Boise South Fork Watershed Collaborative

Roads & Trails Committee Potential Slides for Discussion

Roads & Trails Committee

- Introductions & Overview
- Mission Statement
- Identify issues
- Inventory of available data
- Identify data gaps/needs
- Identify tool boxes for potential solutions/improvements
- Individual focus areas for participants/agencies
- What's next...

Roads & Trails Committee – Overview

- How do Roads & Trails affect <u>water quality and quantity</u> in the South Fork Watershed?
- What can be done with/to watershed area Roads & Trails to "improve" water quality and quantity?

How do Roads & Trails affect water quality and quantity

- At-grade stream crossings *Trails*
- Drainage flows/erosion: run-off/gradient/slope issues *Roads & Trails*
- Structures (bridges, culverts, boat ramps) Roads
- Diversions Roads & Trails
- Dust/particulates *Roads & Trails*
- Loss of native riparian or upland vegetation *Roads & Trails*
- Introduction of invasive species —*Roads & Trails*
- Others?

What aspects of "use" contribute to these effects?

- Volume/usage levels
- Speed/duration
- Mode/vehicle type
- Seasonal impacts/precipitation
- Diversions/trail braiding (including road departures/crashes)
- Waste/trash/debris
- ?

How to measure/quantify contributing effects

<u>Roads</u>

- Roadside drainage assessments
- Traffic volumes
- Speed & vehicle-type surveys
- Crash data records
- Bridge & culvert assessments
- Maintenance & repair histories
- User surveys

<u>Trails</u>

- Stream crossing inventories
- Trail conditions assessments
- Usage-type/volumes reports
- Maintenance & repair histories
- Trail-adjacent vegetation assessments
- User surveys

- What can be done with/to Roads & Trails to "improve" water quality and quantity?
- What tool boxes are available?
- Short-term vs long-term solutions

Other slides

- Watershed-area Roads & Trails
- Motor vehicle crash data
- Traffic volume data
- Bridge condition reports

Linkages between unpaved forest roads and streambed sediment: why context matters in directing road restoration

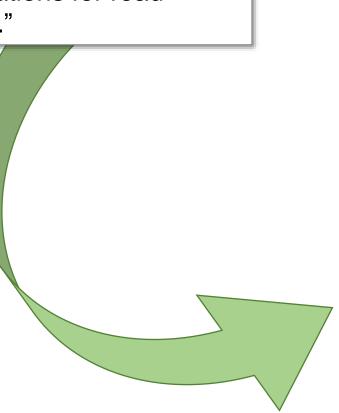
Robert Al-Chokhachy^{1,2}, Tom A. Black³, Cameron Thomas⁴, Charles H. Luce³, Bruce Rieman⁵, Richard Cissel³, Anne Carlson⁶, Shane Hendrickson⁷, Eric K. Archer⁸, Jeff L. Kershner¹

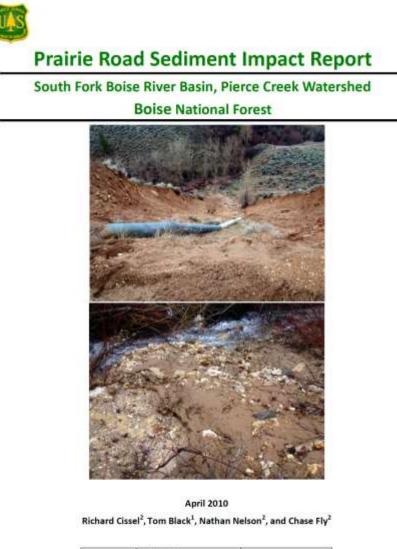
Unpaved forest roads remain a pervasive disturbance on public lands and mitigating sediment from road networks remains a prio dwater "Unpaved forest roads remain a pervasive disturbance on public fishes unities requ w and lands and mitigating sediment from road networks remains a a fiel s with roads strea priority for management agencies. Restoring roaded landscapes or se effort is becoming increasingly important for many native cold-water of lin review mbed unco fishes that disproportionately rely on public lands for persistence." sedir roads ambed uanty, but demonstrated nign-spatial variability in the chects o sediment and the need to address hotspots of sediment sources. The importance of context in the effects of forest roads is apparent in both our review and field data, suggesting the need for in situ studies to avoid misdirected restoration actions.

