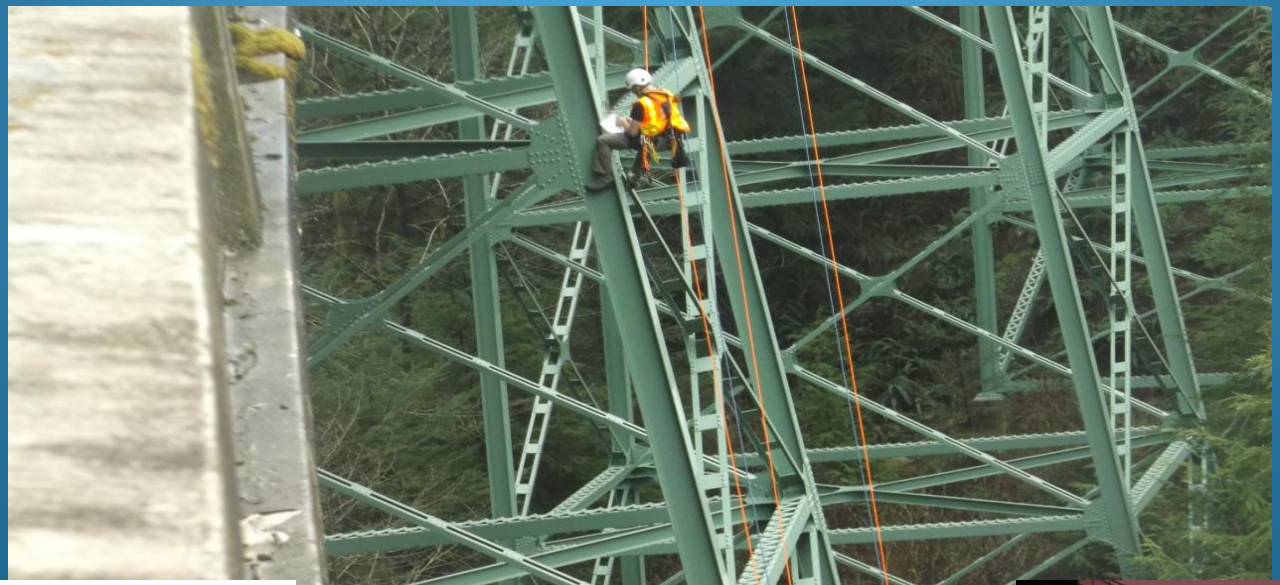
OREGON HIGHWAY BRIDGE MAINTENANCE A PILOT TRAINING COURSE / WORKSHOP

Bridge Inspection Report and Maintenance Recommendations Review

JEFF SWANSTROM, P.E.



OACES
OREGON ASSOCIATION OF COUNTY ENGINEERS AND SURVEYORS

Bridge Inspection Report and Maintenance Recommendations Review

PURPOSE:

To familiarize the end users of the bridge inspection reports (BIR) with the new Federal and AASHTO requirements for bridge inspection and how it affects the Local Agency Bridge Inspection Program.

Bridge Inspection Report and Maintenance Recommendations Review

OBJECTIVES:

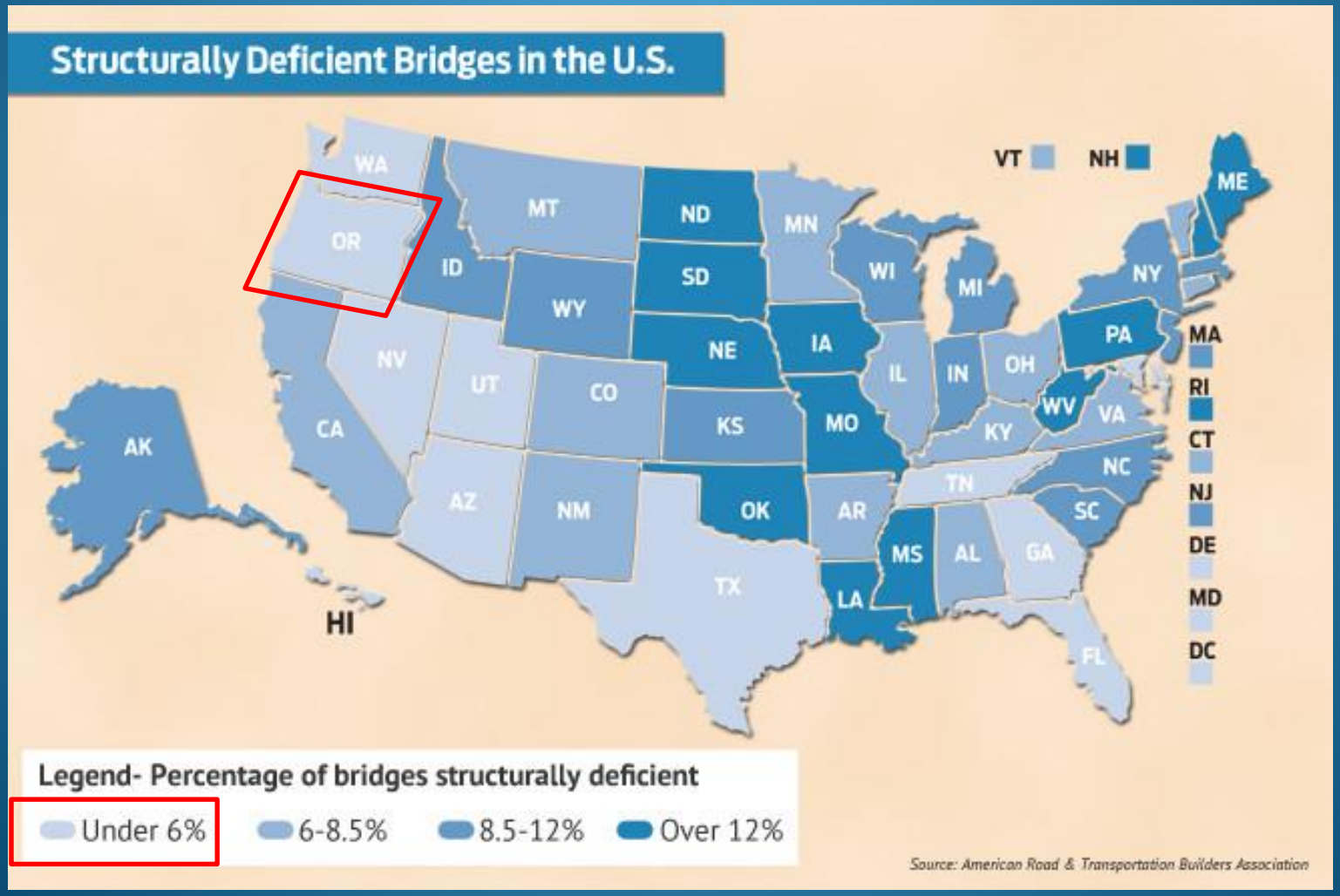
- Identify the changes in the ODOT Bridge Inspection Program
- Understand how the changes affect the format of the bridge inspection report (BIR)
- Identify the new bridge element and defect language of AASHTO and the National Bridge Inspection Standards (NBIS)

Bridge Inspection Report and Maintenance Recommendations Review

OBJECTIVES:

- Review Maintenance Recommendations and Remarks
- Generating Maintenance Reports from the Bridge Management System (BrM)
- National Bridge Inventory (NBI), Structure Inventory and Appraisal Sheet (SI & A)
- Load Rating Information
- Temporary versus Permanent Repairs

Bridge Inspection Report and Maintenance Recommendations Review



Bridge Inspection Report and Maintenance Recommendations Review

- With more than 600,000 bridges in the U.S., many of them reaching their original 50-year design lives, the need to ensure safety and prioritize repair/replacement projects is ever apparent.
- Complete, thorough and accurate data from the BIR is the foundation of an effective bridge management system.
- The BIR helps agencies determine the state of their infrastructure and prioritization of funding for bridge rehabilitation and replacement.

