

BAER Roads Survey Specialist Report

Resource Speciality: Roads and Bridges

Fire Name: Oregon

Date: 09/2014

Author Name and Home Unit: Justin Krieg, Shasta-Trinity National Forest

Objective: The purpose of this report is to provide engineering input for planning and implementation of burn area emergency response activities for the Oregon Fire. The road treatments allowed under BAER are those minimally necessary to protect users, the values associated with the road infrastructure investment, and/or to prevent additional degradation that may be directly or indirectly caused by the road. Treatment must not be intended to resolve road issues that existed prior to the fire. This report will examine the fire effects with respect to roads and bridges within, adjacent to, and downstream of the fire area.

I. Potential Values at Risk

A. Critical Values- Transportation system roads, culverts and bridges within, adjacent to, and downstream of the fire area.

B. Resource Condition Assesment

i. Resource Setting

There is approximately 1.5 miles of National Forest System Road within the Oregon Fire's perimeter. These roads are surrounded by moderate and high severity burns, which will increase storm water surface runoff significantly. There are also county, state and private road stream crossings downstream of the fire area on Sidney Gulch, and Garden Gulch. These roads serve the community of Weaverville, CA.

ii. Findings of the On-The-Ground Survey

The field survey was conducted on August 29, 2014. There are road stream crossings at risk to due increased runoff on National Forest System, Trinity County, California State and private roads.

iii. Consequence of the Fire on Values at Risk

There are two culverts on National Forest System Roads that are of concern due to high severity burning of their drainage areas.

There are two county road crossings on Weaver Bally Loop Road and Memorial Drive that appear to be undersized pre-fire, which could make them significantly undersized if there is a significant storm event.

Where California State Highway 299 crosses Sidney Gulch is a concern because there will be a significant increase in storm water runoff from the Sidney Gulch and China Gulch drainage areas.

There are two private driveway bridge crossings on Garden Gulch that could be at risk due to increased storm water runoff.

II. Risk Assessment:

A. Considerations:

- i. The road may be at increased risk due to:
 1. Additional erosion damage as increased storm water runoff velocity and volume
 2. Hazard tree fall near the road system
- ii. The bridges and culverts may be at increased risk due to:
 1. Additional erosion damage as increased storm water runoff velocity and volume

B. Summary: The hydrology team evaluated the peak flows for a 2, 5, and 10 year storm events. They found that post fire peak flows on some of the smaller drainage areas could double on National Forest System Roads due to moderate and high burn severity. Flows downstream of the fire on Sidney Gulch and Garden Gulch could increase up to 10%, which could have significant impact on culverts, roads, and bridges. The effects of one these storms could cause a significant amount of erosion and road damage, if these structures and culverts are not sized adequately to handle the increased storm runoff due to the fire.

C. Emergency Determination: Imminent hazards to the transportation system include undersized culverts, which could cause partial or total loss of road template.

III. Treatments to Mitigate the Emergency

A. Treatments Type: will include culvert cleaning, rolling dip installation and culvert up-sizing and replacement on National Forest System Roads. For roads under the jurisdiction of Trinity County, Caltrans and private individuals, we will provide recommendations of evaluating stream crossings identified to be at risk.

B. Treatment Objective: To prevent excessive erosion and damage to the transportation system.

C. Treatment Descriptions and Costs:

Treatment	Quantity	Estimated Cost	Justification
NFSR 33N01-Reconstruct Rolling Dip	1	\$ 1,500.00	Minimize damage to the road surface and template by diverting storm water run-off flow off the road
NFSR 33N01- Culvert Replacement (Upsizing) 24" X 40'	1	\$ 2,800.00	Increase the capacity of the drainage structure to handle the expected increased flows from the burned area. Decrease the probability of road failure
NFSR 33N42- Culvert Replacement (Upsizing) 24" X 40'	1	\$ 2,800.00	
Total Cost=		\$ 7,100.00	

D. Probability of completing in first year prior to damaging storms: 95%

E. Probability of treatment success: 90%

IV. Discussion/Summary/Recommendations

The work proposed herein is intended to stabilize the identified roads and structures in preparation for the anticipated increase in stormwater runoff. In addition, we shall recommend that the stream crossings identified as possible risks under the jurisdiction of Trinity County, Caltrans and private individuals should be evaluated further. The Highway 299 crossing on Sidney Gulch should be evaluated by Caltrans. The Weaverbally Loop Road and Memorial Drive crossings of Sidney Gulch should be evaluated further by Trinity County. The two private bridges crossing Garden Gulch should be evaluated by a professional through the private land owner. These private land owners may seek further guidance and help through the NRCS.

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