"The total extent of unpaved forest roads in Idaho, Montana, Oregon, and Washington alone is **seven times the length of interstate highways** across the contiguous United States. Many of these roads have been identified as **causing significant impacts to streams and riparian systems through changes in hydrology, mass wasting and sediment delivery, and riparian degradation** (Jones et al. 2000; Trombulak & Frissell 2000). Because there are hundreds of thousands of miles of existing unpaved roads, prioritization of restoration actions is an imperative step in effectively recovering ecosystems.



"In some cases, road sediments that are related to culvert failures, landslides, and gullies present obvious locations for road rehabilitation or restoration."





¹Hydrologist ²Hydrologic Technician US Forest Service Rocky Mountain Research Station 322 East Front Street, Suite 401 Boise, Idaho, 83702 USA



Roadway Vehicle Crash History

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Roadway Traffic Volumes

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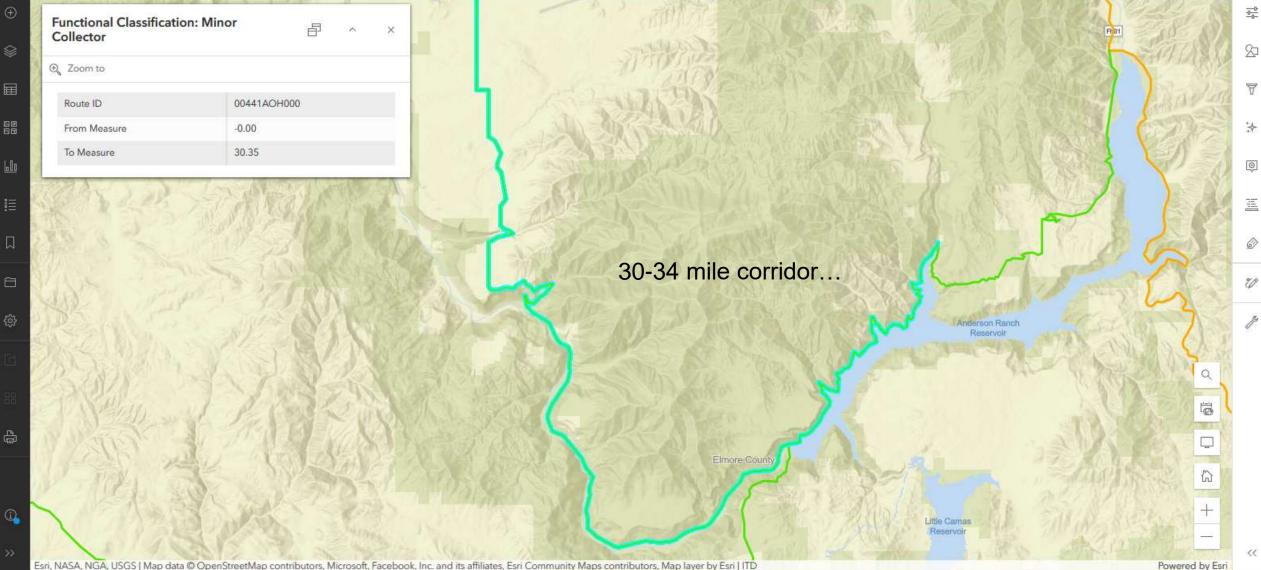
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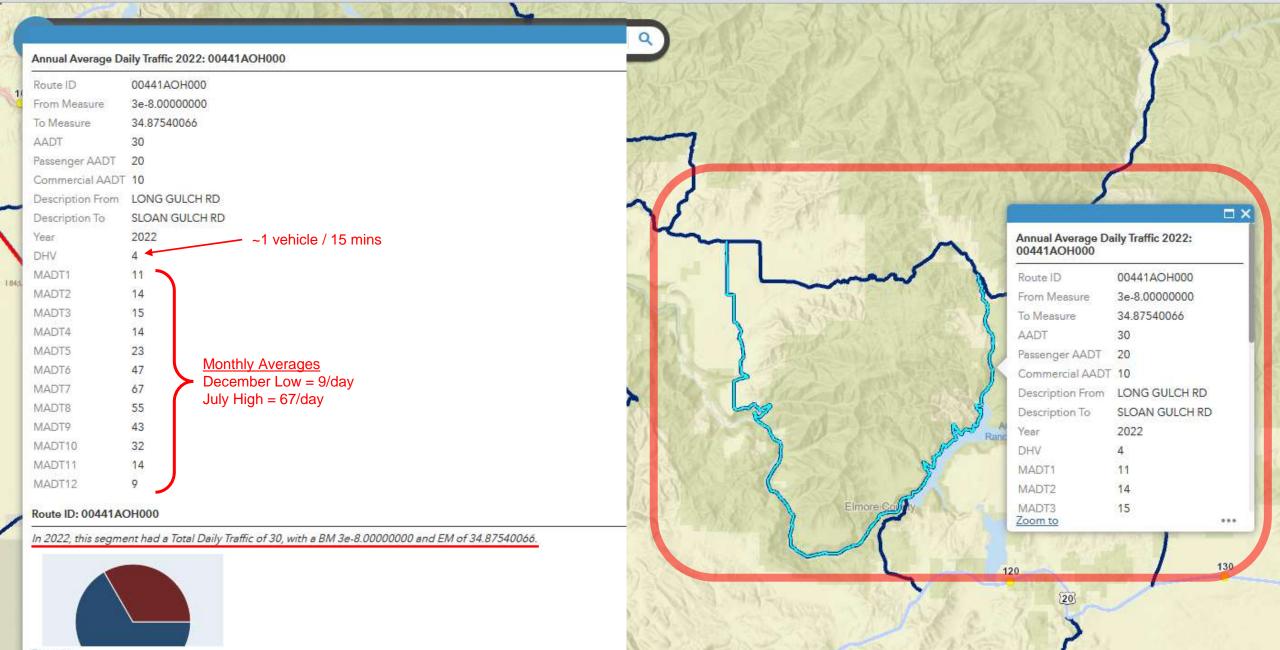
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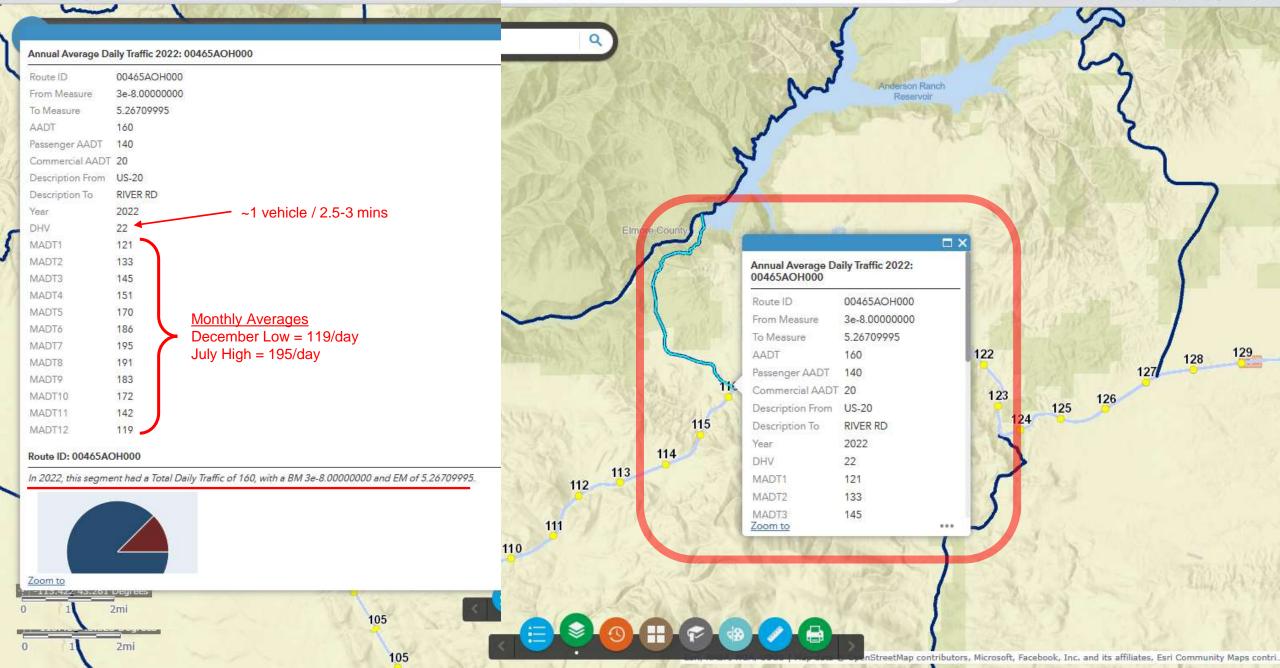
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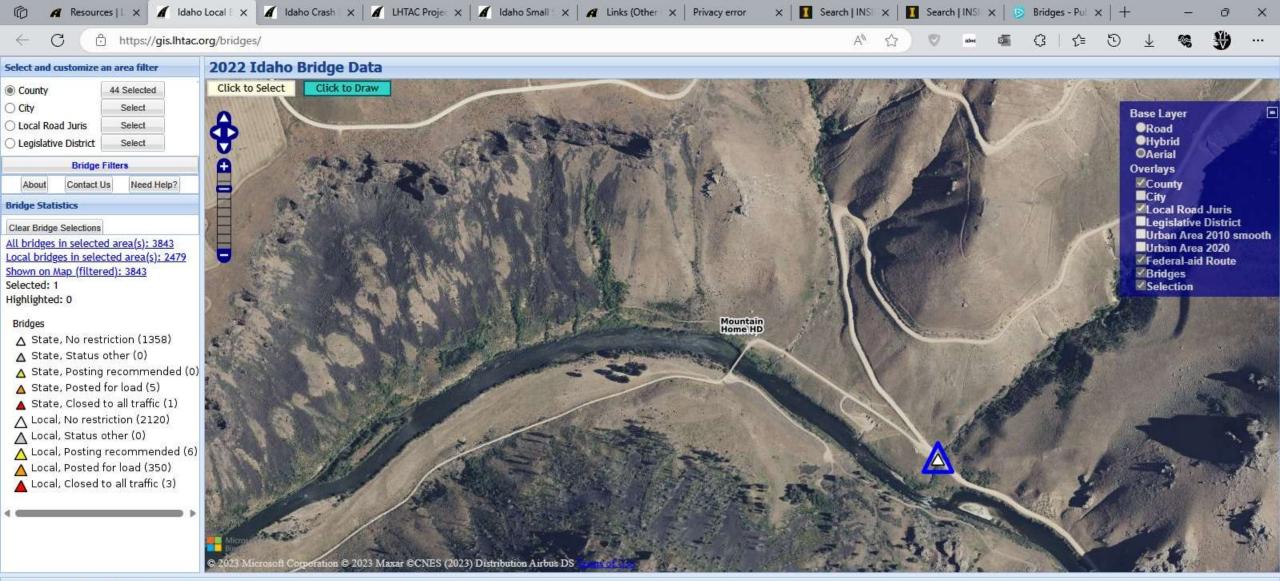
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Bridges (Conditions, Ratings)

