

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

33N15

for Motorized Mixed Use Designation

Forest: Lassen

District: Eagle Lake

Road Number: 33N15

Road Name: Aspen Flat Road

Introduction: The 33N15 Road segment studied is located on the east side of Lassen National Forest (LNF) in the Harvey Mountain quadrangle, on the eastern boundary of the State Game Refuge.

NFSR 33N15 begins at the intersection of 35N04/ML3 in Section 16 of the Harvey Mountain Quadrangle and trends due west to the Black's Mountain Quadrangle and through the Black's Mountain Experimental Forest, then runs southwest a short distance to the west boundary of the State Game Refuge and the terminus of the road at an intersection with Lassen County Road 111. The road length is approximately 8 miles.

The road segment studied starts at said intersection of 35N04 and runs west approximately 1.75 miles to an intersection with the Black's Mountain Experimental Forest Boundary.

The entire road is currently managed by LNF as open only to highway-legal vehicles. The road segments analyzed were recommended in the LNF Travel Analysis (2008) for an engineering analysis of motorized mixed use. The purpose of this engineering analysis is to investigate the potentials, and associated risks, for operating/transporting both highway-legal vehicles (motor vehicles, including the operators, that are licensed or certified for general operation on public roads within the State) and non-highway-legal vehicles (motor vehicles, including the operators, that are not licensed or certified for

general operation on public roads within the State) on 33N15. The LNF Travel Analysis (June 2008) identified this road section as a connector for recreational off-highway vehicle (OHV) loop opportunities on the adjacent maintenance level two road network, of which a portion is currently managed as open to non-highway-legal vehicle use.

Study Segment road data from the forest transportation atlas:

Segment 1: Beginning Mile Post: 0.00 Ending Mile Post: 1.75

35N04 to Black's Mountain Experimental Forest Boundary

Traffic Service Level: A B C D

Objective Maintenance Level: 1 2 3 4 5

Operational Maintenance Level: 1 2 3 4 5

Maintenance by: **Forest Service (FS)**

Non-Forest Service ROW or jurisdiction? Yes No

Any road use agreements, maintenance agreements, or other encumbrances?

Yes No

Description of agreements or encumbrances:

No agreements are documented.

Subject to Highway Safety Act? Yes No

Non-highway-legal vehicles currently permitted? Yes No

Would motorized mixed use be consistent with State and local laws? Yes

No

Description of inconsistency with State and local law:

According to California Vehicle Code section 38026, *Designating Highways: Combined Use*, off-highway operators on a Combined Use highway must be in possession of a valid driver's license.

Based on the Forest Service purpose and need of allowing all motor vehicles on this segment, designation for motorized mixed use would involve the preemption of state law if the road is to remain a highway.

Description of road management objectives (RMOs), existing use, and proposed use:

The road currently encourages use as an objective ML3 and operational ML4 collector road and functions as ingress/egress access for the Black's Mountain Experimental Forest, Aspen Flat area, and private property in-holdings.

Road 33N15 provides access from Lassen County Road 111, a ML4 aggregate forest highway through the middle of the Black's Forest Experimental Forest as a continuous ML3-4 forest highway with speeds up to 45 mph, and connects to 33N02/06 which is a forest ML3 through-way that connects to Lassen County Road A1. Road 33N15, as a forest highway has just been reconstructed by forest road maintenance crews in conjunction with the PSW Station and is utilized heavily by District and Pacific Southwest Research Station personnel for forest research, fire detection, fire suppression, hazardous fuels reduction, wildlife management, and woodcutting/hunting.

Most of the year it is currently managed as open only to highway legal traffic. The road is considered a highway by the forest service and is managed in accord with the Highway Safety Act.

The proposed use for this segment of 33N15/ML3 identified in this analysis is to authorize motorized mixed vehicle class use. The proposal is to utilize the ML3 road segment to connect adjacent ML2 roads into a loop for off highway motorized vehicle use.

General Considerations:

All motor vehicle operators need to be cognizant of the applicable state laws, and how they pertain to each age group, vehicle type, and national forest system road classification (see next bullet).

Through authorities delegated by the Secretary, the Forest Service may restrict or control use to meet road management objectives (36 CFR 212.5). The LNF currently manages this road as a highway, in accordance with the Highway Safety Act. The road is therefore subject to the provisions of the California Vehicle Code (CVC) for highways.