Bridge Inspection Report and Maintenance Recommendations Review

(New Bridge Element and Defect Language)

ODOT CODING GUIDE
(March 2015)

Where To Find:

Bridge Elements

Defects

Condition State Definitions

https://www.oregon.gov/ODOT/Bridge/Documents/Bridge_manuals/codingguide2015.pdf

Bridge Inspection Report and Maintenance Recommendations Review

(New Bridge Element and Defect Language)

Reinforced Concrete Elements

Reinforced Concrete Elements

12	Deck	SF	B
16	Top Flange	SF	B
38	Slab	SF	B
105	Closed Web/Box Girder	LF	A
110	Open Girder/Beam	LF	A
116	Stringer (stringer/floorbeam system)	LF	A
144	Arch (arch ribs and spandrel columns)	LF	C
155	Floor Beam	LF	A
205	Column	EA	C
210	Pier Wall	LF	C
215	Abutment	LF	C
220	Pile Cap/Footing	LF	C
(221)	Spread Footing	LF	C
(223)	Footing Seal	LF	C
227	Pile	EA	C
234	Pier Cap	LF	A
241	Culvert	LF	D
321	Approach Slab	SF	E
331	Bridge Railing	LF	A
(993)	Fender System	EA	C

Applicable Defects

A	1080+1090+1120+1130+1142+7000
B	A+1081+1131+1181+1190
C	A+1190+4000+6000
D	C+1900
E	1080+1090+1130+1181+1190+4000+7000

24

CS Definitions (Deterioration Paths & Thresholds)

Defects	CS1 (Good)	CS2 (Fair)	CS3 (Poor)	CS4
Spalls/Delams Patches (1080)	None	Delams / spalls <1" deep or < 6" diameter Patches sound	Spall > 1" deep or > 6" diameter Patch not sound	Warrants Structural Review to determine the strength or serviceability
Soffit Spalls/Delams/ Patches (1081)	See defect 1080	See defect 1080	See defect 1080	
Exposed Conc. Rebar (1090)	None	Present w/o measurable section loss	Present with section loss	
Efflorescence/ Rust Staining (1120)	None	White no build up/rust stains or deck cracks effectively sealed	Heavy build-up with rust staining	
Cracks (RC / Other) (1130)	< 0.012in. or > 3ft apart	0.012 - 0.05" or 1 to 3ft apart or injected with epoxy	> 0.05" or < 1ft apart	
Soffit Cracking (RC, PSC) (1131)	See defect 1130	See defect 1130	See defect 1130	
Wheel Track Rutting (1181)	None	Wheel track rut patching present	Rutting is causing water to pond depth > 1"	
Abrasion/ Wear (1190)	None	Coarse aggregate exposed, but aggregate secure in concrete	Coarse aggregate loose or popped out	
Distortion (1900)	None	Exists but no mitigation required or is mitigated	Exists Mitigation req'd	

25

Bridge Inspection Report and Maintenance Recommendations Review

(Bridge Element and Defect Condition State Descriptions)

Four Condition States (CS) for all elements

- CS1 is pristine condition-do nothing,
- CS2 is fair condition
- CS3 is in poor condition – typically this requires an associated maintenance item
- CS4 is failed-perform analysis

Each Element has associated defects

- Defects quantities determine the overall condition of the element

Bridge Inspection Report and Maintenance Recommendations Review

(New Bridge Element and Defect Language)

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CONDITON STATE 1

Bridge Inspection Report and Maintenance Recommendations Review

(New Bridge Element and Defect Language)

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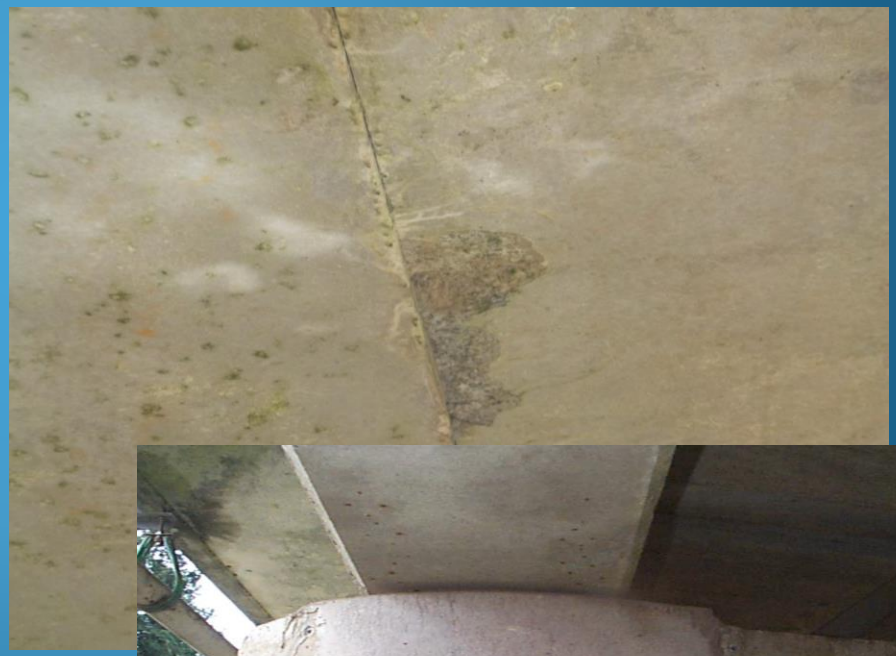
CONDITON STATE 2



Bridge Inspection Report and Maintenance Recommendations Review

(New Bridge Element and Defect Language)

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CONDITON STATE 3

Bridge Inspection Report and Maintenance Recommendations Review

(New Bridge Element and Defect Language)

CONDITON STATE 4

CS Definitions (Deterioration Paths & Thresholds)

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Bridge Inspection Report and Maintenance Recommendations Review

(New Bridge Element and Defect Language)

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CONDITON STATE 1

Bridge Inspection Report and Maintenance Recommendations Review

(New Bridge Element and Defect Language)

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CONDITON STATE 2

Bridge Inspection Report and Maintenance Recommendations Review

(New Bridge Element and Defect Language)

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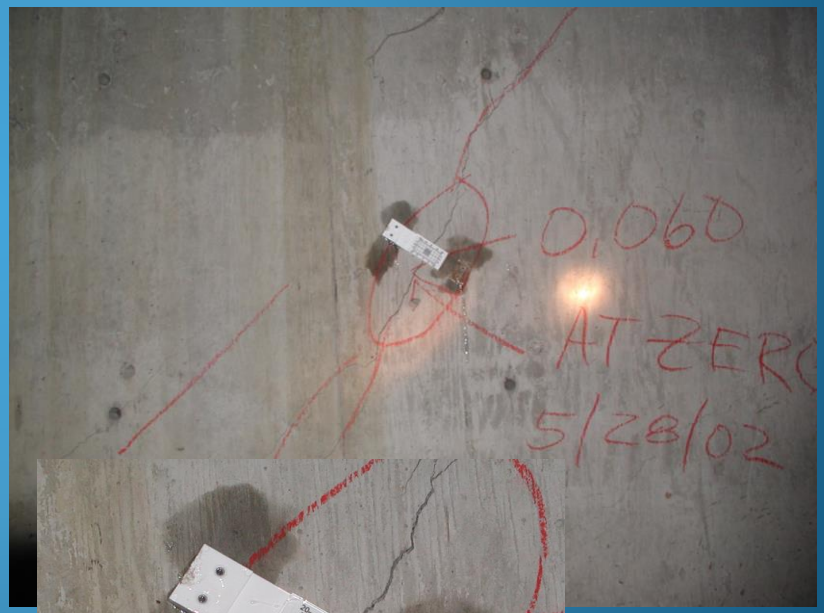
CONDITON STATE 3



Bridge Inspection Report and Maintenance Recommendations Review

(New Bridge Element and Defect Language)

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CONDITON STATE 4

Bridge Inspection Report and Maintenance Recommendations Review

Quantities

Bridge Element

Defects

4 Condition States

Oregon Department of Transportation

Bridge Inspection Report

District :	7	**Structure :**	Creek & CORP, Hwy 35 (Shady)	**Bridge ID :**	02173A
Fac Crossed :	CORP	**Owner :**	State Highway Agency	**Fac Carried :**	OR 42 (HWY 035)
Suff Rating :	75.7	**County :**	Douglas	**Mile Point :**	75.99 mi
AC Depth :	0.00	**Record Type :**	1	**Insp Date :**	04/18/2018
Bridge Length :	370.00 ft	**Insp Freq :**	24	**Inspector 1 :**	JOSH LONIE (S0037)
		Bridge Width :	98.50 ft	**Inspector 2 :**	Josh Beattie (832)