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 County City City Local Road Juris Legislative District Select Bridge Filters About Contact Us Need Help? Bridge Statistics Clear Bridge Selections All bridges in selected area(s): 3843 Local bridges in selected area(s): 2479 Shown on Map (filtered): 3843 Selected: 1 Highlighted: 0 Bridges △ State, No restriction (1358) △ State, Posting recommended (0) △ State, Posted for load (5) △ State, Closed to all traffic (1) △ Local, No restriction (2120) △ Local, Posting recommended (6) △ Local, Posted for load (350) △ Local, Closed to all traffic (3) 	Click to Select							Base Layer P. Road Hybrid Overlays County City County City County City Count	oad Juris ve District rea 2010 sn rea 2020 aid Route	nooth

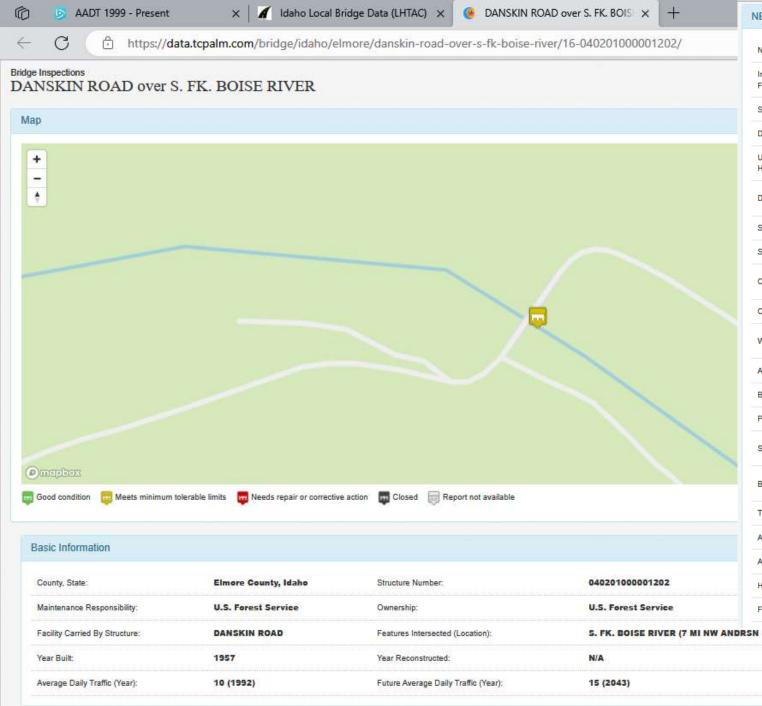
Bridge D	etails - dic	ck to highlight in r	map																	
Bridge Key	Highway System	Structure Name	Year Built	Year Reconstructed	Carries	Crosses Over		Deck Width	Post Status	Condition	Lanes On	ADT	ADT Year	Culvert	County	Admin Juris	Deck Str Type	Deck Surf Type	Historical Significance	Date Received
27840	local	X993200 7.62	<mark>1961</mark>		NEAL ROAD	S.FK.BOISE RIVER	128	16.1	A Open, no restriction	Fair	1	90	2019	N	Elmore	Mountain Home HD	8 Wood or Timber	6 Bituminous	4 Hist sign not determin	2022-03-29
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Bridge Key	Highway System	Structure Name	Year Built	Year Reconstructed	Carries	Crosses Over	Length (Ft)	Deck Width	Post Status	Condition	Lanes On	ADT	ADT Year	Culvert	County	Admin Juris	Deck Str Type	Deck Surf Type	Historical Significance	Date Received
27858	local	X993200 110.32			NFD RD113;PRAIRIE	PIERCE CREEK	31	27.1	A Open, no restriction	Good	2	30	2019	N	Elmore	Mountain Home HD	6 Corrugated Steel	8 Gravel	4 Hist sign not determin	2022-03-29

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Bridge D	etails - dic	k to highlight in r	nap																	
Bridge Key	Highway System	Structure Name	Year Built	Year Reconstructed	Carries	Crosses Over	Length (Ft)	Deck Width	Post Status	Condition	Lanes On	ADT	ADT Year	Culvert	County	Admin Juris	Deck Str Type	Deck Surf Type	Historical Significance	Date Received
27855	local	X993200 10.36	1959		NFD 131 RD	S.FK.BOISE R. (COW CR.BR)	154	16	A Open, no restriction	Fair	1	20	2019	N		Mountain Home HD	1 Concrete- Cast-in-Place	1 Monolithic Concrete	4 Hist sign not determin	2022-03-29



NBI Report	
NBI Bridge Condition	Fair
Inspection Date (Inspection Frequency):	July 2021 (Every 24 Months)
Structural Evaluation:	4: Meets minimum tolerable limits to be left in place as is
Deck Geometry	4: Meets minimum tolerable limits to be left in place as is
Underclear/Vertical and Horizontal:	N: Not applicable
Deck	5: FAIR CONDITION • all primary structural elements are sound but may have minor section loss, cracking, spalling or scour.
Superstructure	6: SATISFACTORY CONDITION - structural elements show some minor deterioration.
Substructure	7: GOOD CONDITION - some minor problems.
Channel/Channel Protection	7: Bank protection is in need of minor repairs. River control devices and embankment protection have a little minor damage. Banks and/or channel have minor amounts of drift.
Culverts	N: Not applicable. Use if structure is not a culvert.
Waterway Adequacy:	9: Bridge deck and roadway approaches above flood water elevations (high water). Chance of overtopping is remote.
Approach Roadway Alignment:	6: Equal to present minimum criteria
Bridge Posting	No posting required: Equal to or above legal loads
Pier/Abutment Protection:	1: Navigation protection not required
Scour Critical Bridges:	5: Bridge foundations determined to be stable for calculated scour conditions; scour within limits of footing or piles.
Bridge Railings:	0: Inspected feature does not meet currently acceptable standards or a safety feature is required and none is provided.
Transitions:	N: Not applicable
Approach Guardrail:	N: Not applicable
Approach Guardrail Ends:	N: Not applicable
Historical significance:	4: Historical significance is not determinable at this time.
Fracture Critical Details:	Y24
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🤯 Good condition 🛛 🤠 Meets minimum tolerable limits 🛛 🤠 Needs repair or corrective action 🖉 Closed 🤯 Report not available	Druger