State OHV Regulations: any motor vehicle must have a street-legal license plate to operate on highways. To operate on public lands, off of highways, motor vehicles must have either a street-legal license plate or a red sticker or a green sticker. For more information, see the CA State Parks Off-Highway Motor Vehicle Recreation site, available @ <http://ohv.parks.ca.gov/>

California has:

- requirements for ATV safety
- conditions for operating ATVs
- OHV equipment requirements
- OHV operation requirements

Summary of Findings:

Implementing the universal mitigation measures, especially improved signing and better communication, will reduce crash probability.

Road mitigation should be prioritized regardless of mixed use, along with implementing a comprehensive communication, management, and enforcement plan. Associated implementation costs will depend on the designated allowed use for the road.

NFSR road 33N15 is an observed 1+ lane operational maintenance level 3-4 standard throughout its extent.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 45 mph for reasonable and prudent drivers on straightaways. Based on speeds and their associated risk for crash severity, designating the road segments as open only to highway-legal vehicles will provide the lowest crash probability and severity.

Factors Considered:

1. Operator considerations:

- Based on engineering judgment and experience/observation on other national forest management units, the LNF has an above average standard of road. The Lassen is not "typical" in its road system's adherence to maintenance levels. This road is an objective ML3 as it provides forest research area access and fire suppression access which necessitates a high level ingress/egress access road.
- Topologically the unit is semi-mountainous, fairly dry, and contains the Pacific Southwest Research Station's research forest, Black's Mountain Experimental Forest and the State of California Game Refuge to the west, and the forest timberland Harvey Mountain the northeast. The operational level of this road is classified as a 3-4. The road has a management objective of maintenance level 3 to provide for all-weather (during fire season May to October) fire staffing access and fire vehicle emergency access. The objective of the road is to provide access for forest research, emergency fire detection and suppression response, wildlife management

in conjunction with the State Game Refuge, commodity extraction, forest management, and forest numerous grazing allotments.

- Allowing non-highway-legal vehicles to use the road segment can involve both non-highway-legal equipment and non-licensed operators, including children.
- In California, children under the age of 18 must take a prescribed safety course, be under direct supervision of an adult possessing appropriate safety certificate, or possess the appropriate safety certificate in order to operate an ATV. In addition, children under the age of 14 cannot operate an ATV without direct supervision by parent, guardian, or authorized adult.
- The Lassen National Forest currently manages this road as a highway, in accordance with the Highway Safety Act. The road is subject to the provisions of the California Vehicle Code (CVC) for highways.
- The current use on NFSR 33N15 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

2. Crash history:

At the time of this analysis, there are no records of vehicle crashes on this road.

3. Traffic volume and type:

Non-highway-legal vehicles:

< 12 inch tread width < 50 inch tread width >50 inch tread width

Highway-legal vehicles:

< 12 inch tread width < 50 inch tread width >50 inch tread width

Passenger cars Commercial vehicles Recreation vehicles (RV's)

Vehicle distribution from a 1-hour observation July 30, 2008.

Several commercial road maintenance vehicles were present. One research station vehicle was observed.

4. Speed - Anticipated average speed (85th percentile):

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 40 mph.

5. Road surface type:

The road has a compacted indigenous crushed rock aggregate surfacing. Portions of the traveled way are raised and the road has both culverts and rolling dips. The road is approximately 16' wide. The road has recently been reconstructed with assistance from the PSW Station. The road traveled way is a hard and compacted surface and produces virtually no dust when driven over. Road surface is as hard as concrete.

6. Intersections with other roads and trails:

The road segment intersects with the following forest roads.

- 33N15A/ML2
- 33N37/ML2
- 33N15B/ML2
- 33N03Y/ML2
- 33N77/ML2
- 33N66/ML2
- 33N15E/ML2
- 34N06/ML2

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity access, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersection of 35N04/ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Substantial sharp horizontal curves are present and limit sight distance. Vertical curves are present and limit sight distance.
- Roadway alignment was adequate for the assigned maintenance level.
- The road was maintained with a traveled way width of 16', approximately.
- Raised roadbed provides approximate 6 foot vertical drops off of road shoulder.
- The road provides administrative access for the Pacific Southwest Research Station's Black's Mountain Experimental Forest, fire lookout access, fire suppression access (site of Cone Fire – 2002), grazing allotment access, and commodity haul. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

8. Roadside conditions:

- The segment runs through open pine forest.
- Cross slope is 0-15%.
- Grade is 0-3%.
- Pine trees are $\geq 18''$ and numerous rocks.
- Emergency run-out is limited as the raised roadbed creates vertical drop-offs from the road shoulders.