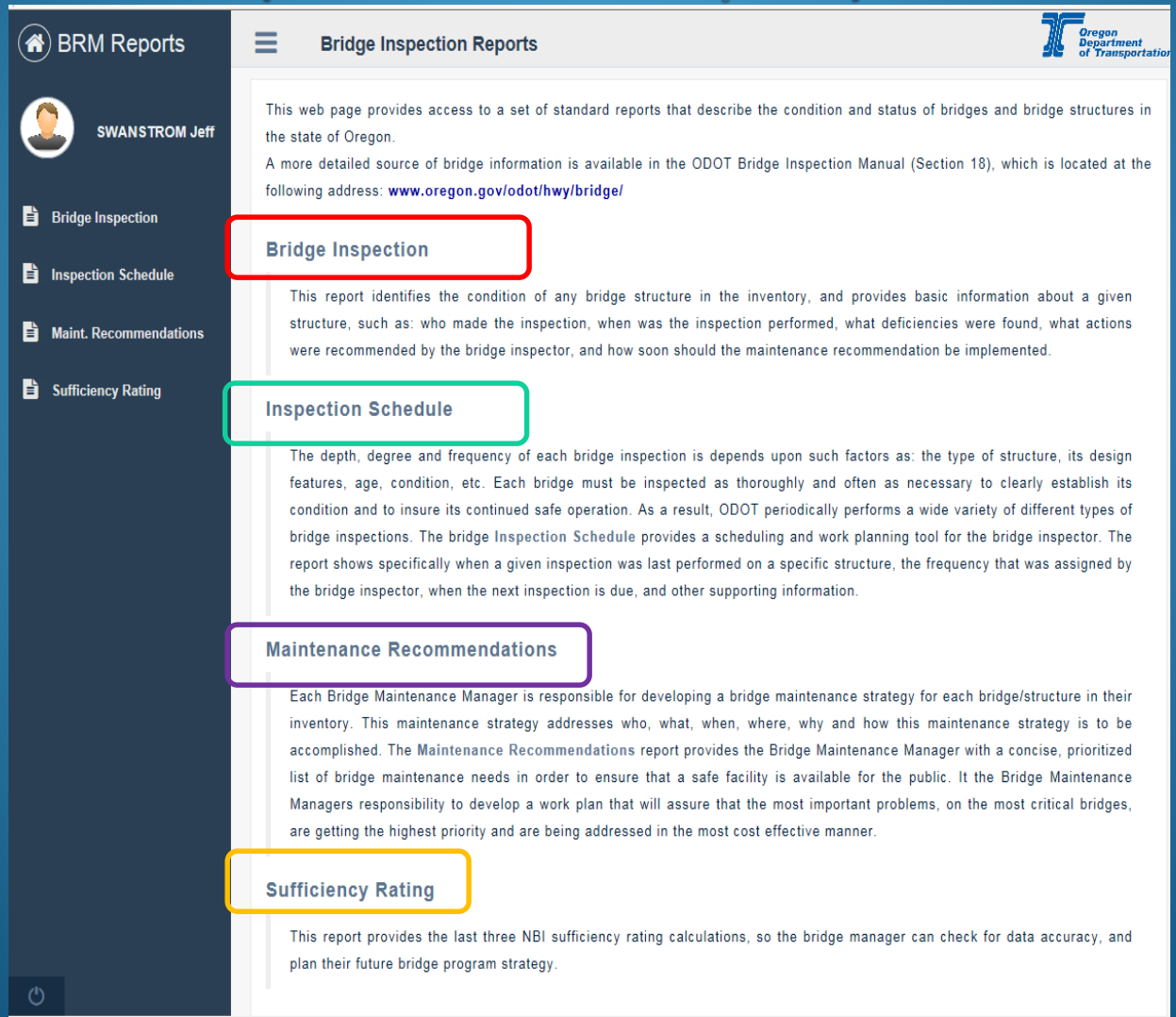
Signature: _____

Element Condition States (New AASHTO report)

Element	Structure Unit	Environment	Quantity	Units	CS 1	CS 2	CS 3	CS 4
12-Re Concrete Deck	**1**	**3**	**36445**	**(SF)**	**36225**	**220**	**0**	**0**
1080-Delamination/Spall/Patched Area	1	3	200	(SF)	0	200	0	0
1120-Efflorescence/Rust Staining	1	3	20	(SF)	0	20	0	0
1130-Cracking (RC and Other)	1	3	4550	(SF)	4550	0	0	0
1131-Soffit Cracking (RC, PSC)	1	3	100	(SF)	100	0	0	0
521-Conc Prot Coating	1	3	31820	(SF)	31820	0	0	0
109-Pre Opn Conc Girder/Beam	**1**	**3**	**4070**	**(LF)**	**4036**	**33**	**1**	**0**
1080-Delamination/Spall/Patched Area	1	3	1	(LF)	0	0	1	0
1110-Cracking (PSC)	1	3	33	(LF)	0	33	0	0
205-Re Conc Column	**1**	**3**	**12**	**(EA)**	**12**	**0**	**0**	**0**
215-Re Conc Abutment	**1**	**3**	**285**	**(LF)**	**284**	**1**	**0**	**0**
1080-Delamination/Spall/Patched Area	1	3	1	(LF)	0	1	0	0
1130-Cracking (RC and Other)	1	3	8	(LF)	8	0	0	0
234-Re Conc Pier Cap	**1**	**3**	**418**	**(LF)**	**418**	**0**	**0**	**0**
1130-Cracking (RC and Other)	1	3	12	(LF)	12	0	0	0

Bridge Inspection Report and Maintenance Recommendations Review

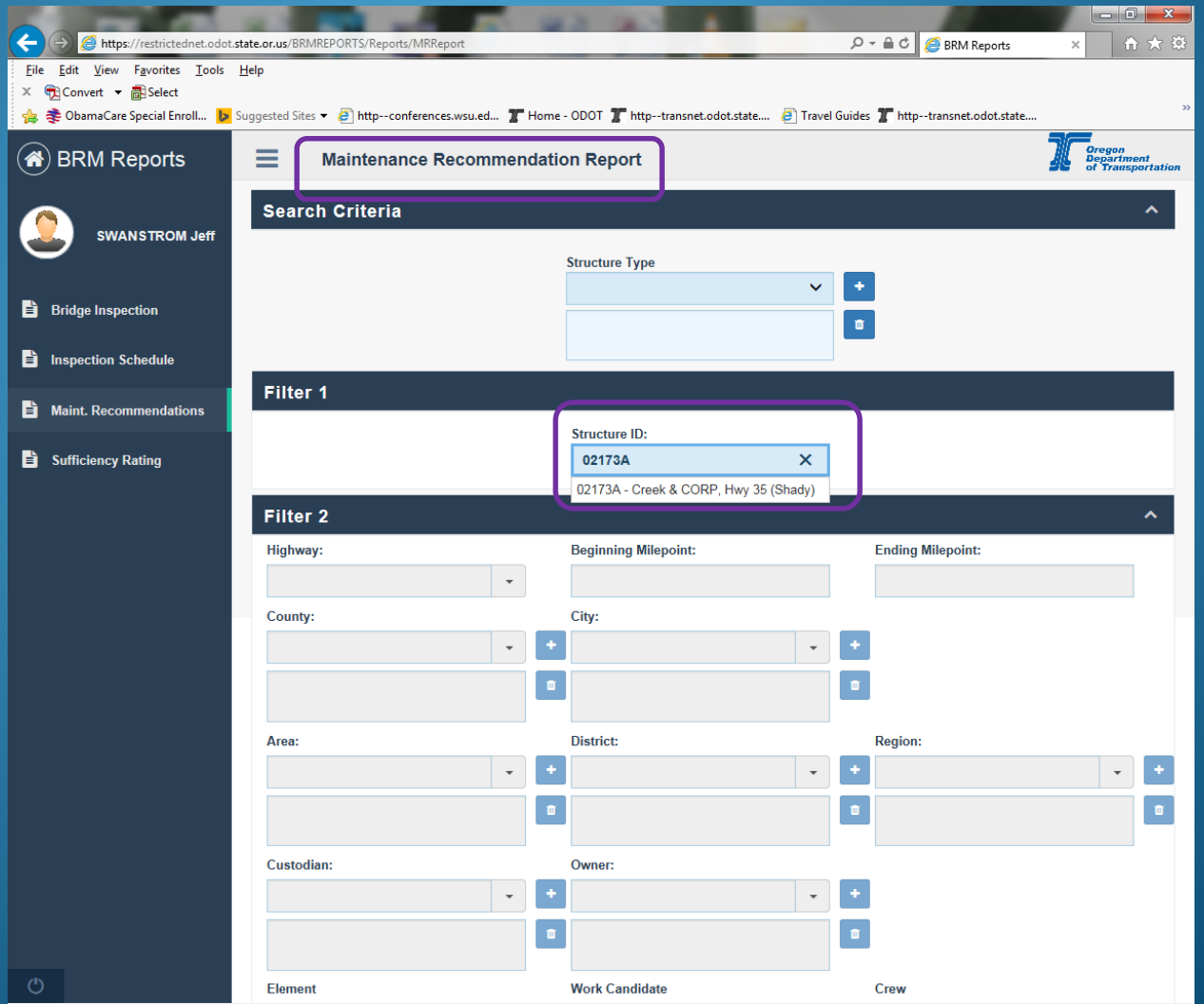
(Access to BRM Reports)



Bridge Inspection Report and Maintenance Recommendations Review

(Access to BRM Reports)

- Helpful to generate maintenance data and work prioritization for local agency and state crews



Bridge Inspection Report and Maintenance Recommendations Review

(Access to BRM Reports)

Maintenance Recommendations for br. no. 02173a

Oregon Department of Transportation

Maintenance Recommendation Report - 2/27/2019

Disclaimer: The data on these state highway bridges/structures is being released only for use on the (name of the project) you are working on. This data cannot be further released without permission from Oregon DOT in accordance with ORS192.501(22), exemption from disclosure due to risk of operational vulnerability. Please treat these files as confidential.

Search Criteria:

Bridge Id:	02173A	Highway:		City:	
County:		Area:		Regions :	
District:		Custodians:		Owners :	
Element:		Priority:		Status :	
Crew :		Work Candidate :		Estimated Cost :	

Note: Completed items not included on default search.

Region	District	Highway	MilePost	Structure Id	Structure Name	City	County	Custodian	Owner
3	07	035	75.99 MI	02173A	Creek & CORP, Hwy 35 (Shady)	UNKNOWN	Douglas	State Highway Agency	State Highway Agency

Priority	Crew	Work Candidate	Notes	Est. Cost	Status	Rec Date
Routine/Schedule	Coos Bay Bridge Crew	109 Patch Concrete	Patch the spall in Span 1 - Girder 10 at Bent 1.		Approved	04/21/2014
Routine/Schedule	Coos Bay Bridge Crew	302 Reseal Joint	Replace the missing sections of the joint seals in the median section of the Bent 1 joint and the sidewalk portions of the Bent 1 & 5 joint seals.		Approved	04/21/2014

For support, please contact the ODOT Computer Support Desk 503-986-3355.

