



Closing the Loop On Bridge Inspections

Texas Department of Transportation

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Closing the Loop

**Getting the *Proper* Information
to the *Proper* People
in the *Proper* Amount of Time.**



Closing the Loop

Players

- FHWA

As they always say.... “We’re here to help.”*

* FHWA quote, not mine.....



Closing the Loop

Players

- **FHWA**
- **Bridge Division**
 - **Bridge Inspection Project Manager**
 - **Underwater Inspectors**
 - **Fracture Critical Inspectors**
 - **Load Rating Personnel**
 - **Database Personnel**



Closing the Loop

Players

- **FHWA**
- **Bridge Division**
- **District Personnel**
 - **District Bridge Personnel**
 - **District Construction Personnel**
 - **District Maintenance Personnel**
 - **Area Office Personnel**
 - **Maintenance Section Personnel**



Closing the Loop

Players

- **FHWA**
- **Bridge Division**
- **District Personnel**
- **Bridge Inspection Consultants**
 - **27 Consultant Firms**
 - **Project Managers**
 - **Team Leaders**
 - **Inspection Personnel**



Closing the Loop

Players

- **FHWA**
- **Bridge Division**
- **District Personnel**
- **Bridge Inspection Consultants**
- **Others**
 - **Motor Carrier Division**
 - **County Officials**
 - **City Officials**



Closing the Loop

Items

- **Maintenance/Repair Recommendations**
- **Posting Recommendations**
- **Removal of Bridges from the Database**
- **Critical Findings**
- **Special Inspections**



Closing the Loop

Maintenance/Repair Recommendations

Bridge Inspection Follow-up Action Worksheet

- Filled out by the Inspection Consultant
- List of maintenance actions to be performed
- Separate sheet for each bridge

Follow-up Action Worksheet Summary Spreadsheet

- Summary of all bridges inspected in the W/A
- Spreadsheet Format – can be sorted
- Used to prioritize work

On-System Follow-up Action Worksheet

NOTE: Report NBI number for each Reference Feature noted. Each Reference Feature will be another entry line.

Reference Features:														
1. Roadway/Wearing Surf			5. Superstructure – Bearings			9. Substructure - Other			13. Structural Paint System					
2. Roadway – Deck			6. Superstructure – Other			10. Channel & Channel Protection			14. Vertical Clearance Signs					
3. Roadway – Other			7. Substructure – Abutments			11. Retaining Walls or RipRap			15. Other -					
4. Support/Main Member			8. Substructure – Bents & Piers			12. Approaches								
Inspection Date	NBI No.	Feature Carried	Feature Crossed	Main Sect.	Ref. Pos.	1685 Rating		Surf. Rating	Struct. Defec.	Description of Problems	Recommended Action			
						Item	Rating							
03/04	00-00071007	H 35 BR UP LEVEL	HOUSTON ST TO EL PASO ST	00	4		7	00.0		Asphalt grade has heave or slow loading overpass. NMA, AOC, AOT and 100MA.				
03/04	00-00071007	H 35 BR UP LEVEL	HOUSTON ST TO EL PASO ST	00	8		6	00.0		Gravel bed caps and several pins have sheared off with some displacement.				
03/04	00-00071008	H 35 BR UP LEVEL	EL PASO ST TO HOUSTON ST	00				00.0						
03/04	00-00071008	H 35 BR UP LEVEL	GRANDVIEW ST TO LURIED ST	00				00.0						
03/04	00-00071008	H 35 BR UP LEVEL	EL PASO ST TO GRANDVIEW	00				00.0						
03/04	00-00071009	H 35 BR OFF RAMP	PAVING AREA	00	-		-	00.0						
03/04	00-00071010	H 35 BR ON RAMP	PAVING AREA	00	-		-	00.0						
03/04	00-00071011	H 35 BR ON RAMP	PECO ST BR	00	-		-	00.0						
03/04	00-00071012	H 35 BR OFF RP	FLOW. B OF DUNBAR RD	00	12		7	00.0		Vegetation growing over ramp at northeast corner (abutment) abutment slightly.				
03/04	00-00071013	H 35 BR ON RP	FLOW. B OF DUNBAR RD	00	12		7	00.0		Vegetation on flow branches are growing over the bridge at southeast corner.				
03/04	00-00071014	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071015	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071016	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071017	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071018	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071019	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071020	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071021	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071022	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071023	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071024	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071025	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071026	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071027	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071028	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071029	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071030	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071031	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071032	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071033	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071034	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071035	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071036	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071037	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071038	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071039	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071040	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071041	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071042	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071043	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071044	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071045	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071046	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071047	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071048	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071049	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071050	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071051	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071052	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071053	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071054	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071055	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071056	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071057	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071058	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071059	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071060	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071061	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071062	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071063	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071064	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071065	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071066	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071067	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071068	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071069	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071070	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071071	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071072	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071073	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071074	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071075	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071076	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071077	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071078	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071079	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071080	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071081	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071082	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071083	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071084	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071085	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071086	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071087	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071088	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071089	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071090	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071091	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071092	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071093	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071094	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071095	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071096	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071097	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071098	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071099	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						
03/04	00-00071100	H 35 BR ON RAMP	FLOW. B OF DUNBAR RD	00	-		-	00.0						

