# Exhibit 2

## Lassen National Forest

## 2009 Engineering Reports of Motorized

## Mixed Use on National Forest System Roads

Please note, these reports were sent to Sylvia Milligan incomplete. We did not alter them in any way.

**Elizabeth Norton**

Elizabeth Norton [bebliz@frontiernet.net]

**To:** 'Chris J Obrien'; 'David Pilz'
**Cc:** 'Sylvia Milligan'

# *Engineering Report:*

Lassen National Forest

Forest: **Lassen** District: **Almanor**

Road Number: **28N70** Road Name: **Turner Mountain Lookout**

**Introduction:** Turner Mountain is located [illegible]

National Forest (LNF), approximately 3 miles south of Mineral, CA. NFSR 28N70 begins at NFSR 29N48 (Turner Mountain Loop) and ends at the summit of Turner Mountain. The entire road is currently managed by LNF as open only to highway-legal vehicles. This was based on a previous management decision to classify and manage all roads providing access to lookouts as operational and objective maintenance level 3 roads.

Each of the two road segments were recommended in the LNF Travel Analysis (2008) for an engineering analysis of motorized [illegible]

**Study Segment road data from the forest transportation atlas:**

Beginning Mile Post: **0.7** Ending Mile Post: **4.2**

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 in the atlas; however, there is a cell phone***

commissioner, the Forest may reconsider the decision to designate MMU and/or may adjust mitigation measures needed for implementation.

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 serves as a local road and provides access to an administrative site (2 inactive lookouts, interagency radio communication site) and the Pear Lake trailhead. Traffic associated with maintaining these

Safety Act. The road is therefore subject to the provisions of the California Vehicle Code (CVC) for highways.

**Factors Considered:**

1. Operator considerations:

- 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 28N70 appears to be consistent with state law

[illegible] Anticipated average speed (85th percentile):

The speed greatly varies, depending on the roadway conditions. Along the first 2.5 miles, the 85th percentile would be estimated at 25-30 mph based on

- The upper portion of the road is eroding, various gullies occur in the traveled way.
- The portion of NFSR 28N70 in the study is a single-lane road with occasional turnouts.
- Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions along with snowmobile traffic.

8. Roadside conditions:

- The initial road identification sign was found damaged and laying in the brush near the proper location.
- Roadside brush (manzanita) was beginning to encroach upon the traveled way in multiple sections; this should be removed to provide for improved sight distance.

- Operator considerations, traffic volume, rates of speed, alignment,

- 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**

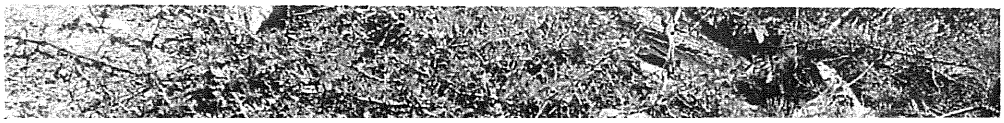
**Alternative 2**: Designate the road segments as "open to all motor vehicles".

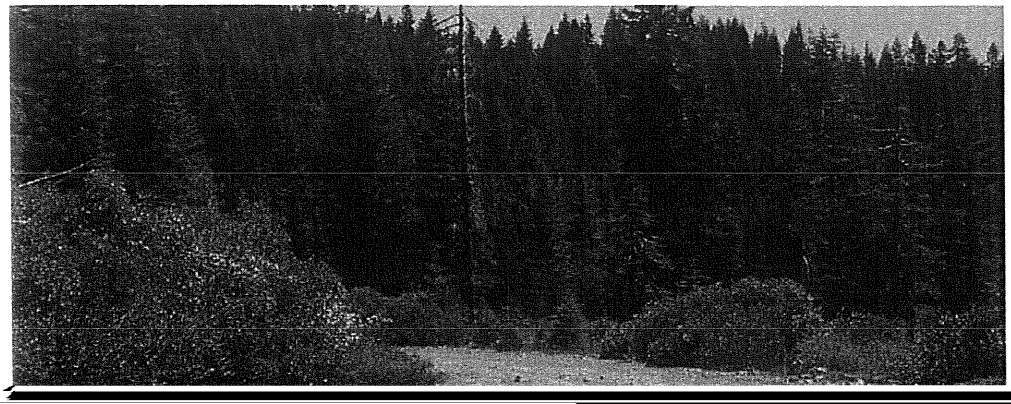
culverts and ditches, reconstructing the template and narrowing the roadway.