Release 0.1 Oct 2017

Bridge Inspection Report and Maintenance Recommendations Review

(Access to BRM Reports)

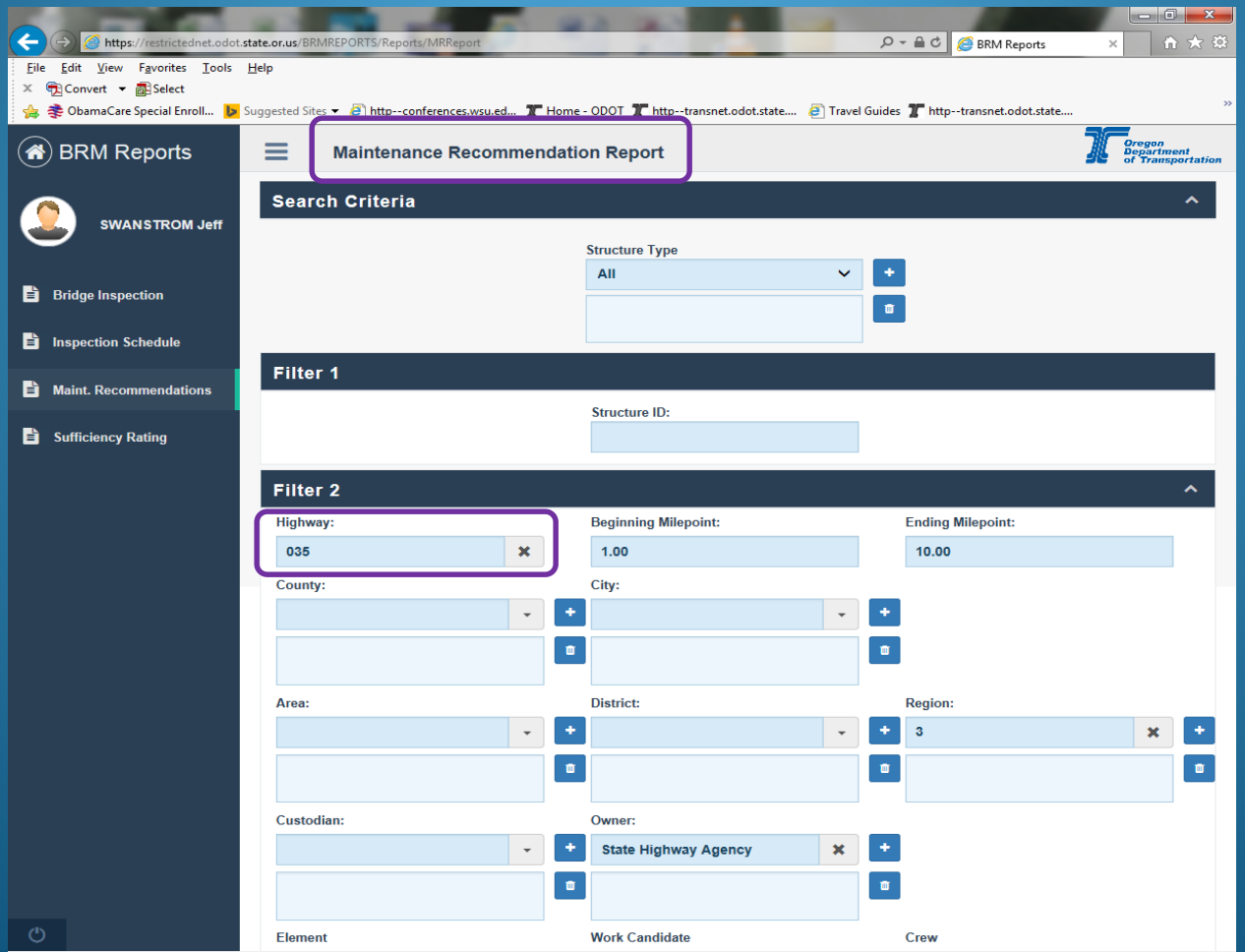
Maintenance Recommendations for br. no. 02173a

A	B	C	D	E	F	G	I	J	K	L	M	N	O	P	Q	R
Region	District	Highway	MilePoint	StructureID	StructureName	County	Custodian	Owner	Priority	Crew	WrkCnd	IWC_NOTES	Est_Cost	Status	RecDate	NBI
3	07	035	75.99 MI	02173A	Creek & CORP, Hwy 35 (Shady)	Douglas	State Highway Agency	State Highway Agency	Routine/Schedule	Coos Bay Bridge Crew	109 Patch Concrete	Patch the spall in Span 1 - Girder 10 at Bent 1.		Approved	4/21/2014	Y
3	07	035	75.99 MI	02173A	Creek & CORP, Hwy 35 (Shady)	Douglas	State Highway Agency	State Highway Agency	Routine/Schedule	Coos Bay Bridge Crew	302 Reseal Joint	Replace the missing sections of the joint seals in the median section of the Bent 1 joint and the sidewalk portions of the Bent 1 & 5 joint seals.		Approved	4/21/2014	Y

Bridge Inspection Report and Maintenance Recommendations Review

(Access to BRM Reports)

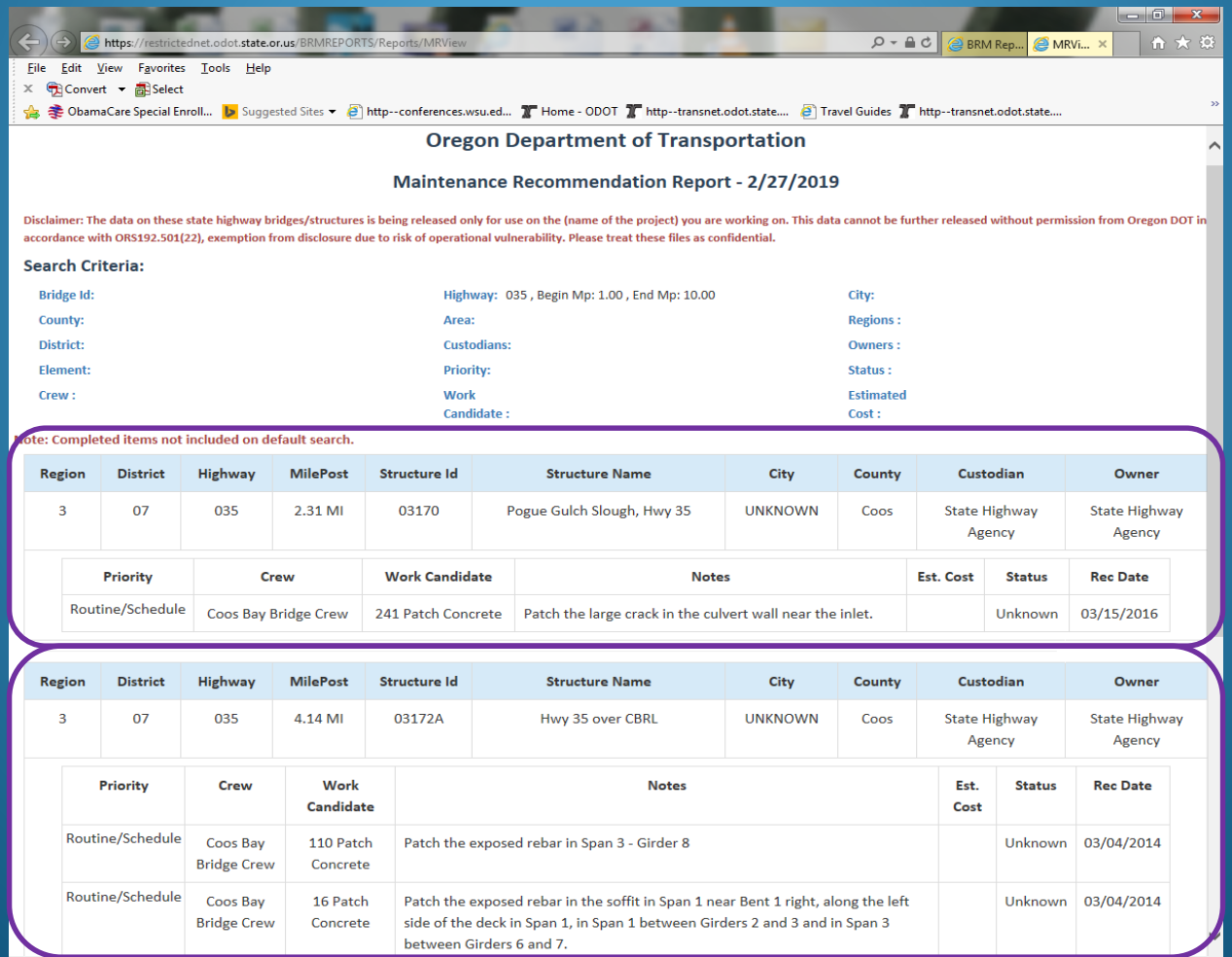
Maintenance Recommendations for Highway 35



Bridge Inspection Report and Maintenance Recommendations Review

(Access to BRM Reports)

Maintenance Recommendations for Highway 35



https://restrictednet.odot.state.or.us/BRMREPORTS/Reports/MRView

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Oregon Department of Transportation

Maintenance Recommendation Report - 2/27/2019

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Search Criteria:

Bridge Id:	Highway: 035 , Begin Mp: 1.00 , End Mp: 10.00	City:
County:	Area:	Regions :
District:	Custodians:	Owners :
Element:	Priority:	Status :
Crew :	Work Candidate :	Estimated Cost :

Note: Completed items not included on default search.

