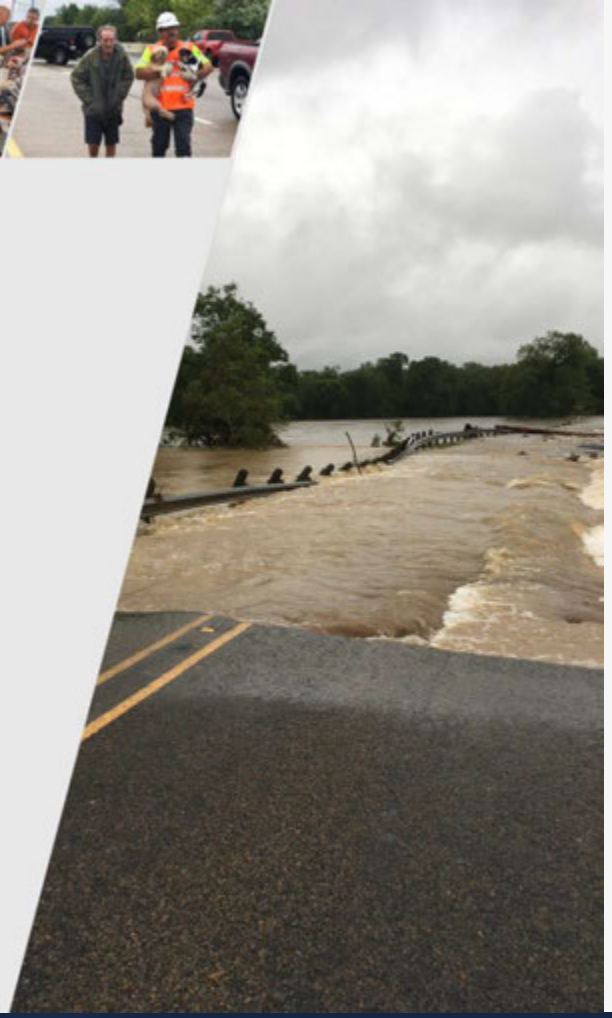
Unit Price Tips

- Bid History Avg Cost Dashboard
  - https://tableau-txdot/#/views/BidItemAverageCost/BidHistoryAvgCost?:iid=1&:redirect=auth
- Painting Steel
  - ~$100/SF (or ask BRG FO for their recommendation)
- Recently Let projects with similar scope/bid item quantities
- Nearby District's Bridge Sections

Questions


BACKUP
SLIDES

- District Goals
  - Improve Bridges
  - Increase Bridges into Good Condition
  - Fix FUAs
  - Rehab bridges
  - Smoother riding bridges
  - Maintenance Nightmares
- BRG Goals
  - SW Bridge Condition Score > 90
  - Preserve Existing Bridges



BrM

	A	B	D	E	F	G
1	District	NBI#	Work Suggested	Category	Cost	Quick Replace Estimate (Deck Area x 125 x 3.4)
587	08	081150000506134	(Substructure Rehabilitation)	Rehabilitation	$ 349,818.00	$1,604,460.00
599	08	081150000506135	(Substructure Rehabilitation)	Rehabilitation	$ 407,534.00	$1,604,460.00
616	08	081150006901106	(Superstructure Preservation, Substructure Preservation)	Preservation	$ 173,363.00	$3,994,660.00
624	08	081150006901147	(Deck Rehabilitation, Superstructure Rehabilitation, Substructure Rehabilitation)	Rehabilitation	$ 1,047,143.00	$3,808,000.00
628	08	081150006901148	(Deck Rehabilitation)	Rehabilitation	$ 664,271.00	$4,494,375.00
646	08	081150006901149	(Deck Rehabilitation)	Rehabilitation	$ 624,452.00	$5,093,625.00
658	08	081150006901150	(Deck Rehabilitation, Substructure Rehabilitation)	Rehabilitation	$ 972,046.00	$4,165,000.00
689	08	081150006901151	(Deck Rehabilitation)	Rehabilitation	$ 646,340.00	$4,165,000.00
750	08	081150006901152	(Substructure Preservation)	Preservation	$ 142,802.00	$5,692,875.00
804	08	081150006901153	(Deck Rehabilitation)	Rehabilitation	$ 614,032.00	$4,494,375.00
841	08	081150006901154	(Deck Rehabilitation)	Rehabilitation	$ 624,452.00	$5,093,625.00
845	08	081150054804008	(Deck Rehabilitation, Superstructure Rehabilitation, Substructure Rehabilitation)	Rehabilitation	$ 480,549.00	$1,945,352.50
877	08	081150066802002	(Deck Preservation, Substructure Preservation)	Preservation	$ 826,587.00	$7,337,200.00
896	08	081150115602004	(Substructure Rehabilitation)	Rehabilitation	$ 380,408.00	$1,749,300.00
897	08	081280003305031	(Substructure Rehabilitation)	Rehabilitation	$ 610,060.00	$4,284,000.00
918	08	081280010701002	(Superstructure Preservation, Substructure Preservation)	Preservation	$ 213,502.00	$2,494,537.50
941	08	081280015705029	(Substructure Rehabilitation)	Rehabilitation	$ 404,962.00	$2,213,400.00
968	08	081280015705036	(Substructure Rehabilitation)	Rehabilitation	$ 433,722.00	$2,175,277.50
978	08	081280015705038	(Superstructure Preservation, Substructure Preservation)	Preservation	$ 502,806.00	$1,815,727.50
996	08	081280015705048	(Superstructure Preservation, Substructure Preservation)	Preservation	$ 202,934.00	$3,740,000.00
998	08	081280015705049	(Superstructure Preservation, Substructure Preservation)	Preservation	$ 197,327.00	$3,740,000.00
1012	08	081280029605052	(Substructure Preservation)	Preservation	$ 108,318.00	$5,648,250.00
1056	08	081280097408014	(Superstructure Preservation)	Preservation	$ 377,937.00	$1,887,297.50
1075	08	081280203202003	(Substructure Preservation)	Preservation	$ 115,305.00	$3,845,400.00
1092	08	081280203203006	(Substructure Rehabilitation)	Rehabilitation	$ 420,600.00	$4,959,580.00