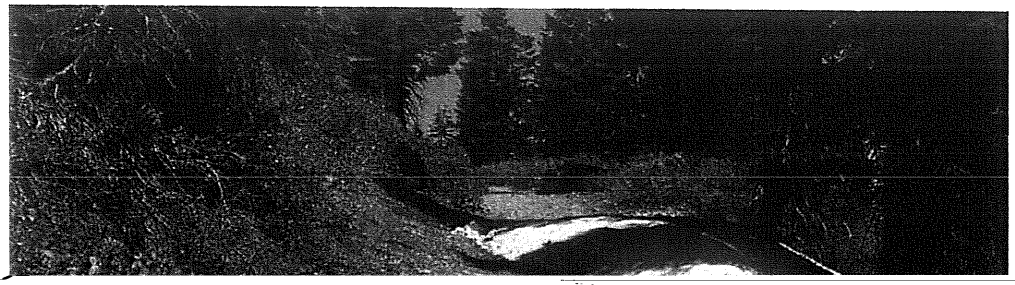
- Most of the road is already maintained in accordance with a maintenance level 2 standard.
- Install appropriate route identification signing (vertical fiberglass type)
- Approximate Implementation Cost: $ 40,000
- Expected risk

**Crash probability:** ☐ **High** ☐ **Med** ☒ **Low**

**Crash severity:** ☐ **High** ☒ **Med** ☐ **Low**







Prepared by:
Chris Bielecki, Supervisory Civil Engineer

***Engineering Report:***

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

**# 29N03**

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Eagle Lake**

Road Number: **29N03** Road Name: **Willard Creek Road**

**Introduction:** The 29N03 Road segment studied is located on the west side of Lassen National Forest (LNF) in the Fredonyer Pass quadrangle.

NFSR 29N03 ML3 begins at the intersection with State Highway 44 in Section 13 of the Roop Mountain quadrangle, enters the Fredonyer Pass quadrangle and trends south and to the west, passes the Roxie Peconom Campground, passes through private property, re-enters Lassen National Forest and parallels Willard Creek, starts climbing out of the canyon east of Coyote Peak and enters the Plumas National Forest where it terminates with an intersection at 28N08 in a non-standard-size Section 7 of said quadrangle. The road length is approximately 7.5 miles in length.

The segment studied starts at approximate road mile 1.25 in Section 24 of Fredonyer Pass Buttes quadrangle at the intersection with 29N20Y and intersects with 29N03B for a distance of approximately 1.00 miles to approx. road

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 29N03 / ML3. 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: **1.25** Ending Mile Post: **2.25**

29N20Y to 29N03B

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

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 State California Vehicle Code and Forest Service Directives:

According to California Vehicle Code section 38026, *Designating Highways: Combined Use*, off highway operators on a Combined Use highway must be in

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

**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 and an operational ML3. It provides forest commodity haul and fire suppression access which necessitates a high level ingress/egress access road for the DOT Class 8 (26,001 – 33,000 GVWR) trucks that use it.
- The objective level of this road is classified as a 3, and the operational level is a ML3. This provides 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 commodity haul, wildlife management, emergency fire detection and suppression response.

2. Crash history:

There are no reported motor vehicle crashes on this road.

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)

3 civilian motor vehicles were observed along the 29N03 road during the field observation.

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

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 35 mph.