Region	District	Highway	MilePost	Structure Id	Structure Name	City	County	Custodian	Owner
3	07	035	2.31 MI	03170	Pogue Gulch Slough, Hwy 35	UNKNOWN	Coos	State Highway Agency	State Highway Agency

Priority	Crew	Work Candidate	Notes	Est. Cost	Status	Rec Date
Routine/Schedule	Coos Bay Bridge Crew	241 Patch Concrete	Patch the large crack in the culvert wall near the inlet.		Unknown	03/15/2016

Region	District	Highway	MilePost	Structure Id	Structure Name	City	County	Custodian	Owner
3	07	035	4.14 MI	03172A	Hwy 35 over CBRL	UNKNOWN	Coos	State Highway Agency	State Highway Agency

Priority	Crew	Work Candidate	Notes	Est. Cost	Status	Rec Date
Routine/Schedule	Coos Bay Bridge Crew	110 Patch Concrete	Patch the exposed rebar in Span 3 - Girder 8		Unknown	03/04/2014
Routine/Schedule	Coos Bay Bridge Crew	16 Patch Concrete	Patch the exposed rebar in the soffit in Span 1 near Bent 1 right, along the left side of the deck in Span 1, in Span 1 between Girders 2 and 3 and in Span 3 between Girders 6 and 7.		Unknown	03/04/2014

Bridge Inspection Report and Maintenance Recommendations Review

(Access to BRM Reports)

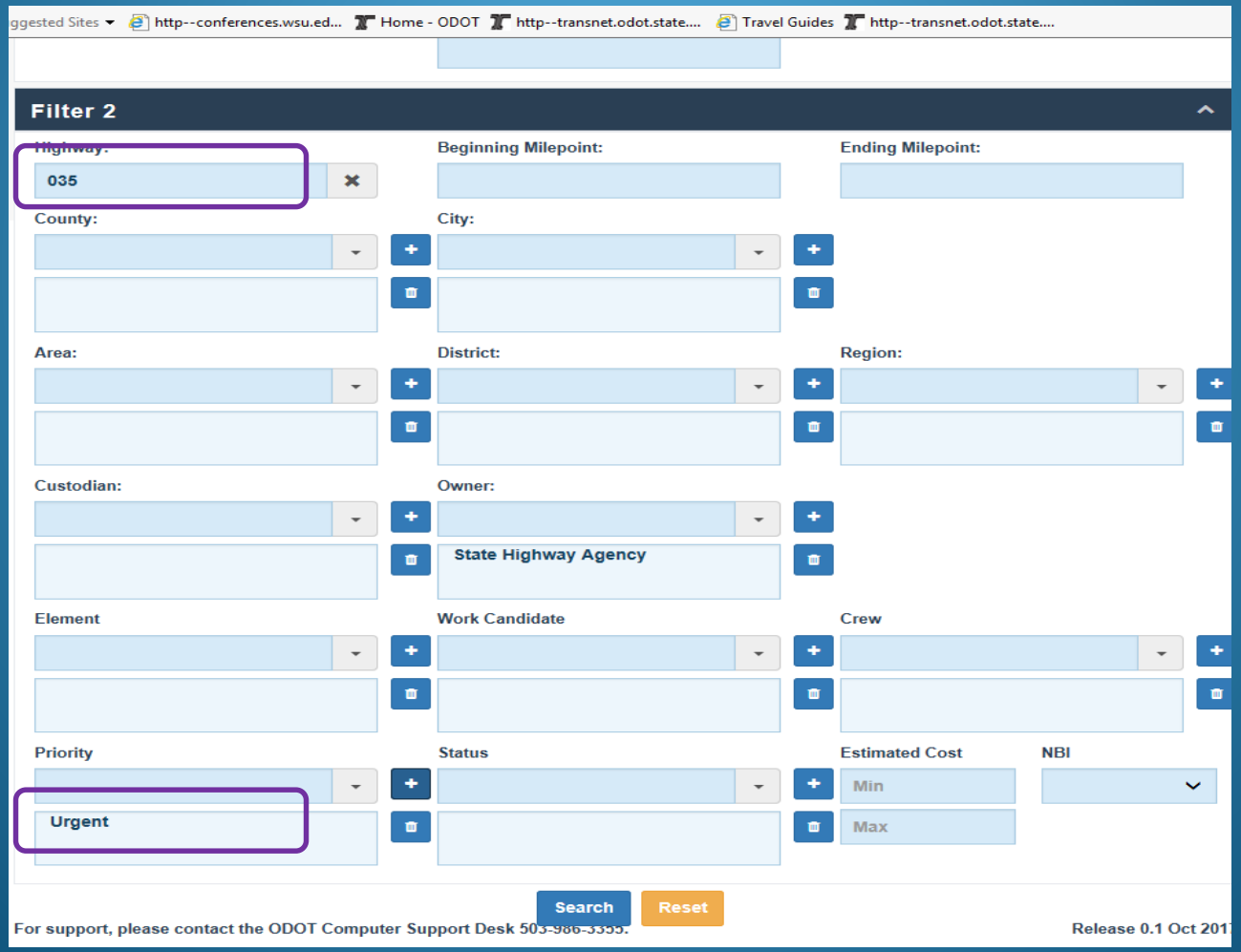
Maintenance Recommendations for Highway 35

Region	District	Highway	MilePoint	StructureID	StructureName	County	Custodian	Owner	Priority	Crew	WrkCnd	IWC_NOTES	Est_Cost	Status	RecDate	NBI
3	07	035	2.31 MI	03170	Pogue Gulch Slough, Hwy 35	Coos	State Highway Agency	State Highway Agency	Routine/Schedule	Coos Bay Bridge Crew	241 Patch Concrete	Patch the large crack in the culvert wall near the inlet.		Unknown	3/15/2016	N
3	07	035	4.14 MI	03172A	Hwy 35 over CBRL	Coos	State Highway Agency	State Highway Agency	Routine/Schedule	Coos Bay Bridge Crew	110 Patch Concrete	Patch the exposed rebar in Span 3 - Girder 8		Unknown	3/4/2014	Y
3	07	035	4.14 MI	03172A	Hwy 35 over CBRL	Coos	State Highway Agency	State Highway Agency	Routine/Schedule	Coos Bay Bridge Crew	16 Patch Concrete	Patch the exposed rebar in the soffit in Span 1 near Bent 1 right, along the left side of the deck in Span 1, in Span 1 between Girders 2 and 3 and in Span 3 between Girders 6 and 7.		Unknown	3/4/2014	Y
3	07	035	5.37 MI	03173A	Beaver Creek, Hwy 35 EB	Coos	State Highway Agency	State Highway Agency	Routine/Schedule	Coos Bay Bridge Crew	16 Patch Concrete	Patch the exposed rebar in the Span 22 right overhang soffit.		Unknown	3/4/2014	Y
3	07	035	5.67 MI	03174	Coaledo Marsh & Cattlepass, Hwy 35 at MP 5.67	Coos	State Highway Agency	State Highway Agency	Monitor	Region 3 Inspectors	Bridge Other	Monitor the invert for corrosion holes developing.		Unknown	3/14/2016	N

Bridge Inspection Report and Maintenance Recommendations Review

(Access to BRM Reports)

URGENT Maintenance Recommendations for Highway 35



Bridge Inspection Report and Maintenance Recommendations Review

(Access to BRM Reports)

URGENT Maintenance Recommendations for Highway 35

Oregon Department of Transportation

Maintenance Recommendation Report - 2/28/2019

Disclaimer: The data on these state highway bridges/structures is being released only for use on the (name of the project) you are working on. This data cannot be further released without permission from Oregon DOT in accordance with ORS192.501(22), exemption from disclosure due to risk of operational vulnerability. Please treat these files as confidential.

Search Criteria:

Bridge Id:	Highway: 035	City:
County:	Area:	Regions :
District:	Custodians:	Owners : State Highway Agency
Element:	Priority:	Status :
Crew :	Work Candidate :	Estimated Cost :

Note: Completed items not included on default search.

Region	District	Highway	MilePost	Structure Id	Structure Name	City	County	Custodian	Owner
3	07	035	35.57 MI	0P212	Frenchie Creek, Hwy 35	UNKNOWN	Coos	State Highway Agency	State Highway Agency

Priority	Crew	Work Candidate	Notes	Est. Cost	Status	Rec Date
Urgent	Coos Bay Bridge Crew	240 Replace	Replace the culvert.	0	Unknown	09/29/2018

For support, please contact the ODOT Computer Support Desk 503-986-3355.