Basic Information

County, State:	Elmore County, Idaho	Structure Number:	0000000027858	
Maintenance Responsibility:	Other Local Agencies	Ownership:	Other Local Agencies	Historical significa
Facility Carried By Structure:	NFD RD113;PRAIRIE	Features Intersected (Location):	PIERCE CREEK (7 S 0.8 E P	RAIRIE)
Year Built	2012	Year Reconstructed:	N/A	
Average Daily Traffic (Year):	30 (2019) with 33% of truck traffic	Future Average Daily Traffic (Year):	45 (2039)	

NBI Report			
NBI Bridge Condition	Good		
Inspection Date (Inspection Frequency):	June 2018 (Every 48 Months)		
Structural Evaluation:	8: Equal to present desirable criteria		
Deck Geometry	6: Equal to present minimum criteria		
Underclear/Vertical and Horizontal:	N: Not applicable		
Deck	8: VERY GOOD CONDITION - no problems noted.		
Superstructure	8: VERY GOOD CONDITION - no problems noted.		
Substructure	8: VERY GOOD CONDITION - no problems noted.		
Channel/Channel Protection	6: Bank is beginning to slump. River control devices and embankment protection have widespread minor damage. There is minor stream bed movement evident. Debris is restricting the channel slightly.		
Culverts	N: Not applicable. Use if structure is not a culvert.		
Waterway Adequacy:	7: Slight chance of overtopping bridge deck and roadway approaches.		
Approach Roadway Alignment:	8: Equal to present desirable criteria		
Bridge Posting	No posting required: Equal to or above legal loads		
Scour Critical Bridges:	8: Bridge foundations determined to be stable for assessed or calculated scour conditions; calculated scour is above top of footing.		
Bridge Railings:	0: Inspected feature does not meet currently acceptable standards or a safety feature is required and none is provided.		
Transitions:	1: Inspected feature meets currently acceptable standards.		
Approach Guardrail:	1: Inspected feature meets currently acceptable standards.		
Approach Guardrail Ends:	1: Inspected feature meets currently acceptable standards.		
Historical significance:	4: Historical significance is not determinable at this time.		

🍘 🌀 AADT 1999 - Present	🗙 📔 🔏 Idaho Local Bridge Data (LHTAC) 🗙 🛛 🍝 NFD RD113;PRAIRIE over PIERCE 🗙 🏾 🥯 NFD 131 R
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Bridge Inspections NFD 131 RD over S.FK.BOIS	SE R.(COW CR.BR)
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Good	condition
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Completion

🤠 Meets minimum tolerable limits 🛛 👼 Needs repair or corrective action 🛛 👼 Closed 🛛 📄 Report not available

Basic Information

NBI Report	
NBI Bridge Condition	Fair
Inspection Date (Inspection Frequency):	June 2022 (Every 24 Months)
Structural Evaluation:	6: Equal to present minimum criteria
Deck Geometry	6: Equal to present minimum criteria
Underclear/Vertical and Horizontal:	N: Not applicable
Deck	6: SATISFACTORY CONDITION • structural elements show some minor deterioration.
Superstructure	6: SATISFACTORY CONDITION • structural elements show some minor deterioration.
Substructure	6: SATISFACTORY CONDITION - structural elements show some minor deterioration.
Channel/Channel Protection	7: Bank protection is in need of minor repairs. River control devices and embankment protection have a little minor damage. Banks and/or channel have minor amounts of drift.
Culverts	N: Not applicable. Use if structure is not a culvert.
Waterway Adequacy:	6: Bridge deck above roadway approaches. Occasional overtopping of roadway approaches with insignificant traffic delays.
Approach Roadway Alignment:	5: Somewhat better than minimum adequacy to tolerate being left in place as is
Bridge Posting	No posting required: Equal to or above legal loads
Scour Critical Bridges:	5: Bridge foundations determined to be stable for calculated scour conditions; scour within limits of footing or piles.
Bridge Railings:	0: Inspected feature does not meet currently acceptable standards or a safety feature is required and none is provided.
Transitions:	0: Inspected feature does not meet currently acceptable standards or a safety feature is required and none is provided.
Approach Guardrail:	0: Inspected feature does not meet currently acceptable standards or a safety feature is required and none is provided.
Approach Guardrail Ends:	0: Inspected feature does not meet currently acceptable standards or a safety feature is required and none is provided.
Historical significance:	4: Historical significance is not determinable at this time.
9.5 5. 1.U E. PRAIRIE)	