5. Road surface type:

The road has a combination of native crushed rock aggregate and volcanic

8. Roadside conditions:

- The segment runs through high elevation, 5,000 ft., open Pine forest, meadow, open Juniper, brush, native grass and lava rock forest land.
- Cross slope is 0-3%.
- Grade is 0-3%.
- Pine and other conifer trees are ≤18" and numerous.
- Emergency run-out is limited.

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.).

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 2 standards.

- Notify the Commissioner of the California Highway Patrol and review their opinion.
- Approximate Implementation Cost: $ 3500 per segment
- 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

**Maps & Photos:**

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF AGRICULTURE
FOREST SERVICE

FREDONYER PASS, CA
60 40120-C7 1999

120°52'30" '81 '82 '83 50'00" '84 '85 R. 10 E. '86 55 47'30" '88 R. 11 E. '89 '90 120°45'00"
40°22'30"

Tim Dedrick Sept. 17, 2009

Prepared by Tim Dedrick
Lassen NF Civil Engineer

Date

George Kulick
Region 5 Qualified Engineer

Date

# *Engineering Report:*

Lassen National Forest

Almanor Ranger District

Analysis of

National Forest System Road (NFSR)

# # 29N18

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Almanor**

Road Number: **29N18** Road Name: **Blue Lake**

**Introduction:** The Blue Lake Road is located on the west side of Lassen National Forest (LNF), approximately 3 miles south of Mineral, CA. NFSR 29N18 begins at Plumas County (PL) Road 311 and ends at PL 769 near Wilson Lake. The road loops around Feather River Meadows area, providing access to private land, cinder pits, local FS roads, dispersed campsites, and waterways such as Rice Creek. The entire road is currently managed by LNF as open only to highway-legal vehicles.

Each of the road segments 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 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

**Study Segment road data from the forest transportation atlas:**

Segment 1: Beginning Mile Post: **0.0** Ending Mile Post: **0.8**

PL311 to NFSR 29N16

Segment 2: Beginning Mile Post: **1.5** Ending Mile Post: **2.0**

NFSR 29N79 to NFSR 29N95

Segment 3: Beginning Mile Post: **3.9** Ending Mile Post: **5.5**

NFSR 29N75 to NFSR 29N16

*The following information is applicable to both segments:*

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*

Would motorized mixed use be consistent with State and local laws? ☒ Yes ☐ No

The proposed segment would be consistent with California Vehicle Code (CVC), Combined Use Highways Designation (CVC Division 16.5, Chapter 2, Article 1, Section 38026) if limited to less than 3 consecutive miles on maintenance level 3+ roadways. Based on the CVC and Forest Service Region 5 guidelines, the designation of motorized mixed use requires California Highway Patrol notification prior to designation. Based on the response from the CHP commissioner, the Forest may reconsider the decision to designate MMU and/or may adjust mitigation measures needed for implementation.

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

The road currently serves as a collector road and serves as a loop road around Feather River Meadows. Situated near the southern boundary of Lassen National Park, this route connects to a network of lower standard system roads that access NFS lands near National Park Service and private lands.

The road has traditionally served commodity extraction, fire suppression, residential access, mining (accesses various cinder pits), and recreation.

The road is appropriately posted with horizontal route identification markers.

Most of the year it is currently managed as open only to highway legal traffic; however, when snow-covered the road serves as a winter recreation route open to ATVs, 4WDs, skiers and snowmobiles. The road is considered a highway by the forest service and is managed in accordance with the Highway Safety Act.

The study segment is proposed for designation of motorized mixed use to allow both highway-legal and non-highway-legal vehicles to utilize the roadway. Operators of any motor vehicle would be required to be in possession of a valid state driver's license.