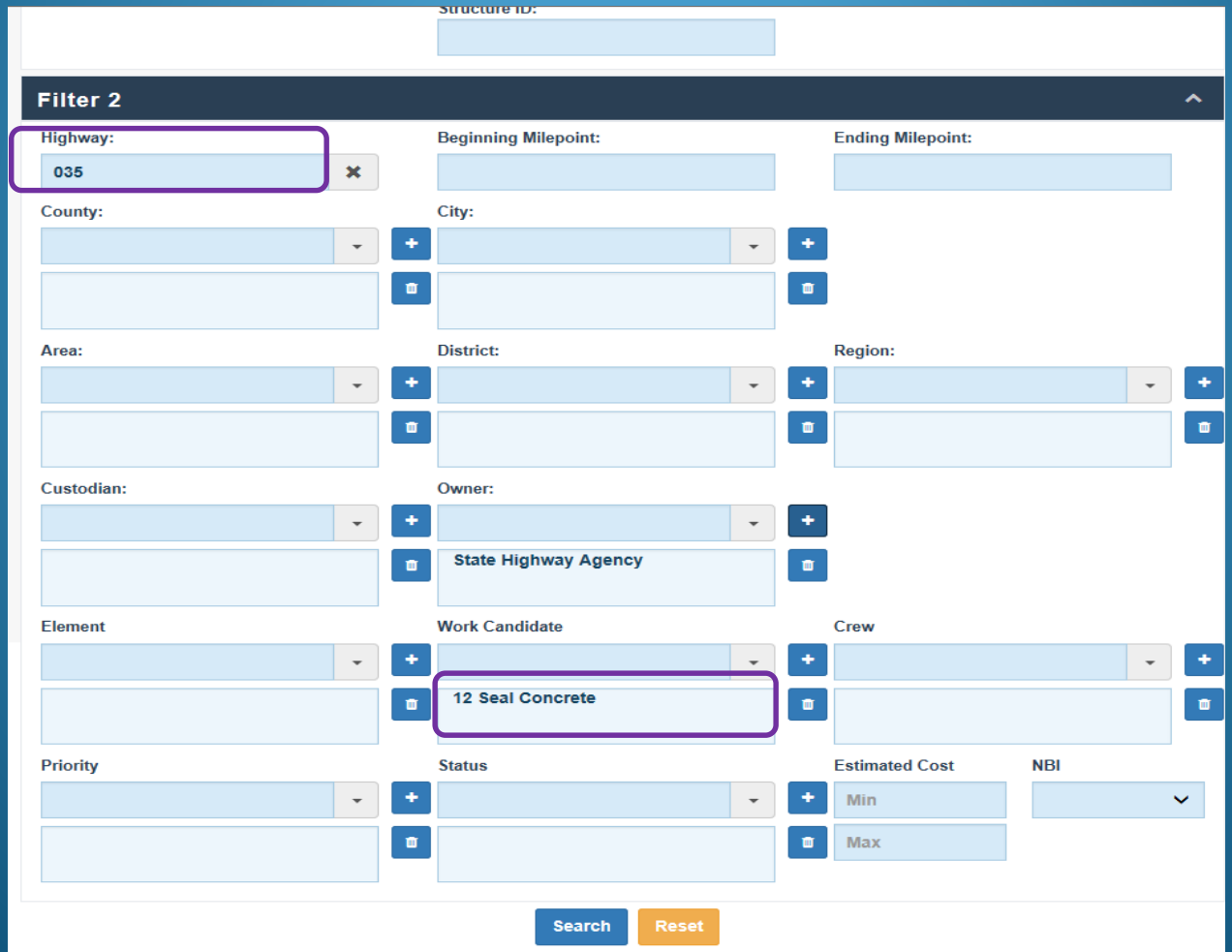
Release 0.1 Oct 201

A	B	C	D	E	F	G	I	J	K	L	M	N	O	P	Q	R
Region	District	Highway	MilePoint	StructureID	StructureName	County	Custodian	Owner	Priority	Crew	WrkCnd	IWC_NOTES	Est_Cost	Status	RecDate	NBI
3	07	035	35.57 MI	0P212	Frenchie Creek, Hwy 35	Coos	State Highway Agency	State Highway Agency	Urgent	Coos Bay Bridge Crew	240 Replace	Replace the culvert.	0	Unknown	9/29/2018	N

Bridge Inspection Report and Maintenance Recommendations Review

(Access to BRM Reports)

DECK SEAL Maintenance Recommendations for Highway 35



Bridge Inspection Report and Maintenance Recommendations Review

(Access to BRM Reports)

DECK SEAL Maintenance Recommendations for Highway 35

Oregon Department of Transportation

Maintenance Recommendation Report - 3/4/2019

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Search Criteria:

Bridge Id:		Highway:	035	City:	
County:		Area:		Regions :	
District:		Custodians:		Owners :	State Highway Agency
Element:		Priority:		Status :	
Crew :		Work Candidate :		Estimated Cost :	

Note: Completed items not included on default search.

Region	District	Highway	MilePost	Structure Id	Structure Name	City	County	Custodian	Owner
3	07	035	43.58 MI	09216	Middle Fork Coquille River, Hwy 35 at MP 43.58	UNKNOWN	Coos	State Highway Agency	State Highway Agency

Priority	Crew	Work Candidate	Notes	Est. Cost	Status	Rec Date
Routine/Schedule	Coos Bay Bridge Crew	12 Seal Concrete	Seal the deck.		Unknown	03/23/2016

Region	District	Highway	MilePost	Structure Id	Structure Name	City	County	Custodian	Owner
3	07	035	51.08 MI	16412	Middle Fork Coquille River, Hwy 35 at MP 51.85	UNKNOWN	Douglas	State Highway Agency	State Highway Agency

Priority	Crew	Work Candidate	Notes	Est. Cost	Status	Rec Date
Routine/Schedule	Coos Bay Bridge Crew	12 Seal Concrete	Seal the deck.		Unknown	04/13/2016

Region	District	Highway	MilePost	Structure Id	Structure Name	City	County	Custodian	Owner
3	07	035	52.16 MI	16606	Middle Fork Coquille River, Hwy 35 at MP 52.90	UNKNOWN	Douglas	State Highway Agency	State Highway Agency

Bridge Inspection Report and Maintenance Recommendations Review

(Access to BRM Reports)

DECK SEAL Maintenance Recommendations for Highway 35

Region	District	Highway	MilePoint	StructureID	StructureName	County	City	Custodian	Owner	Priority	Crew	WrkCnd	IWC_NOTES	Est_Cost	Status	RecDate	NBI
3	07	035	43.58 MI	09216	Middle Fork Coquille River, Hwy 35 at MP 43.58	Coos	UNKNOWN	State Highway Agency	State Highway Agency	Routine/Schedule	Coos Bay Bridge Crew	12 Seal Concrete	Seal the deck.		Unknown	3/23/2016	Y
3	07	035	51.08 MI	16412	Middle Fork Coquille River, Hwy 35 at MP 51.85	Douglas	UNKNOWN	State Highway Agency	State Highway Agency	Routine/Schedule	Coos Bay Bridge Crew	12 Seal Concrete	Seal the deck.		Unknown	4/13/2016	Y
3	07	035	52.16 MI	16606	Middle Fork Coquille River, Hwy 35 at MP 52.90	Douglas	UNKNOWN	State Highway Agency	State Highway Agency	Routine/Schedule	Coos Bay Bridge Crew	12 Seal Concrete	Seal the deck.		Unknown	4/18/2016	Y

Bridge Inspection Report and Maintenance Recommendations Review

Prioritization of Maintenance Needs

- **Critical** - Needs to prevent the structure from being load posted. (NBI Item 58, 59, 60, 61, or 62 < 3; or 113 = 2; or portion of defect in CS4.)
- **Urgent** - Repair As-Soon-Possible or to address a specific traffic safety concern. (NBI item 58,59,60,61, or 62 < 4; or portion of defect in CS 3).
- **Routine** - (High, Medium, or Schedule) - Schedule the repair activity with other bridge maintenance activities. Monitor - For the bridge maintenance personnel to schedule site visits when in the area.
- Monitor - For the bridge maintenance personnel to schedule site visits when in the area

Bridge Inspection Report and Maintenance Recommendations Review

Primary Bridge Components NBI ratings

Appraisal

Appraisal	NBI #	Rating
Scour	113	5 Stable w/in footing
Bridge Rail	36A	1 Meets Standards
Transitions	36B	0 Substandard
Approach Rail	36C	0 Substandard
Rail Ends	36D	0 Substandard
Structural	67	6 Equal Min Criteria
Deck	68	9 Above Desirable Crit
Clearance	69	8 Equal Desirable
Waterway	71	8 Equal Desirable
Approach Alignment	72	8 Equal Desirable Crit

NBI Category

Category	NBI #	Rating
Deck Condition	58	6 Satisfactory
Superstructure	59	7 Good
Substructure	60	6 Satisfactory
Channel	61	7 Minor Damage
Culvert/Retaining Walls	62	N N/A (NBI)

Bridge Element and Defect Remarks

Remarks

12-Re Concrete Deck
The soffit in Span 5 left near Bent 5 is covered in soot from transient fires.

1080-Delamination/Spall/Patched Area
There were some previous barrier anchor bolt spalls located in the eastbound fast lane prior to the deck seal. There were numerous areas of rough finished
with rock pockets and pop outs in the deck prior to the deck seal.

1120-Efflorescence/Rust Staining
There are some small areas of hairline transverse cracking with efflorescence in the soffit near Bent 5 left.

1130-Cracking (RC and Other)
There were some large sized transverse cracks over the interior bents prior to the deck seal.

1131-Soffit Cracking (RC, PSC)
There are some hairline transverse cracks in the soffit.