9. Risk without mitigation:

Crash probability: High Med Low

Crash severity: High Med Low

Crash probability was assessed based on:

- Traffic volume, dust, rates of speed, alignment, sight distance, traveled way surface and width.

Crash severity was assessed based on:

- Roadway geometry (including embankments), difference in vehicle sizes, difference in speeds of OHVs and full-size passenger vehicles.

Alternatives and Mitigation Measures:

Alternatives and mitigation measures are presented to assist with safe road management. They are to be considered, should the agency have the appropriate time, workload, and funding based on competing priorities.

For all situations, the following mitigation measures apply:

- Clear communication and education to the visitors on allowed uses, safe motor vehicle use, and natural resources (informational signing and kiosks, maps, website, etc.).
- Improved route identification signing. Repair and replace devices as needed.
- Clear brush, especially along curves, to improve sight distance.
- Combine the appropriate enforcement measures with the allowed uses for the road.
- Coordinate with other agencies to improve enforcement consistency.
- Utilize a monitoring program to better determine the appropriate management strategy for the types of use, new technologies, changes in visitor demands, and resource protection measures.

In addition, these mitigation measures would apply to the following alternatives. Although the following alternatives are not comprehensive for the situation, they represent the most likely and/or practical options based on engineering judgment.

Alternative 1: Designate the road segments as “open to highway-legal vehicles only”. Manage the road in accordance with maintenance level 3 standards.

- Maintain all roadway signing to MUTCD standards.
- Consider designing new trails, a new trailhead, and/or a new camping area to provide better opportunities for non-highway-legal motor vehicle traffic to access the area and the adjacent maintenance level 2 roads.
- Approximate Implementation Cost: \$ 0

- Expected risk:

Crash probability: High Med Low

Crash severity: High Med Low

Alternative 2: Designate the road segment as “open to all motor vehicles”, including highway-legal and non-highway-legal vehicles.

- Recognize that this situation would involve different allowed uses and would complicate communication and enforcement.
- Improve education and enforcement communication to explain the complexities of various allowed uses on the road.
- Install appropriate signs of a type approved by the Department of Transportation on and along the highway to identify and communicate the potential hazards related to motorized mixed use.
- Notify the Commissioner of the California Highway Patrol and review their opinion.
- Approximate Implementation Cost: \$ 3500
- Expected risk:

Crash probability: High Med Low

Crash severity: High Med Low

Final Comments:

Signing on national forest system roads should conform to the standards presented in the FS sign and poster guidelines (available @ http://fsweb.wo.fs.fed.us/eng/roads_trails/signs_05/index.htm).

In addition, roads managed under the highway safety act, including the study segments here, must comply with the standards in the MUTCD (available @ <http://mutcd.fhwa.dot.gov/>).

According to the Sign and Poster Guidelines for the Forest Service (2005):

The following priorities are to be used to minimize the potential conflicts of mixed use:

- Provide separate facilities.
- Separate use periods. Roads may be designated for separate use periods such as season, weekday/weekend, or day/night. Notify the public of the locations, effective dates, times, and duration that the roads may or may not be used. Provide appropriate signs as shown

in Chapter 3A.

- Manage concurrent use.

Upon designation and prior to allowing any mixed use, the Forest Supervisor is responsible for appropriately signing and mapping the route such that the dual traffic use is clear to all users.