NOTE: Repeat I

Reference Features:

- | | | |
|--------------------------|---------------------------------|-------------------|
| 1. Roadway/Wearing Surf | 5. Superstructure – Bearings | 9. Substructure - |
| 2. Roadway – Deck | 6. Superstructure – Other | 10. Channel & C |
| 3. Roadway – Other | 7. Substructure – Abutments | 11. Retaining W: |
| 4. Superstr./Main Member | 8. Substructure – Bents & Piers | 12. Approaches |

Inspection Date	NBI No.	Feature Carried	Feature Crossed	Maint. Sect.	Ref. Fea.
12/1/04	15015001710337	IH 35 SB UP LEVEL	HOUSTON ST TO EL PASO ST	10	4
12/1/04	15015001710337	IH 35 SB UP LEVEL	HOUSTON ST TO EL PASO ST	10	8
10/19/04	15015001710338	IH 35 NB UP LEVEL	EL PASO ST. TO HOUSTON ST.	10	
10/15/04	15015001710339	IH 35 SB UP LEVEL	GUADALUPE ST TO S LAREDO	10	
10/15/04	15015001710340	IH 35 NB UP LEVEL	S LAREDO ST TO GUADALUPE	10	
10/15/04	15015001710341	IH 35 SB OFF RAMP	PARKING AREA	10	-
10/15/04	15015001710342	IH 35 NB ON RAMP	PARKING AREA	10	-
10/6/04	15015001710344	IH 35 SB UL OFF RP	PECOS ST SB	10	-
10/6/04	15015001710345	IH 35 NB OFF RP	R.O.W. S OF DURANGO BLVD	10	12
10/6/04	15015001710346	IH 35 NB ON RP	R.O.W. N OF DURANGO BLVD	10	12
10/15/04	15015001710347	IH 35 SB UL OFF RP	IH 35 ON-RP & GUADALUPE	10	-
10/15/04	15015001710348	IH 35 SB ON RP	R.O.W. NEAR LEONA/FRT.RD	10	-

On-System Follow-up Action Worksheet

NBI number for each Reference Feature noted. Each Reference Feature will be another entry line.

- Other
- Channel Protection
- alls or RipRap
- 13. Structural Paint System
- 14. Vertical Clearance Signs
- 15. Other -

1085 Rating		Suff. Rating	Struct. Defec.	Description of Problem
Item	Rating			
	7	96.0		Segmental girders have hairline or minor cracking over piers AA1A , AA31, AA37 and BB1A.
	6	96.0		Straddle bent caps and several piers have minor cracking with some efflorescence.
		95.0		
		95.0		
		96.0		
	-	96.5		
	-	96.5		
	-	96.0		
	7	97.0		Vegetation growing over railing at northeast corner limits sight distance slightly.
	7	98.0		Vegetation and tree branches are growing over the railings at southeast corner.
	-	96.5		
	-	98.5		



Closing the Loop

Maintenance/Repair Recommendations

Bridge Inspection Follow-up Action Worksheet

- **Submitted to the Bridge Coordinator**
- **Submitted to the Area Offices???**
- **Submitted to the Maintenance Sections????**

Follow-up Action Worksheet Summary Spreadsheet

- **Submitted to the Bridge Coordinator**
- **Submitted to District Maintenance Directors???**
- **Submitted to the Maintenance Sections ????**