Bridge Inspection Report and Maintenance Recommendations Review

Primary Bridge Components

Describes the overall physical condition of the Structure – (Rated each inspection by the Bridge Inspector)

- Item 58 – Deck Condition (takes into account spalls, delaminations, patches, cracks, efflorescence, and rutting)
- Item 59 – Superstructure Condition (takes into account only the superstructure members, not bearings, paint, etc)
- Item 60 – Substructure Condition (takes into account piers, abutments, fenders, footings, etc)
- Item 61 – Channel Condition (takes into account the physical condition for the flow of water and looks at stream stability, riprap, slope protection, or stream control devices)

Bridge Inspection Report and Maintenance Recommendations Review

Primary Bridge Components

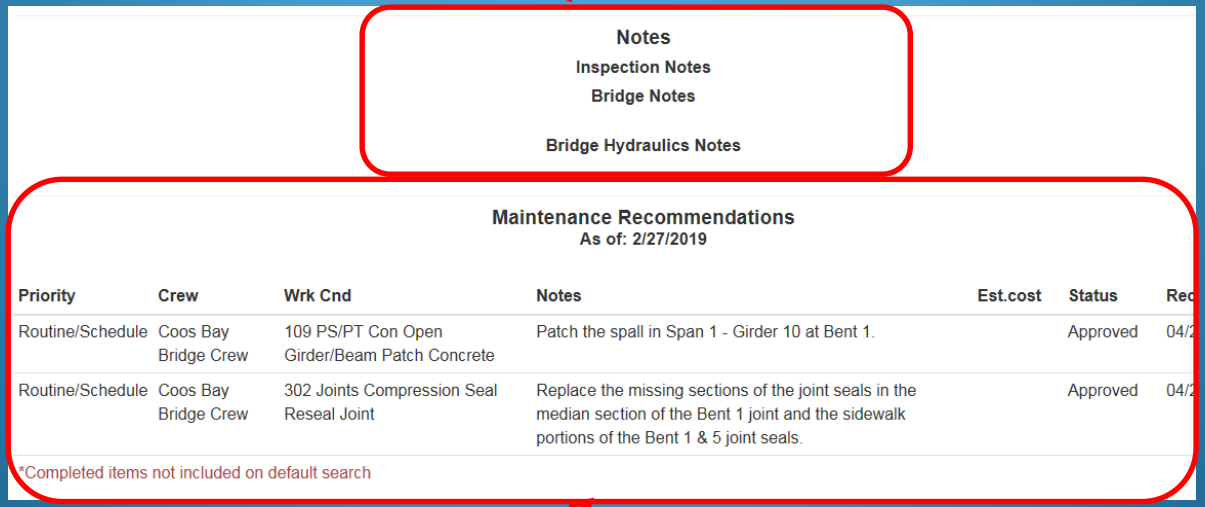
- Uses very general subjective terms like: good, fair or poor condition
- Ratings from high (best) to (worst):
  - "9" = Excellent
  - "0" – Failed condition

NBI General Cond. Rating Table (NBI Items 58, 59 and 60):

Code	Description
N	Not applicable
9	Excellent Condition
8	Very Good Condition - No problems noted.
7	Good Condition - some minor problems.
6	Satisfactory Condition - Structural elements show some minor deterioration.
5	Fair Condition - All primary structural elements are sound but may have minor section loss, cracking, spalling or scour.
4	Poor Condition - advanced section loss, deterioration, spalling or scour.
3	Serious Condition - loss of section, deterioration, spalling or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
2	Critical Condition - advanced deterioration of primary structural elements. Fatigue cracks in steel and shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the bridge until correction action is taken.
1	"Imminent" Failure Condition - major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put back in light service.
0	Failed Condition - out of service - beyond corrective action.

Bridge Inspection Report and Maintenance Recommendations Review

General Inspection Notes



Notes

Inspection Notes

Bridge Notes

Bridge Hydraulics Notes

Maintenance Recommendations
As of: 2/27/2019

Priority	Crew	Wrk Cnd	Notes	Est.cost	Status	Rec
Routine/Schedule	Coos Bay Bridge Crew	109 PS/PT Con Open Girder/Beam Patch Concrete	Patch the spall in Span 1 - Girder 10 at Bent 1.		Approved	04/2
Routine/Schedule	Coos Bay Bridge Crew	302 Joints Compression Seal Reseal Joint	Replace the missing sections of the joint seals in the median section of the Bent 1 joint and the sidewalk portions of the Bent 1 & 5 joint seals.		Approved	04/2

*Completed items not included on default search

Maintenance Recommendations

Bridge Inspection Report and Maintenance Recommendations Review

Structure Inventory and Appraisal Sheet (SI & A)

The SI&A data sheet covers basic information for a bridge:

1. Bridge Data
   Location, design details, structure geometry, clearances, roadway data, Inventory and Operating Rating

2. Condition Ratings
   Current overall current condition of primary bridge members

3. Appraisal Items
   Compares bridge features to current standards.

Bridge Inspection Report and Maintenance Recommendations Review

Structure Inventory and Appraisal

Design Details

Location

Bolded Items affect sufficiency rating

Vertical Clearance

Oregon Department of Transportation

Structure Inventory and Appraisal Report

Suff Rating: 75.7					**Bridge NO: 02** **Insp Date: 04/18**
(2) Highway District	District 7	(42A) Type Service On	5	(75) Type of Work	
(3) County	Douglas	(42B) Type Service Under	7	(76) Improvement Length	
(4) City	00000	**(43) Struct Main**	**6 P/S Conc Continuous 02 Stringer/Girder**	(90) Inspection Date	04/18/2018
(5) Inventory Route	131000420	(44) Struct Appr	0 Not Applicable 00 Not Applicable	(91) Inspection Frequency	24
(6) Feature INT	CORP	(45) Number Main Spans	4	(92) Critical Feat Insp (A) Fracture Critical (B) Underwater Insp	
(7) Facility Carried	OR 42 (HWY 035)	(46) Number Appr Spans	0	(94) Cost of Improvement	
(8) Structure Number	02173A035 07602	(47) Horizontal Clearance	86.00 ft	(95) Roadway Improvement	
(9) Location	012 MI NW HWY 1 JCT	(48) Maximum Span Length	95.00 ft	(96) Project Improvement	0
(10) Vert Clearance	99.99 ft	(49) Structure Length	370.00 ft	(97) Year of Improvement	
(11) Mile Post	75.99 mi	(50A) Sidewalk Width LT	8.00 ft	(98) Border BRST-Code	
(12) Base Highway Network	1	(50B) Sidewalk Width RT	0.00 ft	**(100) Defense Highway**	**2**
(13) LRS Inventory Route	003500100S00	**(51) Bridge Roadway Width**	**86.00 ft**	(101) Parallel Structure	N
(16) Latitude	43° 8' 51.75"	(52) Deck Width	98.50 ft	(102) Direction of Traffic	2
(17) Longitude	123° 22' 33.65"	**(53) Vert Clear Over Deck**	**99.99 ft**	(103) Temporary Structure	
(19) Bypass Detour	**20.72 mi**	(54) Vert Clear Under Deck	R 23.00 ft	(104) Highway System	1
(20) TOLL	3 On free road	(55) Min Lat Underclear CD	R 24.00 ft	(105) Federal Lands HWY	0
(21) Custodian	State Highway Agency	(56) Min Lat Underclear	L 0.00 ft	(106) Year Reconstructed	
(22) Owner	State Highway Agency	**(58) Deck**	**6**	(107) Deck Structure	1
(26) Func Class	14 Urban Other Princ	**(59) SuperStructure**	**7**	(108) Wearing Surface	100

Bridge Inspection Report and Maintenance Recommendations Review

Structure Inventory and Appraisal Report (SI & A)