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County, State:	Elmore County, Idaho	Structure Number:	00000000027855	Approach Guardrail Ends:	0: Inspected feature does not meet feature is required and none is prov
Maintenance Responsibility:	Other Local Agencies	Ownership:	Other Local Agencies	Historical significance:	4: Historical significance is not dete
Facility Carried By Structure:	NFD 131 RD	Features Intersected (Location):	S.FK.BOISE R.(COW CR.B)	() (3.5 5. 1.V E. PRAIRIE)	
Year Built:	1959	Year Reconstructed:	N/A		
Average Daily Traffic (Year):	20 (2019) with 10% of truck traffic	Future Average Daily Traffic (Year):	30 (2039)		

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C 👌 https://d	lata.tcpalm.com/bridge/idaho/elmore/neal-r	oad-over-sfkboise-river/16-0000000000	27840/	Q A ^N ☆
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	tolerable limits 👦 Needs repair or corrective action 🕞 Clo	sed 🕞 Report not available	Map Icons (Collection @ Mapbox @ OpenStreetMap
Good condition 🛛 🤯 Meets minimum	tolerable limits 🛛 Reeds repair or corrective action 🖉 Clo	sed 🕞 Report not available Structure Number:	Map lcons (Collection] @ Mapbox @ OpenStreetMap
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Good condition 💭 Meets minimum tasic Information County, State: Maintenance Responsibility:	Elmore County, Idaho Other Local Agencies	Structure Number: Ownership:	0000000027840 Other Local Agencies	Collection J @ Mapbox @ OpenStreetMap

🔞 🌀 AADT 1999 -	NBI Report	
← C () +	NBI Bridge Condition	Fair
Bridge Inspections	Inspection Date (Inspection Frequency):	Sept. 2021 (Every 24 Months)
NEAL ROAD over	Structural Evaluation:	6: Equal to present minimum criteria
Мар	Deck Geometry	5: Somewhat better than minimum adequacy to tolerate being left in place as is
	Underclear/Vertical and Horizontal:	N: Not applicable
+	Deck	6: SATISFACTORY CONDITION - structural elements show some minor deterioration.
*	Superstructure	6: SATISFACTORY CONDITION - structural elements show some minor deterioration.
	Substructure	6: SATISFACTORY CONDITION - structural elements show some minor deterioration.
	Channel/Channel Protection	7: Bank protection is in need of minor repairs. River control devices and embankment protection have a little minor damage. Banks and/or channel have minor amounts of drift.
	Culverts	N: Not applicable. Use if structure is not a culvert.
	Waterway Adequacy:	9: Bridge deck and roadway approaches above flood water elevations (high water). Chance of overtopping is remote.
	Approach Roadway Alignment:	6: Equal to present minimum criteria
	Bridge Posting	No posting required: Equal to or above legal loads
	Scour Critical Bridges:	3: Bridge is scour critical; bridge foundations determined to be unstable for calculated scour conditions: 1) Scour within limits of footing or piles. 2) Scour below spread- footing base or pile tips.
	Bridge Railings:	0: Inspected feature does not meet currently acceptable standards or a safety feature is required and none is provided.
-	Transitions:	0: Inspected feature does not meet currently acceptable standards or a safety feature is required and none is provided.
	Approach Guardrail:	0: Inspected feature does not meet currently acceptable standards or a safety feature is required and none is provided.
Omephon	Approach Guardrail Ends:	0: Inspected feature does not meet currently acceptable standards or a safety feature is required and none is provided.
Good condition 👼 Mee	Historical significance:	4: Historical significance is not determinable at this time.
1	Type of Work Proposed:	Replacement of bridge or other structure because of substandard load carrying capacity or substandard bridge roadway geometry.
Basic Information	Work Done By:	Work to be done by contract
County, State:	Length of Structure Improvement:	4.85 meters
Maintenance Responsibilit	Bridge Improvement Cost	\$787,000
Facility Carried By Structur	Roadway Improvement Cost	\$79,000
Year Built:	Total Project Cost	\$1,181,000
Average Daily Traffic (Year	Year of Improvement Cost Estimate:	2021
	Fracture Critical Details:	¥24