Closing the Loop

Posting Recommendations – On-system

- **Load Rating performed by consultants on bridges with elements rating 4 or less.**
- **Item 41 “Operational Status” coded a “B”**
- **LR is submitted to the Bridge Coordinator**
- **Load Posting request submitted to BRG**
- **LP reviewed by BRG**
- **LP Minute Order submitted to Commission**
- **Commission Approves Minute Order**
- **District erects signs at the structure**
- **Bridge Coordinator codes Item 41 a “P”**



Closing the Loop

Posting Recommendations

- **Make sure the consultant rates the proper element**
- **Submit all the necessary documents**



RECOMMENDED CHANGE IN BRIDGE LOAD POSTING

District No: _____ County No: _____ Cont.-Sect: _____ - _____ Structure No: _____

Facility Carried: _____

Feature Crossed: _____

Structure Description: _____

Reason for Recommended Posting: _____

Existing Operational Status: _____

Recommended Load Posting: _____

Attachments for proposed new limit or reduction of current limit:

- Most recent routine safety inspection report
- As-built plans
- Load rating calculations

Bridge Division Use Only:

Date Request Received: _____

Request Approved Disapproved Initials: _____ Date: _____

Recommended Load Posting: _____

Minute Order Number: _____ Date Passed: _____

District Notification Date: _____ Date Signs Erected/Removed: _____



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Posting Recommendations – On-system

- **Make sure the consultant rates the proper element**
- **Submit all the necessary documents**
- **Post sign only after Commission approval**
- **Make sure to change Item 41**
- **Have Permit Coordinator contact MCD**
- **If posting status changes (repair/replace), resubmit form 1083**



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Posting Recommendations – On-system

There are bridges on MCD load posted bridge maps that are not legally posted (Commission approved). All posting requests must go through BRG and the Commission. Do not “unofficially” post a bridge by calling MCD.



Closing the Loop

Posting Recommendations – Off-system

- **Load Rating performed by consultants on all off-system bridges. If warranted, Posting Request submitted to Bridge Coordinator.**
- **Item 41 “Operational Status” coded a “B”**
- **Bridge Coordinator contacts the Owner**
- **TxDOT provides LP signs to Owner**
- **Owner erects signs at the structure**
- **Bridge Coordinator codes Item 41 a “P”**



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Posting Recommendations – Off-system

- Owners may “challenge” the LP. They must provide engineering calculations to have LP changed.
- Document with pictures, date and locations of signs when they are erected.
- If recommendation is to CLOSE a bridge and the Owner refuses, contact the Bridge Division.



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Removal of Bridges from the Database On-system

**Earlier this year we were asked to comment on 12
CLOSED on-system bridges that were in our
database.**



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Removal of Bridges from the Database On-system

- **11 were Closed but had new bridges carrying the traffic**
- **1 was Closed to traffic but was left in place because of utilities mounted on the structure**
- **All were showing up as Structurally Deficient**



Closing the Loop

Removal of Bridges from the Database On-system

- **11 were Closed but had new bridges carrying the traffic Don't wait until the next inspection cycle to remove the structure from the database**
- **1 was Closed to traffic but was left in place because of utilities mounted on the structure Recode as a utility structure**
- **This could take 12 Structurally Deficient bridges out of the Database.**



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Removal of Bridges from the Database Off-system

Many off-system bridges are closed but remain on the database because the owners may want to get funding in the future to repair/replace.



Closing the Loop

Removal of Bridges from the Database Off-system

Many off-system bridges are closed but remain on the database because the owners may want to get funding in the future to repair/replace.

Most, if not all, of these bridges are Structurally Deficient. Check with the owners, if they have no intention of rehab/replacement, remove them.



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Critical Findings

- **FHWA* requires that we submit a list of bridge with “critical findings”- elements rated 4 or less**
- **The new Bridge Inspection contract requires the consultants to report all critical findings to the Districts and BRG**
- **Review your files and make sure that these Critical Findings are being reported to BRG**



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Special Inspections

- **Underwater** – review the channel profile. If there are elements in more than 4 feet of water and not receiving an UW inspection, contact BRG.
- **Fracture Critical** – if you have a steel bridge with members in tension that are not load path redundant and they are not receiving a FC inspection, contact BRG



Closing the Loop

Final Comments













Questions.....