Inventory and Operating Rating

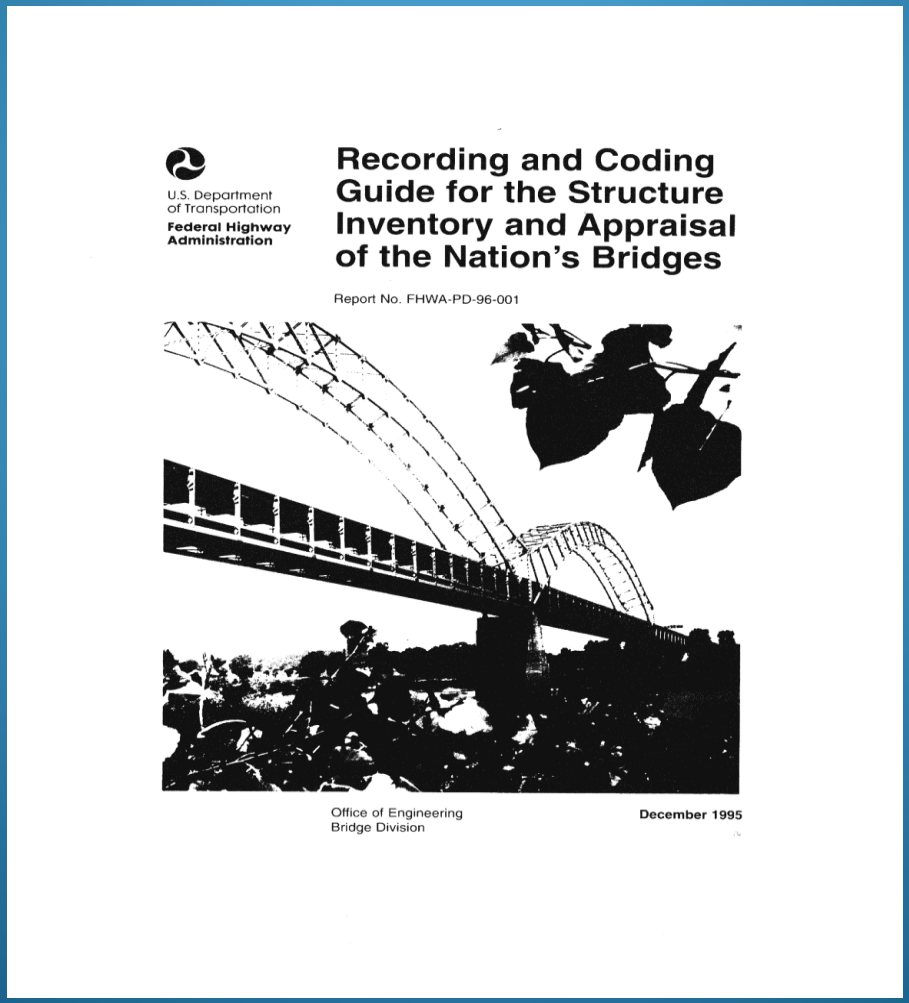
Structure Geometry

(27) Year Built	1976	**(60) SubStructure**	**6**	(109) Truck ADT	22%
(28) Lanes	**on: 5 / under: 0**	(61) Channel	7	(110) Designated National Network	0
(29) Average Daily Traffic	**22000**	**(62) Culvert**	**N**	(111) Pier Protection	
(30) Year of ADT	2017	(63) Oper Rating Method	8	(112) NBIS Bridge Length	Y
(31) Design Load	5 MS 18 (HS 20)	(64) Operating Rating	35.00 ton	(113) Scour Critical Bridge	5
(32) Approach Roadway	**86.00 ft**	(65) Inv Rating Method	8	(114) Future ADT	25500
(33) Bridge Median	0 No median	**(66) Inventory Rating**	**27.00 ton**	(115) Year of Future ADT	2037
(34) Skew	46°	**(67) Structure Condition**	**6**	(116) Vert-Lift Clearance	
(35) Structure Flared	0 No flare	**(68) Deck Geometry**	**9**	(117) Est Maint Cost	
(36) Traffic Safety Feature	**1000**	**(69) Underclearance**	**8**	(118) Culvert Length	
(37) Historical Significance	5	(70) Posting	5	(119) Culvert Inside Height	
(38) Navigation Control	0	**(71) Waterway Adequacy**	**8**	(120) Inspector	JOSH LONIE
(39) Navigation Vert Clear	0.00 ft	**(72) APPR RDWY Alignment**	**8**	(122) Highway/CO RD	035
(40) Navigation Horz Clear	0.00 ft			(125) Embankment Erosion	5
(41) Open Status	A				
Quality Assurance:					
WS Depth	0.00	(52) Deck Width	98.50 ft	(70) Posting	5
(28) Lanes	on: 5 / under: 0	(53) Vert Clear Over Deck	99.99 ft	(71) Waterway Adequacy	8
(32) Approach Roadway	86.00 ft	(58) Deck	6	(72) APPR RDWY Alignment	8
(41) Open Status	A	(59) SuperStructure	7	(95) Roadway Improvement	
(43) Struct Main	6 P/S Conc Continuous	(60) SubStructure	6	(103) Temporary Structure	
(44) Struct Appr	0 Not Applicable	(61) Channel	7	(108) Wearing Surface	100
(46) Number Appr Spans	0	(62) Culvert	N	(113) Scour Critical Bridge	5
(51) Bridge Roadway Width	86.00 ft			(125) Embankment Erosion	5

Item 103 Temporary Structure Designation

Bridge Inspection Report and Maintenance Recommendations Review

FHWA CODING GUIDE



Bridge Inspection Report and Maintenance Recommendations Review

NBI Item 103 - Temporary Repairs

NBI Item 103 - Temporary Structure Designation

- Code this item where temporary structures or conditions exist
- Temporary structure(s) or conditions are those which are required to facilitate traffic flow

Such conditions include the following:

- Bridge shored up, including additional temporary supports
- Temporary repairs made to keep a bridge open
- Temporary structures, temporary run-arounds or bypasses
- Other temporary measures, such as barricaded traffic lanes to keep the bridge open

Bridge Inspection Report and Maintenance Recommendations Review

NBI Item 103 - Temporary Structure Designation

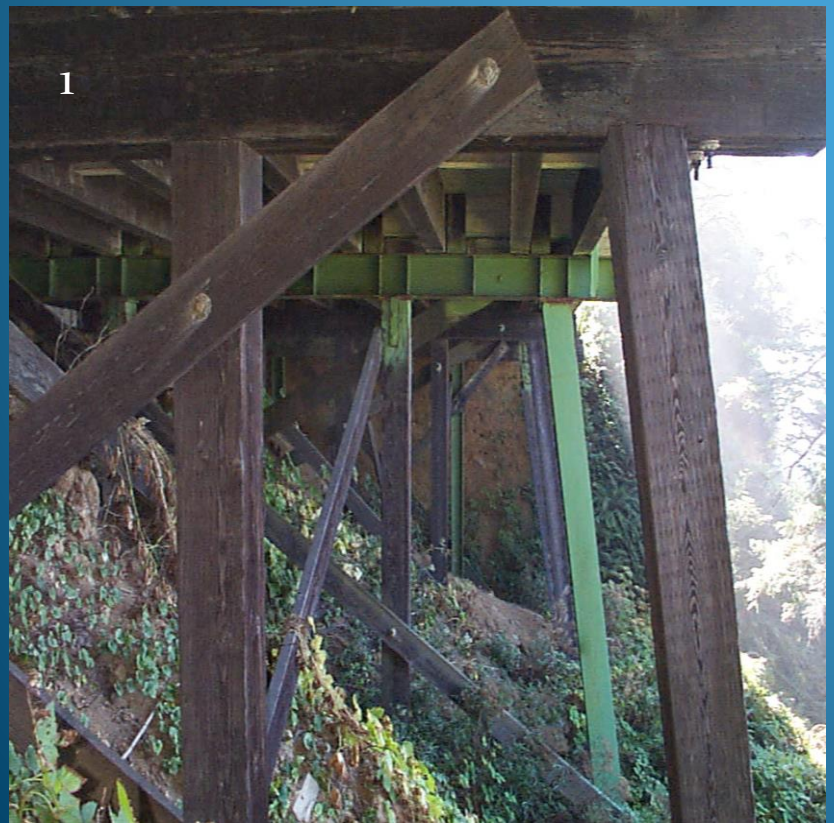
- ***Any repaired structure*** or replacement structure which is expected to remain in place without further project activity, other than maintenance***, for a significant period of time (>10 years) shall not be considered temporary***.(unless specifically notified by the bridge owner that the repair is still considered temporary.

- However, with due consideration of the member capacity and condition, ***a temporary repair can only be categorized as a temporary repair if it at least has the same capacity as the original members.***

Bridge Inspection Report and Maintenance Recommendations Review

NBI Item 103 - Temporary Structure Designation

Permanent or temporary?



Permanent or temporary?

Bridge Inspection Report and Maintenance Recommendations Review

NBI Item 103 - Temporary Structure Designation

Permanent or temporary?

Permanent or temporary?

Bridge Inspection Report and Maintenance Recommendations Review

NBI Item 103 - Temporary Structure Designation

Permanent or temporary?

Permanent or temporary?

Bridge Inspection Report and Maintenance Recommendations Review

Load Rating Summary

Legal Trucks

Special Hauling Vehicles

Emergency Hauling vehicles

Rating of Bridge Element 999 Ride Quality (by Bridge Inspector)

Load Rating

Rating Date :	08/18/2008	**Posting Req :**	5 At/Above Legal Loads
Design Load :	5 MS 18 (HS 20)	**Posting Status :**	A Open, no restriction
Operating Load :	35 ton	**OR Method :**	8 LRFR RF HL93
Inventory Rating :	27 ton	**IR Method :**	8 LRFR RF HL93

Truck	Rating Factor	% Below	Posting Required	Controlling Member	Actual Posting	Posti
Type 3	4.60	5 At/Above Legal Loads	No	Int. Girder, span 1 of 4 Long. Reinf. Chk. at 0.75		
Type 3S-2	3.49	5 At/Above Legal Loads	No	Int. Girder, span 1 of 4 V at 0.944L		
Type 3-3	3.43	5 At/Above Legal Loads	No	Int. Girder, span 1 of 4 V at 0.944L		
SU4	4.14	5 At/Above Legal Loads	No	Int. Girder, span 2 of 4 V at 0.044L		
SU5	3.56	5 At/Above Legal Loads	No	Int. Girder, span 2 of 4 V at 0.044L		
SU6	3.21	5 At/Above Legal Loads	No	Int. Girder, span 2 of 4 V at 0.044L		
SU7	2.89	5 At/Above Legal Loads	No	Int. Girder, span 2 of 4 V at 0.044L		
EV2			No			
EV3			No			

Load Rating Notes

Load Rating Condition Comparison Chart

Category	NBI #	Rating Condition	Current Condition
Traffic Impact		CS2 Condition State 2	CS2
Deck Condition	58	5	6
Superstructure	59	8	7
Substructure	60	7	6

QUESTIONS?