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 S

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

**Factors Considered:**

1. Operator considerations:

- 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 29N18 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.
- Frequent commercial and residential traffic was observed on PL311 at the intersection with study segment 1.
- Many roads in this vicinity, including the study segments, were dry and contributed significant dust when driven over.
- The study segments are near multiple recreational residence tracts.
- NFSR 29N95 is signed as a "Fire Lane".
- There are multiple material pits (cinder or aggregate) in the vicinity.
- The Pacific Crest Trail is located near the beginning of segment 1, along with a parking area and trailhead.
- Various guide and road destination signs are placed along the study

Vehicle distribution from a 2-hour observation, beginning Saturday 6/28/08 @ 1430 and ending @ 1630.

1 flatbed pickup, commercial (~40mph, seg 1)

1 SUV (~25mph, seg 3)

1 pickup (~20mph, seg 3)

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 – segment 1

35 mph – segment 2

30 mph – segment 3

5. Road surface type:

All three segments are aggregate surfaced. A component appears to be volcanic ash—which contributes to significant dust upon vehicular traffic. Segment 1 was approximately 22' wide, segment 2 was approximately 20', and segment 3 was approximately 16'. The surface appeared well-maintained and recently conditioned. Portions of segment 3 were damaged in the floods during winter 2005-2006 are scheduled for repair and resurfacing during summer 2008.

6. Intersections with other roads and trails:

The study segment begins at a busy (observed) 5-way intersection. There are various intersections throughout the segments, some with routes accessing private property, county roads, and material pits.

Some connecting maintenance level 2 roads lack the appropriate entrance treatments needed to provide for the appropriate traffic management strategies (discourage or prohibit passenger cars – *or* – accept or discourage high-clearance vehicles). The current intersection may result in higher traffic merging

speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level.
- The road was maintained with a traveled way width of 22' – 16'. The roadway narrows as the route continued from segment 1 to segment 3.
- Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions along with snowmobile traffic.

8. Roadside conditions:

- Seg 1: gentle terrain roadside, near private land, trees ≤ 18", boulders ≤ 2', open vegetation.
- Seg 2: moderate tree coverage, some trees within the clearing limits and

**Segment 3:**

Crash probability: ☐ High ☒ Med ☐ Low

Crash severity: ☐ High ☒ Med ☐ Low

**Crash probability was assessed based on factors including:**

- **Operator considerations, traffic volume, rates of speed, alignment, sight distance, traveled way surface and width, drainage, roadside conditions.**

**Crash severity was assessed based on factors including:**

- **Roadway geometry (embankments, slopes, horizontal and vertical alignments), speed, traffic types and difference in vehicle sizes, difference in speeds of OHVs and full-size passenger vehicles, potential path and objects encountered if a vehicle left the traveled way.**

**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.
- Remove the existing brown-on-white sign stating "All Wheel Drive Road" and replace with a combination of appropriately colored warning and forest road destination signing.

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

**Crash severity:** ☒ **High** ☐ **Med** ☐ **Low**

Segment 3

**Crash probability:** ☐ **High** ☐ **Med** ☒ **Low**

**Crash severity:** ☐ **High** ☒ **Med** ☐ **Low**

**Alternative 3**: Designate the road as "open to all motor vehicles", including highway-legal and non-highway-legal vehicles. Downgrade the road segment in accordance with maintenance level 2 standards. This would require removing culverts and ditches, reconstructing the template and narrowing the roadway.

- Install appropriate route identification signing (vertical fiberglass type)
- Approximate Implementation Cost: $ 75,000
- Expected risk

**Crash probability:** ☐ **High** ☐ **Med** ☒ **Low**

**Crash severity:** ☐ **High** ☒ **Med** ☐ **Low**

**Alternative 4**: Construct trail segments to allow non-highway-legal vehicles to

**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.

N
33A
29N70
29N33
29N76
29N83
29N18
63
29N22
29N27
08 Events
(CLOSED)
LES
ER CARS
USER COMFORT
COMFORT

**Figure 10: Looking back at segment 2 (left), with NFSR 29N95 to the right.**

**Figure 11: NFSR 29N95, with "Fire Lane" signing.**