Maps & Photos:

May 2008 DRAFT



Alternative 5 (Motorized Emphasis) Travel Management Lassen National Forest

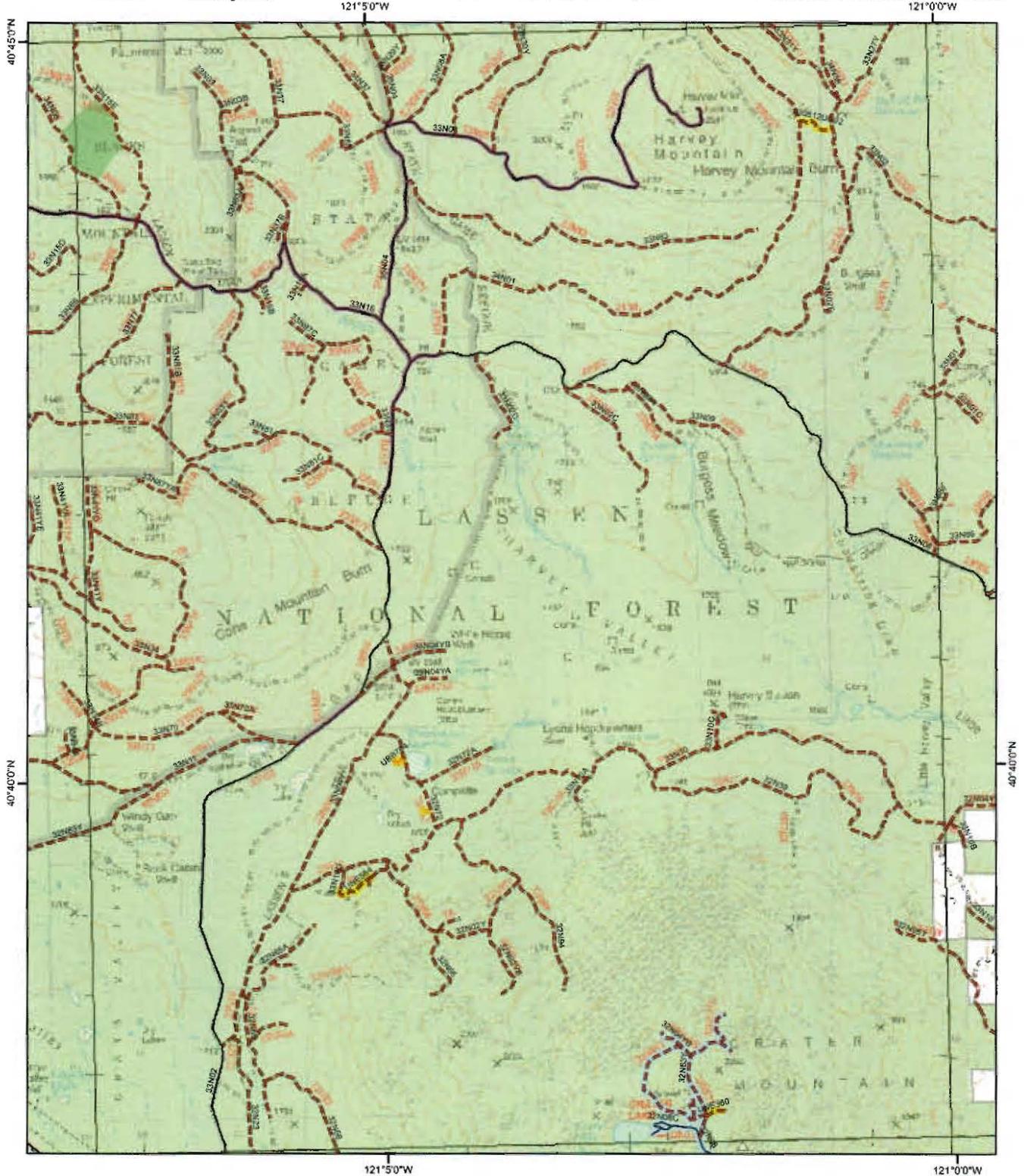
Harvey Mtn

0 0.5 1 Miles

- NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-6 Roads, State and County Roads, etc.)
- Road Open to All Highway Legal and Non-Highway Legal Vehicles
- County Jurisdiction Native Surfaced Road
- 4WD Trail Open to High Clearance Vehicles
- Non-Motorized Trail
- Unauthorized Routes to be Added to the National Forest Transportation System
- Mixed Use Analysis Pending

- Restrict Season of Use to Summer/Fall (Winter Rec Trail)
- Motor Vehicles Prohibited
- Lassen National Forest
- Private Land

Areas Open to Motorized Vehicle Use



Prepared by
Tim Dedrick

Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date *9/29/08*

Reviewed by
George Kulick

Region 5 Qualified Engineer
Region 5 Office of Engineering

Date