BrM

	A	B	H	I	J	K	L	M	N	O	P
1	District	NBI#	Rehab vs Replace Cost Percentage	Rehab Cost by Deck Area	Utility After Project	Utility Change	Cost ($k) / Benefit	item_58 deck_rating	item_59 super_rating	item_60 sub_rating	item_62 culvert_rating
587	08	081150000506134	21.80%	$92.66	80	11.22	$ 31,178.13	6	6	6	N
599	08	081150000506135	25.40%	$107.95	80	11.34	$ 35,937.82	6	6	6	N
616	08	081150006901106	4.34%	$18.44	86	6.66	$ 26,030.54	6	7	6	N
624	08	081150006901147	27.50%	$116.87	98	25.49	$ 41,080.58	6	6	6	N
628	08	081150006901148	14.78%	$62.82	93	14.3	$ 46,452.57	6	8	7	N
646	08	081150006901149	12.26%	$52.10	94	14.46	$ 43,184.85	6	7	7	N
658	08	081150006901150	23.34%	$99.19	96	19.24	$ 50,522.19	6	7	6	N
689	08	081150006901151	15.52%	$65.95	94	11.81	$ 54,728.24	6	7	7	N
750	08	081150006901152	2.51%	$10.66	81	4.04	$ 35,347.08	6	7	6	N
804	08	081150006901153	13.66%	$58.06	92	11.67	$ 52,616.31	6	7	7	N
841	08	081150006901154	12.26%	$52.10	91	12.41	$ 50,318.53	6	7	7	N
845	08	081150054804008	24.70%	$104.99	98	23.28	$ 20,642.17	6	6	6	N
877	08	081150066802002	11.27%	$47.88	85	8.67	$ 95,338.82	6	6	6	N
896	08	081150115602004	21.75%	$92.42	79	11.12	$ 34,209.38	7	6	6	N
897	08	081280003305031	14.24%	$60.52	86	11.67	$ 52,275.93	7	7	5	N
918	08	081280010701002	8.56%	$36.37	88	8.69	$ 24,568.79	6	7	6	N
941	08	081280015705029	18.30%	$77.76	88	10.41	$ 38,901.26	7	7	6	N
968	08	081280015705036	19.94%	$84.74	83	9.83	$ 44,122.28	7	7	6	N
978	08	081280015705038	27.69%	$117.69	88	7.64	$ 65,812.42	7	7	7	N
996	08	081280015705048	5.43%	$23.06	86	6.95	$ 29,199.14	6	6	7	N

BrM

	A	B	Q	R	S	T	U	V	W	X	Y
1	District	NBI#	Item 90 prev_insp_date	on/off system	item 49 structure_length	item 52 Deck Width	item 32 Approach Width	Deck Area	latitude item 16	longitude item 17	asset_status_id
587	08	081150000506134	6/15/2023	ON	121	31.2	26	3775.2	32.2638	-101.4366	1
599	08	081150000506135	6/12/2023	ON	121	31.2	26	3775.2	32.2632	-101.4364	1
616	08	081150006901106	6/15/2023	ON	124	75.8	64	9399.2	32.2295	-101.4705	1
624	08	081150006901147	4/10/2024	ON	320	28	26	8960	32.1911	-101.4749	1
628	08	081150006901148	4/12/2024	ON	225	47	45	10575	32.1968	-101.488	1
646	08	081150006901149	4/12/2024	ON	255	47	45	11985	32.1921	-101.5085	1
658	08	081150006901150	4/12/2024	ON	245	40	38	9800	32.2143	-101.5419	1
689	08	081150006901151	4/12/2024	ON	245	40	38	9800	32.2143	-101.5422	1
750	08	081150006901152	4/10/2024	ON	285	47	45	13395	32.1768	-101.4732	1
804	08	081150006901153	4/12/2024	ON	225	47	45	10575	32.1965	-101.4879	1
841	08	081150006901154	4/12/2024	ON	255	47	45	11985	32.192	-101.5085	1
845	08	081150054804008	6/13/2023	ON	91	50.3	45	4577.3	32.2706	-101.6604	1
877	08	081150066802002	6/12/2023	ON	520	33.2	40	17264	32.2577	-101.4315	1
896	08	081150115602004	6/13/2023	ON	120	34.3	32	4116	32.2125	-101.2111	1
897	08	081280003305031	6/8/2023	ON	252	40	38	10080	32.5984	-99.8146	1
918	08	081280010701002	6/8/2023	ON	129	45.5	42	5869.5	32.8807	-99.72967	1
941	08	081280015705029	6/7/2023	ON	124	42	38	5208	32.8933	-99.85463	1
968	08	081280015705036	6/7/2023	ON	121	42.3	38	5118.3	32.8931	-99.85439	1
978	08	081280015705038	6/8/2023	ON	101	42.3	38	4272.3	32.8063	-99.87251	1